Late Antique and Mediaeval Egyptian Bindings as Archival Instruments

Defining, Ordering and Transmitting Knowledge in Egypt

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by

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Declaration on oath

I hereby declare on oath that I have written the present dissertation by my own and that I have not used any resources and aids other than those acknowledged.

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Summary of results

This research explores the archival role of Coptic bindings in defining, organising, and transmitting knowledge in Late Antique and Medieval Egypt (3rd–13th centuries). Therefore, it examined archiving as a cultural practice, extending beyond the documentary content of the bound texts.

The research recognizes that bindings serve more than just a mechanical protective function; they also play a crucial archival role, transmitting messages beyond the written text. It explores how the materials and techniques used in creating bindings provide insights into the cultural context surrounding the texts they encase. Bindings can be seen as cultural artefacts that convey messages encoded by collective knowledge, reflecting the cultural identity of the society that produced them.

One of the key achievements of the research is its clarification that the term 'Coptic', when applied to bindings, is fundamentally incorrect. The term mistakenly suggests a connection to Christianity and the Coptic language, which the binding and the text it contains may never have had. Despite this inaccuracy, the research maintains it since its use has been deeply rooted in literature since 1911, following its adoption by Hugo Ibscher, an influential conservator of the Berliner Papyrussammlung. However, in this context, the term 'Coptic' is retained with its original meaning of 'Egyptian'.

The research successfully addressed the challenge posed by the fragmentary state in which Coptic bindings are often preserved. This fragmentation is primarily due to a historical focus on recovering ancient texts repurposed to stiffen leather covers. The research developed a standardized survey method that ensures consistent and comprehensive binding descriptions. This method can be applied to all bindings and binding fragments, whether directly examined, described in the literature, or observed in photographic images. The survey uses controlled terminology and a standard structure to facilitate the comparative study of different binding traditions and highlight their similarities and differences. The survey resulted in constructing a database that is eventually publishable as a web application where the data gathered on Coptic bookbinding can be stored.

The research established that the defining feature of binding is its sewing technique, and the expression 'Coptic bindings' extends beyond Christian texts in Coptic. According to this definition, 294 bindings and binding fragments were identified. Despite the challenges and delays caused by COVID-19 restrictions, the research applied the developed survey method to 147 directly examined artefacts. These included Coptic bindings, binding fragments, and fragments ultimately found to be unrelated to bindings. Through direct contact with various collections, the research assessed the current condition of bindings known from the literature, determining which are still preserved and which have been lost, and identifying any newly discovered bindings.

Thanks to a direct examination of the bindings and unpublished photographic documentation, the research could develop a typological classification of Coptic bookbinding that is purely technological, based on the sewing techniques used to bind the leaves or quires together. However, their historical evolution emerges by grouping the bindings according to their common characteristics. It became clear how the Coptic technique from the eighth century evolved, assimilating features of Islamic bindings, thus reflecting the process of Arabisation of Egyptian

society. This research made it possible to assess the similarities and differences between Coptic and Ethiopian bindings, clarifying that while the two binding traditions share a similar sewing technique, after the Arab conquest, they departed from each other. The Coptic binding technique eventually adopted characteristics of Islamic bindings, while Ethiopian bookbinding preserved the ancient methods for binding Christian texts. In Ethiopia, Islamic and Christian book cultures coexist, yet they remain distinct, with each tradition identifiable by the unique forms of their books.

The research represents the first comprehensive study to explore the meanings of Coptic bindings beyond the text itself, focusing on their archival function. Although the study found no direct correlation between cover design, decoration, and the content of the text, it did reveal that decoration often serves as a sign of provenance and ownership in Coptic bindings. Ultimately, the materials and techniques used in the binding offer valuable insights into the context of the text's production and use.

In summary, the research shed light on lesser-known aspects of Coptic book production, specifically bindings, the evolution of the technique, the relation with the Ethiopian technique and its archival function, transmitting additional meaning beyond the text.

Ergebniszusammenfassung

Diese Forschungsarbeit untersucht die archivarische Rolle koptischer Einbände bei der Definition, Organisation und Weitergabe von Wissen im spätantiken und mittelalterlichen Ägypten (3.–13. Jahrhundert). Dabei geht diese Untersuchung davon aus, dass Einbände eine mechanische Schutz- und Archivierungsfunktion haben, da sie Informationen über den geschriebenen Text hinaus vermitteln können.

Es wird untersucht, wie die bei der Herstellung von Einbänden verwendeten Materialien und Techniken Informationen über den kulturellen Kontext der darin enthaltenen Texte vermitteln. Sie gehören zu einem kollektiven Wissen, das Teil der kulturellen Identität der Gesellschaft ist, die sie hergestellt hat. Daher sind koptische Einbände Ausdruck der ägyptischen kulturellen Identität zwischen dem dritten und dreizehnten Jahrhundert.

Eines der wichtigsten Forschungsergebnisse dieser Untersuchung ist die Klarstellung, dass der Begriff 'koptisch' in Bezug auf Einbände grundsätzlich falsch ist. Der Begriff suggeriert fälschlicherweise eine Verbindung zum Christentum und zur koptischen Sprache, die die Einbände und die darin enthaltenen Texte möglicherweise nie hatten. Trotz dieser Ungenauigkeit wird der Begriff in der Forschung beibehalten, da er seit 1911, nach seiner Übernahme durch Hugo Ibscher, einen einflussreichen Konservator der Berliner Papyrussammlung, tief in der Literatur verwurzelt ist. Im Zusammenhang dieser Untersuchung wird der Begriff 'koptisch' jedoch in seiner ursprünglichen Bedeutung von 'ägyptisch' beibehalten.

Die Untersuchung ergab, dass die Fragmentierung koptischer Einbände in erster Linie auf die historische Fokussierung auf die antiken Texte zurückzuführen ist, die zur Verstärkung von Ledereinbänden wiederverwendet wurden. Im Rahmen der Untersuchung wurde eine standardisierte Erhebungsmethode entwickelt, die konsistente und umfassende Beschreibungen von Einbänden ermöglicht. Diese Methode kann auf alle Einbände und Einbandfragmente angewendet werden, unabhängig davon, ob sie direkt untersucht, in der Literatur beschrieben oder auf Fotografien beobachtet werden. Die Erhebung verwendet eine kontrollierte Terminologie und eine Standardstruktur, um die vergleichende Untersuchung verschiedener Einbandtraditionen zu ermöglichen und ihre Gemeinsamkeiten und Unterschiede sichtbar zu machen. Die Erhebung führte zur Erstellung einer Datenbank, die schließlich als Webanwendung veröffentlicht werden kann, in der die gesammelten Daten zur koptischen Einbandtradition gespeichert werden können.

In dieser Untersuchung ist das bestimmende Merkmal der Einbände die Hefttechnik, und die Bezeichnung 'koptische Einbände' geht über christliche Texte in koptischer Sprache hinaus. Nach dieser Definition wurden 294 Einbände und Einbandfragmente identifiziert. Trotz der Herausforderungen und Verzögerungen, die durch die COVID-19-Beschränkungen verursacht wurden, wurde die entwickelte Erhebungsmethode bei 147 direkt untersuchten Artefakte angewendet. Dazu gehörten koptische Einbände, Einbandfragmente und Fragmente, die sich letztendlich als nicht mit Einbänden verwandt herausstellten. Durch direkten Kontakt mit verschiedenen Sammlungen wurde im Rahmen der Forschung der aktuelle Zustand von Einbänden bewertet, die aus der Literatur bekannt sind, wobei festgestellt wurde, welche noch erhalten sind und welche verloren gegangen sind, und neu entdeckte Einbände identifiziert wurden.

Dank einer direkten Untersuchung der Einbände und einer unveröffentlichten fotografischen Dokumentation konnte im Rahmen der Forschung eine typologische Klassifizierung der koptischen Einbandkunst entwickelt werden. Die Klassifizierung ist technisch und basiert auf den verwendeten Hefttechnik, die die Blätter oder Lagen zusammenhalten, und identifiziert die historische Entwicklung der Technik. Es wurde deutlich, dass die koptische Technik ab dem 8. Jahrhundert begann, Merkmale islamischer Einbände zu übernehmen, was den Prozess der Arabisierung der ägyptischen Gesellschaft widerspiegelt.

In dieser Forschungsarbeit wurden auch die Ähnlichkeiten und Unterschiede zwischen koptischen und äthiopischen Einbänden untersucht. Die beiden Einbandtraditionen teilen zunächst eine ähnliche Hefttechnik entwickelten sich aber nach der islamischen Eroberung auseinander. Die koptische Einbandtechnik übernahm schließlich Merkmale islamischer Einbände, während die äthiopische Tradition die alten Methoden beibehielt, die für das Einbinden christlicher Texte verwendet wurden. In Äthiopien existieren islamische und christliche Buchkulturen nebeneinander, bleiben aber dennoch unterschiedlich, wobei jede Tradition an den einzigartigen Formen ihrer Bücher erkennbar ist.

Diese Forschungsarbeit ist die erste Untersuchung der Archivfunktion koptischer Einbände, die sich auf die Bedeutungen konzentriert, die sie über den Text selbst hinaus vermitteln. Die Untersuchung fand keine direkte Korrelation zwischen der Gestaltung des Einbands, der Verzierung und dem Inhalt des Textes, aber sie zeigte, dass die Verzierung oft ein Zeichen für Herkunft und Besitz ist. Damit geben die verwendeten Materialien und Techniken Einblicke in den Kontext der Textproduktion und -verwendung.

Zusammenfassend beleuchtete diese Untersuchung weniger bekannte Aspekte der koptischen Buchproduktion, nämlich die Einbände. Diese Forschungsarbeit identifizierte die Entwicklung der Technik, die Beziehung zur äthiopischen Technik und ihre Archivierungsfunktion, die darin besteht, über den Text hinaus zusätzliche Bedeutung zu vermitteln.

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Preface

This thesis presents and discusses the results of the doctoral research based at the Cluster of Excellence 'Understanding Written Artefacts' (UWA) in the Centre for the Study of Manuscript Cultures (CSMC) of the Universität Hamburg. The research was committed to contributing to the Cluster's overall objective of developing a comprehensive framework for studying written artefacts, highlighting how, in the study of a codex, the binding plays an essential role in its holistic understanding. Indeed, the materials and techniques used in the manufacture bear witness to the historical, economic, technological, and artistic aspects of the context in which the binding was made.

The Cluster pursues its objective through Research Fields (Artefact Profiling, Inscribing Spaces, Creating Originals, (Re-)Shaping Written Artefacts, Archiving Artefacts, Data Linking, Keeping Note(book)s, Exploring Multilingual Written Artefacts, Formatting Multigraphic Written Artefacts, Situating Graffiti, and Selecting Materials) and working groups (the Palm-Leaf Manuscript Profiling Initiative, Theory and Terminology, Facing New Technologies, Ethics, Asian Highland Manuscripts: Manuscript-Making Beyond the State, and the Permanent Seminar on Manuscript Analysis, Description, and Documentation). Although the Research Fields focus on different aspects, they seek to answer a common question: how have the societies shaped written artefacts in response to their needs? One of these universal necessities is binding and holding together the written texts. Every manuscript culture has found its distinctive solution conceiving physical devices, generally categorised under bindings, which could serve the purpose. The research specifically studied the bindings crafted by Egyptian society in the Late Antique and Medieval period to answer questions like: which materials and techniques were available for bookbinding manufacture and which reasons oriented the choice of specific solutions?

By participating in the Theory and Terminology (TNT) group, the research could learn its methodological approach. It recognized the need for research to be supported by a theory to avoid being reduced to a mere list of positive evidence and the importance of clear definitions to understand the research object.

Furthermore, the study grew within the research field E 'Archiving Artefacts' by cooperating with other projects to investigate the different dimensions of archiving, a central activity for many manuscript cultures, intended here as a cultural process. It is worth noting that the study of the logic of archiving allows us to understand the paradigms underpinning the organisation of knowledge when interpreted in the light of its cultural context. The research took part in the discussion, dealing with how the written artefacts were prepared for archiving through bookbinding. Binding a book offers the advantage of keeping the leaves together in the desired order and minimising the risk of accidental displacement. Furthermore, bookbinding may imply procedures aiming at the long-term preservation of the written contents, for example, by furnishing them with a cover. However, it is not only about this. The research investigates the epistemological dimension of archiving, starting from the premise that the function of bindings goes

¹ The formation of research fields and working groups is constantly evolving in line with the development of research directions. For the latest information on the organisation of the Cluster of Excellence: Understanding Written Artefacts, visit https://www.csmc.uni-hamburg.de/research.html.

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beyond the simple protection of the leaves because through their design, bindings convey specific messages without needing to open the book. They capture the onlookers' gaze, inspiring religious veneration, esthetical admiration, or simply manifesting the purpose for which the manuscript has been created. Therefore, bindings are considered an instrument to preserve the memory of selected contents, declare their ownership, function, and prestige, and possibly order them according to their intellectual value.

To grasp the implicit meanings alluded to in bookbinding, it has been necessary to contextualise its decorative and technological features within the historical and cultural context that produced them. In this respect, the research has benefited from collaboration with the ERC project PAThs, which aims at a thorough understanding of Coptic literary production. For the purpose, PAThs applies a multidisciplinary approach which combines philology, codicology, palaeography, archaeology, archaeometry, and digital humanities. Thanks to regular exchanges with its team, the research has been able to move forward and thus contribute to shedding light on Coptic book production.

Lastly, thanks to its close collaboration with the project *Beta maṣāḥəft* (henceforth Bm),³ the research has recognised the importance of developing shared terminology and methods to facilitate comparative studies. This collaboration has enabled this research project to conduct a detailed comparative study of Coptic and Ethiopian sewing techniques, elucidating both their similarities and differences.

The thesis is organised into four chapters. The first chapter focuses on clarifying the terminology used throughout the thesis to ensure a clear definition of the research object. It provides an overview of the existing knowledge on Coptic bindings prior to the research project's inception and details how the methodological approach to studying bindings has evolved over time.

The second chapter outlines the methodology employed to create a database within the information system of Universität Hamburg, Heurist. This database served as a tool for querying the data collected during the research, enabling the construction of the typological classification of Coptic bookbinding and establishing connections with relevant texts. Descriptions of binding and binding fragments, whether examined firsthand or obtained from literature and photographs, are accessible via the PAThs Atlas under the corresponding identification number (CLM) in the 'Binding' section of the descriptive cards of the codicological unit.

The third chapter presents the results of grouping the bindings according to their technological characteristics of the sewing. This grouping allows for the development of a typological classification that also outlines the historical development of the technique.

² PAThs: Tracking Papyrus and Parchment Paths. An Archaeological Atlas of Coptic Literature. Literary Texts in Their Original Context. Production, Copying, Usage, Dissemination and Storage (Advanced Grant 2015, project number 687567, PI Paola Buzi). The ERC project, based at Sapienza University of Rome, aims 'to an in-depth diachronic understanding and effective representation of the geography of Coptic literary production and in particular of the corpus of literary writings, almost exclusively of religious contents, produced in Egypt between the 3rd and the 13th centuries in the Coptic language', see http://paths.uniroma1.it and https://atlas.paths-erc.eu.

³ Bm: *Beta maṣāḥəft:* Manuscripts of Ethiopia and Eritrea (Schriftkultur des christlichen Äthiopiens und Eritreas: eine multimediale Forschungsumgebung) (Scientific director Alessandro Bausi). The project, hosted by the Hiob Ludolf Centre for Ethiopic and Eritrean Studies at the Universität Hamburg, 'aims at creating a virtual research environment that shall manage complex data related to the predominantly Christian manuscript tradition of the Ethiopian and Eritrean Highlands', see https://www.betamasaheft.uni-hamburg.de and https://betamasaheft.eu.

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The fourth chapter investigates the archival function of Coptic bindings, focusing on their role in organising, ordering, and transmitting knowledge. It explores the types of information conveyed by Coptic bindings, the relationship between binding decoration and the text, and whether these bindings helped in organising collections.

Finally, the thesis includes an index of the manuscripts and bindings cited in the text, a glossary of technical terms that explains the terminology used to describe the features of bindings, and List of publications with summary of each and they are included at the end of the thesis.

As a final note, toponyms in this research are standardised according to the spelling conventions provided by the PAThs project. Each toponym is assigned a unique PAThs ID, which allows researchers to easily locate detailed information about the place in the PAThs Atlas. If a PAThs ID is not available for a particular toponym, the Trismegistos identification number (TM Geo ID) is used as an alternative. This ensures consistency and facilitates the retrieval of comprehensive information about each location.

Abbreviations

BAV Biblioteca Apostolica Vaticana. BFBS British and Foreign Bible Society.

BIFAO Le Bulletin de l'Institut français d'archéologie orientale.

Bm Beta maṣāḥəft: Manuscripts of Ethiopia and Eritrea (Schriftkultur des christ-

lichen Äthiopiens und Eritreas: eine multimediale Forschungsumgebung).

BP Biblical papyrus.

CE Coptic Encyclopaedia. CBL Chester Beatty Library.

cc Clavis Coptica.

CLM Coptic Literary Manuscript identification number.
CSMC Centre for the Study of Manuscript Cultures.

DLE Diccionario de la lengua Española.

DWDS Digitale Wörterbuch der deutschen Sprache.

EAe Encyclopaedia Aethiopica.

ICOR Institute of Christian Oriental Research.IFAO Institut français d'archéologie orientale.Kyprianos Kyprianos database of ancient ritual texts.

Latdict Latin Dictionary.

LGB Lexikon des gesamten Buchwesens.

llf La langue française.

LoB Language of Bindings thesaurus.

NHC Nag Hammadi Codex.
OED Oxford English Dictionary.

ÖNB Österreichische Nationalbibliothek.
PAM Polish Archaeology in the Mediterranean.

PAThs: Tracking Papyrus and Parchment Paths. An Archaeological Atlas of

Coptic Literature. Literary Texts in Their Original Context. Production, Copy-

ing, Usage, Dissemination and Storage.

PAThs Atlas Archaeological Atlas of Coptic Literature.

PB Papyrus Bodmer.

RMO Rijksmuseum van Oudheden.

TLG The Thesaurus Linguae Graecae.

TM Trismegistos identification number.

TNT Theory and Terminology working group.

1. Introduction

The chapter introduces basic concepts essential for understanding the development of the research. Section 1.1 provides terminological clarifications about this research's key terms, aiming to identify the research object and address any doubts about its definition. Although some of the terms may already be familiar, the section explains their precise meaning for the research so that the reader can understand them unambiguously without being misled by common interpretations. These key terms are *bookbinding* (1.1.1), *Coptic bookbinding* (1.1.2), and *archiving* (1.1.3).

Section 1.2 reviews the state of the of the art of the study on Coptic bookbinding at this research's inception, highlighting the challenges encountered and the significant progress made. This section outlines the foundation for the research's development, including previously conducted studies, new elements introduced, and modern research tools utilized.

Sub-section 1.2.1 presents the effects of the text-focused approach on Coptic bindings which is at the origin of the factors that prevented the development of bookbinding studies and highlights the two main issues this research on Coptic bindings faced: their fragmentary state and the lack of proper documentation.

Next, sub-section 1.2.2 outlines the conditions that allowed the project to overcome the issues and progress. First, the emergence of a new approach to the study, defined 'archaeological approach', which increased the attention towards the materiality of the codex. This approach considers the codex as a witness to historical, economic, technological and artistic aspects of the context in which it was produced and used, therefore the study of a binding proceeds as an archaeological investigation. Second, the cataloguing standards developed in the digital environment have improved the recording of bookbinding.

1.1. Terminological remarks

1.1.1. Bookbinding

Given that the research object is bookbinding structures in Egypt, it is helpful to define what exactly *bookbinding* is. The English term includes the verb 'to bind', which implies the act of tying or fastening something—in the specific case, the quires of a book—tightly together.⁴ The verb has the same etymological origin as the German *binden* and its derivates, the verb *einbinden* and the noun *der Einband* which define the action and the result of binding a book.⁵ The action of binding is expressed by the Latin *ligo*⁶ and the composite *religo* from which originate the French verb *relier*,⁷ the noun *reliure*, and the Italian verbs *legare* and *rilegare*⁸ with the nouns *legatura* and *rilegatura*. The Spanish term for bookbinding is *encuadernación*, which derives from *encuadernar*

^{4 &}quot;Bind, v." OED Online, Oxford University Press, March 2022, www.oed.com/view/Entry/19117.

⁵ "binden", DWDS, https://www.dwds.de/wb/binden.

⁶ Meaning 'to bind, tie, fasten, unite', (see 'ligo, ligare, ligavi, ligatus'', *Latdiet*, https://latin-dictionary.net/definition/25678/ligo-ligare-ligavi-ligatus) from a common root with the Greek, meaning 'pick up'. (see λέγω (B), *TLG*, http://stephanus.tlg.uci.edu/lsj/#eid=64221.

^{7 &}quot;relier", *llf*, https://www.lalanguefrancaise.com/dictionnaire/definition/relier#1.

^{8 &}quot;rilegare", Treccani vocabolario online, https://www.treccani.it/vocabolario/rilegare1/.

and follows a different development, deriving from the Latin *quaternus*, whose etymology hints at the composition in quires of the book. However, similarly to the other languages, it means 'juntar, unir, coser varios pliegos o cuadernos y ponerles cubiertas'. ¹⁰

According to etymology of the term in the main European languages, binding is what keeps the leaves of a book together, which is usually accomplished by sewing. However, as Maria Agati notes, the meaning often shifts to coincide with the elements that contribute to make the aspect of a bound book 'complete'. Since the cover is the most common and evident attribute of a binding, in many manuals and vocabularies it is introduced as an essential element of a bound book. For example, Paul Needham in *Twelve Centuries of Bookbindings* states:

One salient difference between the roll and the codex can be seen immediately: the consecutive leaves of the codex will not stay together and in proper order automatically [...]. To keep the leaves in their quire, stitching of some kind must be run through the fold; and if the codex has more than a single quire, sewing must also link the quires together at their folds. Covers may then be put around the stack of leaves [...]; and if the covers are attached to the codex, we have a bookbinding.¹³

Matt Roberts and Don Etherington in *Bookbinding and the Conservation of Books* define the binding as the style in which a book is bound or decorated, 'its covers' and 'the concept of securing the leaves or sections of a publication so as to keep them in proper order and to protect them.'¹⁴ Similarly, according to Jane Greenfield in *The ABC of Bookbinding*, the term binding means joining a text in sequential order and providing a protective cover.'¹⁵ Lastly, Federico and Livio Macchi in *Dizionario illustrato della legatura* define the term as 'serie complessa di operazioni che comprendono la cucitura dei fascicoli che compongono il blocco libro, la relativa copertura e l'eventuale decorazione.'¹⁶

The conception of the binding as a finishing element of a codex was present also in Late Antique and Medieval Egypt, as it appears in the texts that allude to binding operations or the binding itself.

From our understanding of ancient texts, it seems that bound books were referred to as books with covers. The Coptic term used to express this concept is **KOEI2**. In his dictionary, Walter E. Crum translates it as 'sheath' and since the cover is the envelope that wraps the book, also as 'cover, case containing book.' Anne Boud'hors translates it as *étui* and by extension, in reference to the book, as *livre recowert*. Boud'hors notes that the term has been used in the

⁹ A quire (or gathering) is a group of single or folded leaves placed one inside another which singly or with other quires can form the bookblock ("quire (6), n.", *OED online*, Oxford University Press, March 2022, https://www.oed.com/view/Entry/156743(...). "gatherings", *LoB*, http://w3id.org/lob/concept/2286). Quires formed by four bifolia—that is leaves folded in half— for a total of eight leaves, are referred to as quaternion ("quaternion (3), n.", *OED online*, Oxford University Press, March 2022, https://www.oed.com/dictionary/quaternion_n?tab=meaning_and_use#27421562.

¹⁰ 'join, unite, sew together several bifolia or quires and put covers on them' ("encuadernar", *DLE*, https://dle.rae.es/encuadernar, translation mine).

¹¹ Except for modern books where the leaves are held in position by means of staples or glue applied along the spine of the bookblock.

¹² Agati 2017, 357.

¹³ Needham 1979, 3.

¹⁴ Roberts and Etherington 1982.

¹⁵ Greenfield 1998, 10.

¹⁶ 'A complex series of operations comprising the sewing of the quires forming the bookblock, their covering and possible decoration' (Macchi and Macchi 2002, 259, translation mine).

¹⁷ Crum 1939, 132a.

¹⁸ Boud'hors 2008, 159.

Coptic ostracon Cairo, IFAO, Copte 166 B which contains a note from the deacon David asking for a blessing because 'c'est lui qui a travaillé à fixer la couverture au livre' (ΠΙΚΆΕΖ ΑΠΙΧΏΜΕ).¹⁹ Crum points also to the papyrus Paris, Louvre, R 35 (TM 87234),²⁰ for another occurrence of the term. The papyrus is part of the archive of Pisenthios (569–632),²¹ the bishop of Coptos, and contains a letter addressed to him to inform of the presence of 'sept étuis' (CAϢϤ ΝΚΟΕΙΖ) in the house of a certain Iob.²²

Since the covering is one of the last operations in the binding manufacture, after sewing the leaves of the book together, the term has also been interpreted as bookbinding or bound book. Likely, in this sense the term was used in the manuscript Paris, BnF, Copte 130 (4), as noted by Bentley Layton. The manuscript contains a canon, that is a collection of monastic rules, used in a monastic federation of monks and nuns, known as 'the White Monastery Federation'. The Federation was located in Upper Egypt near the modern city of Sohag and its third ruler was the great monastic leader Shenoute of Atripe (347–465).²³ A rule at f. 157v of the manuscript states that the congregation members are not permitted to buy or receive anything, not even 'a book binding' (EYKOEI2 HXWWHE).²⁴

The term appeared also on the wall inscriptions (now faded)²⁵ of a room in the White Monastery (PAThs ID 112), called by Canon Oldfield 'Secret Chamber'. This room has been described as a small room placed north of the central apse of the church of monastery only accessible through a narrow passage.²⁶ The inscriptions, painted in red or black on the plaster of five niches in the room, listed works of Christian literature followed by a number, representing the number of manuscripts for each work, plus some brief information about the physical appearance of the books (for example, small or large). Therefore, according to Crum, this small room hosted the library of the monastery.²⁷

In the list, ten Four Gospels are defined 'NATKOEIZ', indicating according to Crum that they were 'without cover'. It must be noted that this translation, given in the dictionary, differs from that in the edition of the inscriptions, where Crum translated the term, with a certain level of uncertainty, as 'without binding'. The two concepts are not equivalent because if it is true that a book with a cover is a bound book, a book without a cover could still be formed by a stack of leaves held together by sewing, and thus be a bound book.

A term which has been recently associated with the binding is ΠΕΤΆλΟΝ, or better, with the presence of a specific feature on the cover. The term appears on the papyrus London, BL, Or.

¹⁹ 'It was he who worked to attach the cover to the book' (Louis, Catherine 2005. *Catalogue raisonné des manuscrits littéraires coptes conservés à l'IFAO du Caire: contribution à la reconstitution de la Bibliothèque du monastère Blanc*, PhD thesis, Paris: École pratique des hautes études, cited in Boud'hors 2008, 159 n.49, translation mine).

²⁰ The manuscript is known also as P.Pisentius 22 from Revillout 1900, 157–159 (n° 22).

²¹ For an introduction to the figure of Pisenthios and his archive see van der Vliet 2002, Dekker 2011 and TM Arch id 194 for a list of the other texts belonging to this archive and further bibliography.

²² According to the translation given by Eugène Revillout. See Revillout 1900, 159.

²³ Layton 2014, 3.

²⁴ Bentley Layton's translation. See Layton 2014, 317.

²⁵ Therefore, to date the exact location of the room has not been identified.

²⁶ Crum did not see the inscriptions directly but published them based on the transcriptions Canon W.T. Oldfield made during his two visits to the White Monastery. See Crum 1904.

²⁷ See Crum 1904, 553. However, according to Orlandi, the small room was not the library but rather a repository of codices no more in use (Orlandi 2002, 212).

²⁸ Crum 1939, 132a.

²⁹ Crum 1904, 564.

5301 (14) (TM 85797),³⁰ a list of books titled 'Compte des livres que nous avons marqués' (πλογος ενέχωωμι ντανς τοι μμαγ).³¹ The verb c†cı derives from στίζω which means 'brand, mark' but also 'mark with accents.'³² Therefore, Chrysi Kotsifou linked it to the operation of punctuation, that is, the operation to add diacritical marks to the manuscript. Boud'hors, instead, noted its occurrence in Paris, Sorbonne – Institut de Papyrologie, Lille 29 (TM 3231),³³ a Greek papyrus relating to slaves, stating that no one should be allowed to mark (στίζειν) them.³⁴ Therefore, in the context of Or. 5301 (14) (TM 85797) she proposes to translate the term as 'to mark as a sign of property', by adding to the book a sort of *ex-libris*.³⁵

In the list in Or. 5301 (14) (TM 85797), each book is accompanied by an indication on its physical characteristics like, writing support, age and the presence or absence of ΠΕΤΑΛΟΝ. Since in Greek the term πεταλον indicates a 'gold leaf used for decoration,'³⁶ Kotsifou links it to the presence of illuminations in the manuscript.³⁷ According to Boud'hors however, the term would have served to identify the books furnished with a gold-plated binding.³⁸ Furthermore, she correlates the terms C†CI and ΠΕΤΑΛΟΝ, advancing the hypothesis that the mark of property used to be placed on the binding, as it occurs in New York (NY), The Morgan Library and Museum, M569 (CLM 206), where the *ex-libris* of the monastery of St Michael is formed by red leather letters sewn onto a layer of gilded parchment, that adorns the upper turn-in of the upper cover.³⁹

According to Crum, the term **netalon** indicates a plant's leaf, but how is used in in Or. 5301 (14) (TM 85797) is 'of no small interest.' Therefore, if the term instead relates to the binding, according to the explanation of Boud'hors, it would point to the decoration of its cover.

Another term used in relation to bookbinding is **KOCMEIN**, from the Greek 2000 meaning 'order, set in order' but also 'adorn, embellish.' In the edition of the ostraca found in the Theban tomb TT 29 in the area of Sheikh abd el Gurna (PAThs ID 199), Anne Boud'hors and Chantal Heurtel rendered it as 'finir' in the sense 'to put the finishing touches' to

³⁰ The manuscript is also known as P.Fay.Copt. 44 from Crum 1893, P.Lond.Copt. 1 704 from Crum 1905, and P.Marganne p. 243–255 from Boud'hors 2021.

³¹ Mazy 2019, 122.

³² Lampe 1961, 1260a.

³³ The manuscript is known as P. Lille Gr. 1 29 from Jouguet 1928, 124–132.

³⁴ Boud'hors 2021, 249.

 $^{^{35}}$ For a discussion of the meaning of stizely and pétalov see Boud'hors 2021.

³⁶ Lampe 1961, 1078b.

³⁷ Kotsifou 2012, 240–241 and Kotsifou 2007, 64–65.

³⁸ Boud'hors 2021, 251–252.

³⁹ For a digitisation of the ex-libris, see https://www.themorgan.org/collection/coptic-bindings/8.

⁴⁰ Crum 1893, 62.

⁴¹ Lampe 1961, 769a.

⁴² TT 29 is the name given to the Theban tomb belonging to the Amenemope's family. In the Coptic phase, the site was reused as living and working place by monks. The excavation of the site yielded a great number of ostraca, which for the major part relate to a monk named Frange, who was active around 700–750, but identify also other individuals, namely Mark and Moses, who were involved in book production. Frange was a monk, spiritual leader, and bookbinder. The ostraca together with the presence of papyrus, leather, and cord fragments found on the floor of the tomb, permitted to identify the tomb as Frange's living and working place.

⁴³ Boud'hors 2008, 157.

something, encompassing the operation of bookbinding. Two ostraca address questions to Father Moses regarding the status of books given to him to be finished/bound.⁴⁴

The term is used maintaining the dual meaning of finishing and decorating in the manuscript London, BL, Or. 6783 (CLM 195), a manuscript with the lives of saints, among the others, the *Historia Iohannis Calybitae* (cc0204), also known as the *Life of John of the Golden Gospel*. Here, at f. 70r a woman asks her husband to prepare a 'golden gospel' (ΟΥΕΥΑΓΓΕΛΙΟΝ Ν ΝΟΥΒ) for their son John, so that he could be well instructed. The book should not only be well written but also beautifully decorated (ΚΟCΜΕΙ ΚΆλωC) with precious stones. ⁴⁵ It has already been argued that the only section of the book where a decoration with stones could fit is the cover. ⁴⁶ Therefore, the binding is alluded to by reference to the specific part of it intended for decoration, namely the cover.

The term is used to refer to the decoration of a book cover also in the Greek apophthegm N592 which states: 'If you have a book do not decorate its binding' (μη κοσμίσης τὸ ἔνδυμα αυτου) then continues 'do not possess an expensive vestment [to wear] in your worshipping.' It is interesting to note that the actual meaning of ἔνδυμα is 'garment.' Therefore, the anonymous author is making a parallel between the garment of the book (i.e., its cover) and that of a human being.

The possibility of interpreting the term KOCMEIN as referring to both decoration and finishing operations of the book (in the sense of binding it) makes the content of the parchment letter Cologne, Kölner Papyrussammlung Institut für Altertumskunde, P. 10213 (TM 88047) rather ambiguous. A monk named Peshot writes to two other monks about a book he sent them that they are responsible of 'KOCMEIN'. He then asks them to tell the 'KOCMITHC' to add a specific decoration motif, either a gate or a wheel. According to Manfred Weber, Peshot is referring to the illumination of the codex,⁴⁹ while Alla Elanskaya maintains he uses technical terms related to binding.⁵⁰ As discussed by Kotsifou the term KOCMEIN in this context may well apply to both the miniature and the bookbinding.⁵¹ Whatever the translation, the link of the term with the decorative element is evident.

However, there are at least two occurrences where the term KOCMEIN does not seem to refer to the decoration of the book cover but rather to the sewing, thus acquiring a meaning closer to that of 'tie together' discussed at the beginning of the section. These are the ostraca Thebes, Theban Tomb (TT) 29 (Amenemope), Belgian excavations, no. 292238 + 292386 + 292676 (TM 140933), known as O.Frangé 45,⁵² and Location unknown, Private collection Mond, number unknown (TM 83620), known as O.Crum ST 281.⁵³

⁴⁴ These are the ostraca known from Boud'hors and Heurtel 2010 as O.Frangé 780 corresponding to Thebes, Theban Thomb (TT) 29 (Amenemope), Belgian excavations, no. 292024 (TM 130893) and O.Frangé 652 corresponding to Thebes, Theban Thomb (TT) 29 (Amenemope), Belgian excavations, no. 292043 (TM 220190).

⁴⁵ See Budge 1914, 187 and 438 for the edition and the translation of the passage.

⁴⁶ Kotsifou 2012, 225 n. 50.

⁴⁷ Wortley 2013, 405 (N.592.11).

⁴⁸ Lampe 1961, 469a.

⁴⁹ Weber 1973, 56.

⁵⁰ Elanskaya 1984, 235.

⁵¹ Kotsifou 2012, 242–244.

⁵² The ostracon is known as O.Frangé 45 from Boud'hors and Heurtel 2010.

⁵³ The ostracon is known as O.Crum ST 281 from Crum 1921.

The ostracon O.Frangé 45 contains a complaints letter from Frange for not having received the little metal needle that he required to finish the book (ENXWWME EKOCMI).⁵⁴ The term KOCMEIN here is likely used to indicate that Frange had to sew a book rather than decorate it, and therefore, he needed a specific tool (the small needle). In fact, although some covers show a scored decoration, this could have been obtained with any pointed tool.

The second instance where the term KOCMEIN refers to the act of binding, in the sense of sewing together, is in the Coptic ostracon O.Crum ST 281 where:

one monk informs another that he does not feel it is right to bind the Martyrdom of Apa Victor together with that of Apa Pisenthius, and will thus bind it separately.⁵⁵

Even if a consensus on a definitive translation of the Coptic terms relating to bookbinding has not yet been reached, the terms converge towards the finishing operations of the book, except for O. Frangé 45 and O.Crum ST 281 where the term KOCMEIN points to the operation of sewing the books. Therefore, the conception of bookbinding would tend to coincide with what gives the book an orderly and finished appearance, in which the cover plays a major role.

However, because the covering was an expensive operation, as Boud'hors notes,⁵⁶ several Late Antique codices have a re-used cover or are left without.⁵⁷ In the latter case, although the intention to keep the leaves together in a proper order is evident, a less refined and time-consuming technique like stitching may be used.⁵⁸ In this type of structures, the thread does not pass through the centrefold of each quire but through holes which pierce the thickness of the entire block along the inner margin, at some distance from the fold. Therefore, these techniques can also be used to sew together single leaves, for instance during historic repairs to torn manuscripts.⁵⁹ Examples of codices still preserving this type of sewing are the four papyrus leaves of the Psalm book P. Mich. inv. 4286 (CLM 2784) and the eight leaves of Acrostic Hymns Cairo, Coptic Museum, JdE 44689 (CLM 1153).

The terms which may allude to binding operations or the binding itself that have been discussed in this section are summarised in Table 1. For each term, the table provides: the term in its original language and its translation in Greek, an English or French translation, credited to a specific author indicated in brackets, and the attestation, which refers to the evidence or source confirming the use of the term.

⁵⁴ Boud'hors 2008, 158; Kotsifou 2012, 241.

⁵⁵ Kotsifou 2012, 242. The original text is in Crum 1921, 76.

⁵⁶ Boud'hors 2008, 160.

⁵⁷ Examples of reused covers, have been found in the bindings of the manuscripts from Edfu, kept at the British Library. See Lindsay 2001, 2023 and chapter 3 (3.2.2.2).

⁵⁸ In this research, such structures correspond to binding Typology 3, presented in chapter 3, 3.3.1.

 $^{^{59}}$ As it might have been the case for Bodmer Menander codex (P.Bodmer M = P.Bodmer XXV – IV – XXVI), see Kasser 1971 and chapter 3 (3.3.1).

Table 1. Summary of the terms which allude to binding operations or the binding itself.

Coptic term	Greek term	Translations	Attestations
κοεις	-	Livre recouvert (Boud'hors 2008)	Cairo, IFAO, Copte 166 B
		Cover (Crum 1939)	Paris, Louvre, R 35
		Étui (Revillout 1900)	Paris, BnF, Copte 130 (4)
ΝΔΤΚΟΕΙΖ	-	Without cover (Crum 1904)	Attribution given to ten Four Gospels in the now
			faded inscriptions in a small room in the White Mon-
			astery called by Canon Oldfield 'Secret Chamber' (Grum 1904)
пєтахои	πεταλον	Reliure 'orfévrée' (Boud'hors 2021)	London, BL, Or. 5301 (14)
		Illumination (Kotsifou 2007, 2012)	
		Gold leaf used for decoration	
		(Lampe 1961)	
		Plant's leaf (Crum 1893)	
-	ένδυμα	Binding (Wortley 2013)	Greek apophthegm N.592.11
KOCMEIN	αοσμέιν	To decorate (Wortley 2013)	Thebes, Theban Thomb (TT) 29 (Amenemope), Bel-
		Mettre en ordre, finir (Boud'hors	gian excavations, no. 292024 (O.Frangé 780)
		2008)	Thebes, Theban Thomb (TT) 29 (Amenemope), Bel-
		Order, set in order, adorn, embel-	gian excavations, no. 292043 (O.Frangé 652)
		lish (Lampe 1961)	London, BL, Or. 6783
		To bind (Elanskaya 1984)	Greek apophthegm N.592.11
		Ausschmücken (Weber 1973)	Köln, Kölner Papyrussammlung Institut für Alter-
			tumskunde, P. 10213
			Thebes, Theban Tomb (TT) 29 (Amenemope), Bel-
			gian excavations, no. 292238 + 292386 + 292676
			(O.Frangé 45)
			Location unknown, Private collection Mond, number
-			unknown (O.Crum ST 281)

In accordance with the considerations presented in this section, to represent all the techniques used to bind Late Antique and Mediaeval Coptic codices, the research chooses as reference definition of the term *binding* the one given by the *Language of Bindings Thesaurus* (henceforth LoB), the tool developed by the Ligatus Research Unit which provides a consistent and agreed terminology to describe bookbindings unambiguously. In LoB bindings are described concisely but effectively as 'the structures and, if present, the covers used to hold together and protect the leaves of a bookblock and which allow them to be opened at the fore-edge'. Therefore, the research bases the study on a corpus of both beautifully embellished covers and stacks of leaves kept together by more modest but still functional sewing.

In conclusion, the research considers bookbinding as the structure which keeps the leaves of a bookblock together and allows them to be turned over. The sewing is then regarded as the constitutive element to which further components such as boards, cover, endbands, fastenings, furniture, linings, and envelopes may be added.

This position appears to be in line with what Marilena Maniaci expresses in *Terminologia del libro manoscritto* where the term *rilegatura* is defined as: 'a) Operazione che consiste nel confezionare un libro cucendo l'uno all'altro i fascicoli e aggiungendo eventualmente altri elementi (coperta, capitelli, carte di guardia...). b) Risultato di tale operazione'.

^{60 &}quot;bindings", Lob, http://w3id.org/lob/concept/2279.

⁶¹ 'a) The operation of producing a book by sewing the quires together and possibly adding other elements (cover, endbands, flyleaves...) b) The result of this operation' (Maniaci 1996, 333, translation mine).

1.1.2. Coptic bookbinding

The second fundamental concept that deserves further explanation is the use of the expression 'Coptic bookbinding' to indicate the book structures under research. The choice of the adjective 'Coptic' may not be surprising as it is commonly adopted to refer to Late Antique and Early Medieval bindings from Egypt. Over the years, the term 'Coptic bookbinding' has become part of the technical jargon of the scholarly tradition and is still deeply rooted in the literature; the research, therefore, retains it to refer to the set of features that define a specific binding tradition diffused in Egypt in the Late Antique and Early Medieval period. However, the use of the term 'Coptic' requires some caution. Indeed, one must be aware that it is a fundamentally inappropriate term when applied outside of a very specific context. It is certainly unsuitable for fine arts because it alludes to a link with Christianity that the artefacts may never have had and fails to convey the multitude of contributions fused in the society that produced them. Clarification is, therefore, necessary to avoid misleading interpretations.

The term 'Coptic' derives from the term qubt/qibt, from Greek $\alpha i \gamma \dot{\nu} \pi \tau \iota o \varsigma$, used after the Arab conquest of Egypt (639–641 CE) to designate the indigenous population, and therefore, initially, it had no religious connotation. However, with time, the term 'Coptic' came to be used as a general term to denote the Christian minority as distinct from the vast Muslim majority. However, it is necessary to consider that after the Council of Chalcedon (451 CE), Egyptian Christianity was divided between the Copts, opponents of the Chalcedonian choices, and the Melkites, which remained in communion with the patriarchate of Constantinople. Therefore, the term 'Coptic' cannot be considered a general term for the Egyptian Christianity but refers only to its anti-Chalcedonian component. Likewise, the term is appropriately applied to the literature and language created specifically for this religious sphere. 62

The term 'Coptic' is also employed to describe specific artistic expressions. *The Coptic Encyclopaedia* informs that 'Coptic art' is an expression developed toward the end of the nineteenth century to describe what among fine arts could not be classified 'as either pharaonic, Roman, Byzantine or Muslim art,'63 and defines it as a style proper of Egyptian Christianity which, however, features also pagan themes, which were not always reframed in the light of the Christian faith. The characteristic features of Coptic art would be discernible in the period from 'the interlude between pharaonic art and the art that began to take shape under the Muslim aegis' and the period from the third to thirteenth centuries.

Coptic artistic expression was not limited to visual arts but extended to crafts such as bookbinding. The term 'Coptic' applied to bookbinding is an historical term and as such is retained in this doctoral research. The expression 'Coptic bookbinding' is used to refer to a defined set

⁶²For an introduction to the correct use of the term 'Coptic' and a discussion of the cultural traits of Christian Egypt from its origins to modern times see Buzi 2014a.

^{63 &#}x27;Art, Historiography of Coptic', CE, I (1991), 254b–261b (P. S. J. du Bourguet), 255a.

⁶⁴ Among others, the myth of Leda, see 'Mythological Subjects in Coptic Art', *CE*, VI (1991), 1750a–1768b (P. S. J. du Bourguet et al.).

⁶⁵ 'Art, Historiography of Coptic', *CE*, I (1991), 254b–261b (P. S. J. du Bourguet), 255a. Du Bourguet subdivided this period into: 'classical and Roman period (third to fifth centuries), a Byzantine and Christian period (six to seventh centuries), and an antique Muslim period (seventh to eight centuries)', 'Art, Historiography of Coptic', *CE*, I (1991), 254b–261b (P. S. J. du Bourguet), 256b.

^{66 &#}x27;Art and Architecture, Coptic', CE, I (1991), 261b-278b (P. S. J. du Bourguet), 261b.

of features which serve to identify a binding tradition diffused in Egypt between the third to the thirteenth centuries.⁶⁷

The first to use the term 'Coptic' to describe Late Antique and Early Medieval bindings from Egypt was the restorer of the Berliner Papyrussamlung, Hugo Ibscher (1874–1943). His essay published in 1911, *Alte koptische Einbände*, ⁶⁸ acted as a watershed in the terminology. ⁶⁹ Before it, scholars referred to the bindings, simply noting their provenance 'from Egypt'. For example, only one year before Ibscher's publication, the librarian at the Kaiserlich Königliche Hofbibliothek (today Österreichische Nationalbibliothek) in Wien, Theodore Gottlieb (1860–1929), described a sixth-century binding (P.Vindob. BD 37 = CLM 6506) there preserved as 'Einband aus Ägypten' and in general argued about 'ägyptische Einbände' and 'ägyptisch-koptische Kunst'. ⁷⁰ One year after Ibscher's publication, the German bookbinder Paul Adam (1849–1931) entitled his paper *Der koptische Einband* in Berlin. ⁷¹ The term was also adopted in England by the English bookbinder Douglas Cockerell (1870–1945) and the binding historian Geoffrey Hobson (1882–1949). ⁷² On the other hand, the former curator and bookbinder of the British Museum, Charles Lamacraft (1879–7), consciously or not, entitled more cautiously his paper about the bindings of the Chester Beatty Coptic codices he restored *Early bookbindings from a Coptic monastery*. ⁷³

Anyway, after Ibscher, the expression 'Coptic bookbinding' became accepted and used throughout literature until this day. He probably only decided to conform to the use of the term adopted for the art of the period. However, it should be noted that Ibscher and others used the term 'Coptic' in the sense of 'Christian Egyptian'. Although the bindings Ibscher described were detached from their manuscripts, which have not been preserved, he confidently ascribed their provenance from a Coptic monastery. He, indeed, affirmed: 'die Herkunft der Einbände läßt sich nicht mit Sicherheit bestimmen, doch wird man kaum fehlgehen, wenn man den Hersteller in einem koptischen Kloster sucht'. 74 Ibscher might have inferred that the bindings originally belonged to Coptic manuscripts because they were purchased from the consul Carl A. Reinhardt⁷⁵ in 1896 together with Coptic manuscript fragments and a Coptic codex with its binding (Berlin, Staatliche Museen, P. 8502 = CLM 731). In December 1911, Ibscher found a confirmation to his assumption when J. Pierpont Morgan acquired the precious lot of Coptic manuscripts from Hamuli, most of them complete of their original bindings. Ibscher had the chance to examine them in the Vatican Library in Rome, where they were for conservation treatment, and noted their similarity with the bindings in Berlin. In 1928, he could then confidently state: ' (...) die Wiener, Berliner und Morganschen Einbände zueinander gehören, ist wohl außer

⁶⁷ Chapter 3 is dedicated to the description and classification of these features.

⁶⁸ Ibscher 1911a.

⁶⁹ In the same month of the same year, a shorter version of the article appeared where Ibscher defined the bindings in Berlin as 'Bucheinbände aus Ägypten', see Ibscher 1911b.

⁷⁰ Binding from Egypt', 'Egyptian bookbindings', and 'Egyptian-Coptic Art', (Gottlieb 1910, 1, my translation).

⁷¹ Adam 1912.

⁷² Both Cockerell and Hobson argued about 'Coptic bindings', see Cockerell 1932 and Hobson 1938.

⁷³ Lamacraft 1939.

⁷⁴ The origin of the bindings cannot be determined with certainty, but one will hardly go wrong if looks for the maker in a Coptic monastery' (Ibscher 1911a, 15, my translation).

⁷⁵ See Köpstein 1996, 13–58 for an introduction to Carl August Reinhardt's life and work as an antiquities collector for Berlin museums.

⁷⁶ See Ibscher 1911a, 113 and Ibscher 1911b, 46. However, Ibscher did not describe the binding of P. 8502 (CLM=731) in any paper.

Zweifel'. This not hard to imagine the excitement of discovering a new tradition of bookbinding, furthermore one of the oldest known, and how binding historians would follow the footsteps of a highly respected national and international personality, such as Ibscher, to describe them. The such as Ibscher, to describe them.

However, the cultural and religious landscape of Egypt between the third and the thirteenth centuries was far from homogeneous to be described solely as Coptic Christian. Egypt went through substantial political transformations, passing from being part of the Roman, then Byzantine Empire (30 BCE to 641 CE) to the rule of the Arab Islamic Empire, with a short period of Persian domination (618-628 CE). The successive dominations had led to the immigration of foreign populations linked to the new system of administration, the military organisation, and sometimes their families. This led to the coexistence on the territory of different ethnic groups and cultures that integrated to a greater or lesser extent with the local population. The Hellenization of Egypt is the most evident phenomenon of cultural assimilation after a conquest, where the Egyptian population assumed the values, behaviours, and beliefs of the Greeks. As regards the religious sphere, the Egyptian population embraced Christianity gradually. Therefore, traditional cults were resilient until the Arab conquest and, in some cases, even beyond. ⁷⁹ Furthermore, early Christianity did not yet present itself in a canonised form; on the contrary, into the third century, orthodox and heresiac movements did not clearly differentiate from each other. 80 Different Christian theologies, such as the Manichean and Gnostic, left traces in book production; examples are the bindings of the Nag Hammadi codices renown for containing also Gnostic texts.⁸¹ Recently, three wooden boards belonging to the bindings of Manichaean codices, that were thought to be completely lost, were found at the Chester Beatty Library.⁸² Even when Christianity established itself in a more stable form, it soon split into opposing factions after the Council of Chalcedon. Lastly, during the Arab rule, an increasing number of Christians converted to Islam also to escape the repressive taxation imposed on non-Muslims.83

Christianity undoubtedly has been a unifying sentiment within the multicultural Egyptian society. Nevertheless, the Christian art and handicraft did not assume distinct traits deriving directly from the Egyptian Christian identity. Instead, they assimilated the specific aesthetic languages of the community they referred to. In an artistic and religious syncretism, Coptic art and handicraft reused iconographic motifs and styles dear to pharaonic art and enriched them with new meanings. An example in Coptic bookbinding tradition is offered by one of the boards

⁷⁷ '(...) the Viennese, Berlin and Morgan bindings belong to each other is well beyond doubt' (Ibscher 1928, 10, my translation).

⁷⁸ To understand the high esteem Ibscher held, one can consider what Adam wrote in *Archiv für Buchbinderei*, the journal he directed. After praising Ibscher's working attitude and good temperament, he congratulated him on his birthday, regretting that he had to celebrate in Vienna, far from his homeland (Adam 1924, 24).

⁷⁹ For an overview on the phenomenon of religious resilience in Roman Egypt, and the connected reasons see, Frankfurter 1998. For a punctual analysis of the transition from traditional cults to the affirmation of Christian beliefs in the city of Oxyrhynchus, see Mascia 2022.

⁸⁰ Bauer 1934, 63.

⁸¹ The bindings associated with eleven of the thirteen codices found in a jar near the village of Nag Hammadi are: CLM 662, CLM 663, CLM 664, CLM 665, CLM 666, CLM 667, CLM 668, CLM 669, CLM 670, CLM 671, CLM 672

⁸² They are Cpt 824, Cpt 825, and Cpt 826.

⁸³ For the early relationship between Copts and Muslims as it appears in the transmitted texts, see Suermann 2007. An historical overview of Egypt as a province in the Islamic caliphate is in Kennedy 1999.

of the P.Bodmer XIX (CLM 23), shown in Figure 1a, where the ancient hieroglyphic sign symbolising life, the *ankh*, is transformed into the *crux ansata* of Christian significance. The symbol is also painted on a folio of the *Acts of the Apostles* in the Codex Glazier, G67 (CLM 44) dated to the fifth century and kept at the Morgan Library and Museum (NY).⁸⁴

However, at times pagan themes were repurposed as they were and is not possible to identify a link with the Christian faith or a Christian context of production. For examples many 'Coptic' textiles are decorated with an abundance of classical motifs, including mythological creatures, human figures, animals, vegetation, and geometric motifs (Figure 1b). It is evident how inappropriate it is to group artistic manifestations originating from different cultural backgrounds under the same heading of 'Coptic art'. Similarly, 'Coptic' is an inappropriate term also for bookbinding because it is associated with an idea of canonised Christianity that is not present in the early centuries, and therefore it would be improper to trace the production of bindings of the period to the *same* Christian context.





Figure 1. a) Cologny-Genève, Fondation Martin Bodmer, P.Bodmer XIX (CLM 23), 375-450. Lower (left) and upper (right) wooden boards of a parchment Coptic codex of the gospel of Matthew and the letter to Romans. The boards feature *crux ansata* (lower) and a Greek cross (upper). (CC BY-NC 4.0) Fondation Martin Bodmer, Source: Bodmer Lab. b) Paris, Musèe du Louvre, AF 5472, byzantine period (395-641). Textile tabula (square) showing four nereids swimming among sea monsters and fishes, around a central panel with a bust. © 2009 Musée du Louvre / Georges Poncet. Source: https://collections.louvre.fr/ark:/53355/cl010045226.

Moreover, Coptic art is rich in contributions from different art styles such as the classical, Byzantine, Far Eastern, Scythian, Palmyrene, Syrian, and Persian. ⁸⁶ Therefore, reflecting the multifaceted Egyptian society, it presents very dissimilar and uneven characters, to the extent that Maria Cramer defines it a 'Misch-Stil'. ⁸⁷ The same consideration led Hilde Zaloscer to affirm about the Coptic art:

Wir haben es hier nicht mit einem Stil in dem Sinne zu tun (...), sondern mit den Erzeugnissen einer Reihe unabhängiger, lokaler Produktionzentren, von verschiedenen Kulten bedingt, und mit einer von einem offiziellen Auftraggeber unabhängigen Kunstproduction.⁸⁸

⁸⁴ https://www.themorgan.org/manuscript/77061.

⁸⁵ In this regard Karel Innemée notes how in 'profane applied arts it is very often impossible to decide whether the maker or owner/user was a Christian or not'. See 'Coptic Art', OBO, (2014) (K. C. Innemée).

⁸⁶ Zaloscer 1991, 57 and 105-106.

⁸⁷ Cramer 1959, 69.

⁸⁸ We are not dealing with a style in the strict sense (...), but with the products of a series of independent, local production centres, conditioned by different cults, and with an art production independent from an official commissioner.' (Zaloscer 1991, 98–99, translation mine).

Not even Coptic, the language, can be considered a unifying factor. Indeed, Egypt has been a bilingual country since the Ptolemaic period. After the conquest of Egypt by Alexander of Macedon in 331 BCE, Greek had started permeating the spheres of administration, education, culture and became the language associated with the upper strata of society in a progressive process of Hellenization. The language became used not only in urban communities by Greek descent or Hellenised Egyptians but also by some categories of Egyptian villagers to manage their business. 89 Greek was also the language of the Church. Alongside Greek, the native Egyptian language continued to be used in ordinary conversation, both written and spoken. With the Roman conquest, Latin flanked only mildly Greek and became the language of specific groups like soldiers or local administrators. From the second century CE, new expressive means were sought as a result of the impoverishment of the Egyptian literary language. 90 As a deliberate operation to revitalise indigenous Egyptian cultural identity, Coptic was introduced, representing a synthesis of Greek and Egyptian linguistic features. 91 However, 'Coptic, which was born in bilingual milieus, in its beginning stages was taught in conjunction with Greek'.92 Furthermore, during the short Sassanian domination (619-629 CE) documents in middle Persian language were produced, as well. After the Arab conquest, when Arabic became the official language of the administration in the eighth century, it gradually started to flank Coptic until the twelfth century when Arabic replaced it.93

Therefore, the expression 'Coptic bookbinding' is misleading when interpreted as the technique used to bind Egyptian codices written only in Coptic. As it emerges from the few available notes in literature and by the direct examination of some specimens, codices written both in Greek and Coptic in Egypt were bound according to the same technique.

It is necessary to specify that the bindings of Egyptian manuscripts in Greek have not been considered part of the Byzantine binding tradition,⁹⁴ to the extent that the conservator Konstantinos Choulis, when discussing bindings of Greek manuscripts in the Byzantine and post-Byzantine period, states that there are no bindings dating earlier than the fourteenth century,⁹⁵ thus excluding, evidently, those produced in Egypt. Yet, the similarity between the bindings of Greek and Coptic Egyptian manuscripts had already been noted by the binding historian Berthe van Regemorter, who in a late study on Byzantine binding, published posthumously affirms:

Rien ne différencie les reliures des livres grecs trouvés en Égypte de celles des livres coptes, aussi devonsnous considérer ce type primitif comme caractéristique de l'Égypte et non point comme propre au livre copte.⁹⁶

The similarity between the bindings of Coptic and Greek manuscripts is consistent with the fact that both were produced in the same bilingual context, where the Greek and Coptic elements were not perceived as two separate entities but as part of the same Egyptian cultural identity.

⁸⁹ Fournet 2009, 434; Vandorpe 2019, 284.

⁹⁰ For an introduction to linguistic aspects of Late Antique Egypt, see Buzi 2014a, 2022, 14–18.

⁹¹ Orlandi 2005.

⁹² Cribiore 1996, 4.

⁹³ Rubenson 1996.

⁹⁴ For an introduction to the Byzantine bookbinding tradition and further bibliography, see Szirmai 1999, 62–92. A throughout study of the post-Byzantine tradition is in Boudalis 2004, and the decoration in Sarris 2010a.

⁹⁵ Choulis 2012, 181.

⁹⁶ 'Nothing differentiates the bindings of the Greek books found in Egypt from those of the Coptic books, so we must consider this primitive type as characteristic of Egypt and not as specific to the Coptic book.' (van Regemorter 1967, 102, my translation).

However, if this can be true on a general basis, since Greek was associated with the highest levels of society, groups of Greek descendants and Hellenized Egyptians would perhaps stress their status, giving their books a decidedly 'Greek' aspect, which could perhaps be achieved through the decoration. Nevertheless, the number of preserved covers of Greek manuscripts is small and does not allow research to proceed in this direction to confirm or reject the hypothesis.

A fundamental consideration for understanding the subsequent developments of this doctoral research is that since arts are 'inextricably linked to the entire way of life of a society," they express the ideas, symbols and meanings that are important to it (or to a group within it). Through an aesthetic language derived from shared collective knowledge, the arts convey the cultural identity of a social group in a way that the group can recognize as its own. 99

Based on this consideration, one may infer that the Coptic art and Coptic bookbinding are the expression of the cultural identity of the Copts, the Christian Egyptians. However, this overview shows what an imperfect account would be to mark the art and handicraft produced by the mixed society of Egypt only as 'Coptic'. Indeed, the Egyptian cultural identity in the Late Antique and Medieval periods is characterised by both native and foreign cultural elements that are intertwined and indivisible. Therefore, to consider them separately would impoverish the understanding of the cultural landscape of that time.

Therefore, to the question if there is an artistic expression that can be defined 'Coptic art' Hilde Zaloscer's answer is negative, if the term 'Coptic' is intended as synonym of Christian Egyptian:

Fassen wir den Terminus "koptisch" in der Interpretation auf, die er im Laufe der Zeit durch Mißverständnisse und Zufälle erfahren hat, nämlich als gleichbedeutend mit "christlich-ägyptisch", dann müssen wir die Frage verneinen. Eine spezifisch christlich-ägyptische Kunst, eine Kunst, die in Ägypten als direkte Auswirkung des Christentums entstanden wäre, gibt es nicht (...).¹⁰¹

Indeed, it would be limiting to refer to the art arising from a magma of cultural contributions only as 'Coptic', in the sense of Christian Egyptian. If the term is used, instead, with its original meaning of 'Egyptian', local inhabitant of the land, it can be all-inclusive of the variety of artistic expressions stemming from Egyptian society's ethnic, religious, and linguistic plurality. Therefore, it seems more appropriate to define 'Coptic art', and, consequently, 'Coptic bookbinding', in a geographical and chronological sense, as the art and bindings produced in Egypt between the third and the thirteenth centuries, avoiding any reference to Christianity. Zaloscer readmits the use of the term when understood in this sense:

⁹⁷ Best 1978, 34.

⁹⁸ Here is adopted the definition of culture as introduced in Miller 2017, 12, and articulated in Geertz 1973, 3–30.

⁹⁹ Cultural identity is a complex construct that results in belonging to or identifying with a group based on various factors, including place of birth, ethnicity, race, religion, and language.

¹⁰⁰ The question, 'Gibt es eine koptische Kunst?' in German, is the title of two contributions by the art historians Maria Cramer (1959, 68–75) and Hilde Zaloscer (1991, 93–117).

¹⁰¹ 'If we take the term "Coptic" in the interpretation that it has received over time through misunderstandings and accidents, namely as synonymous with "Christian-Egyptian", then we must negate the question. There is no such thing as a specifically Christian-Egyptian art, an art that would have arisen in Egypt as a direct effect of Christianity (...).' (Zaloscer 1991, 110, translation mine).

Fassen wir den Begriff "koptisch" aber in seiner ursprünglichen und korrekten Bedeutung nur als "ägyptisch" auf, dann läßt sich die Frage bejahen. Die koptische Kunst ist das Manifest-Werden des ägyptischen Volkes. 102

Art, as an intimate expression of society, makes it possible through its study to understand not only its artistic forms and aesthetic but also the society (or the group) to which the artist that produced it belongs. This, with Zaloscer's words, is what is worth studying: 'der koptische Künstler entstammt einem bestimmten hic et nunc der ägyptischen Geschichte. Diese gilt es zu untersuchen'. ¹⁰³

Therefore, bookbinding expresses the cultural identity of a social group by using an aesthetic language formed by the entanglement of decorative and technical elements. On the one hand, the decoration speaks directly to the target group using symbols, designs, and patterns that the group can decipher and thus understand; on the other hand, the technique originates from tradition and evolves across time taught from one generation to the next. Therefore, it assumes distinctive traits according to the group to which it belongs. This implies that bindings produced within the same social group are similar because they are bound according to the same technique regardless of the content or the language of the text. They originate indeed from a common cultural background.

The set of decorative and technical characteristics of a group of bindings allows it to be recognised as a distinct group, defines a binding tradition. Therefore, this thesis looks at the Coptic binding tradition, where 'Coptic' is retained as historical term to refer to the set of characteristic features of Late Antique and Early Medieval Egyptian binding.

Recently, it has been proposed to abandon the expression 'Coptic binding' favouring a general 'early Christian binding'. ¹⁰⁴ Indeed, the lack of preserved bindings in regions other than Egypt makes it impossible to document the existence of different binding traditions. Moreover, the iconographical representation of the book throughout the Mediterranean basin according to features considered specific to the Coptic tradition has led to rightly suggest that such features cannot be considered exclusive to that tradition. However, it is unlikely that the same decorative and binding techniques were shared by the variety of societies that populated the Mediterranean basin. Instead, they all likely adopted the general characteristics depicted in the iconography but detailed them in their own way. ¹⁰⁵ It should be noted that the boundaries between binding traditions are blurred, and it is possible that characteristic elements of the decoration or technique of one tradition also appear in another. This testifies to the circulation of similar ideas due to the cross-cultural exchange between populations. Therefore, binding traditions should be considered as indicative and not as immutable blocks. They are useful to guide the study of historical bookbinding traditions, but they are not monolithic, and hybrid elements can be found as soon as a culture mixes with another. ¹⁰⁶

¹⁰² 'But if we understand the term "Coptic" in its original and correct meaning only as "Egyptian", then the question can be positively answered. Coptic art is the manifestation of the Egyptian population' (Zaloscer 1991, 110, translation mine).

¹⁰³ 'The Coptic artist stems from a certain *bic et nunc* of Egyptian history. This is what is worth to be investigated' (Zaloscer 1991, 59, translation mine).

¹⁰⁴ Boudalis 2017.

¹⁰⁵ However, this analysis is only possible by studying the original bindings, which have been preserved only in Egypt.

¹⁰⁶ I thank Karin Scheper for her observations on this point.

Lastly, defining the binding as an expression of cultural identity allows to understand how and why Coptic bookbinding tradition changes after Egypt became part of the Islamic Empire. The Arabic culture started to permeate the different aspects of daily life and new ideas, technologies and aesthetic began to be integrated into the book's production. Therefore, hybrid decorative and technological elements between Coptic and Islamic bookbinding tradition appeared, as shown by the twelfth century gospel of John found in the excavations in Naqlun (Polish expedition to Neklone, Nd. 02.239 (CLM 6474), and were later formalised, as seen in the fourteenth century Barb. Or. 17 (CLM 3070), 107 thus marking the evolution of Egyptian cultural identity.

1.1.3. Archiving

This research interprets the term 'archiving' as a universally shared cultural practice to define, order, preserve, and transmit general knowledge without an exclusive reference to the documentary category. However, aware that this statement departs from how the term is generally understood, an explanation is needed.

First, it is necessary to specify that the research abandons the Eurocentric definition of 'archive', intended as an organised collection of documents reflecting Weberian 'bureaucratic rationality' considered a foundational element of modern nation-states. This research suggests that archives should not be merely perceived as repositories of documents that legitimise state power. Instead, the study implies a broader, more inclusive, understanding of what constitutes an archive. Indeed, the conception of 'archive' (like nation and state) varies from culture to culture and is not stable over time. The case of Ethiopia, for instance, challenges the definition of 'archive'. Here, the archival practice consists of adding important documentary texts of various kinds, mainly concerning land rights, on the blank or guard leaves of a manuscript or on single leaves and quires that are added over time to a host codex. In both cases, the codex is not documentary but literary, and if it is a gospel, it is called 'golden gospel'. Thus, Alessandro Bausi notes:

Ethiopian libraries are inextricably linked with "archives", or better: whatever we would like to define each of them, they are at the same time both, because we have one and the same carrier for literary and documentary texts. 112

The distinction between libraries and archives is blurred not only in Ethiopia but in many other manuscript cultures. Indeed, the TNT group at the CSMC developed a survey of words used by manuscript cultures to designate the library, which shows how the term overlaps with

¹⁰⁷ For a detailed description of the two manuscripts, visit PAThs Atlas at the corresponding CLM.

¹⁰⁸ In Max Weber's theory, bureaucracy is a tool for rationalising complex situations at the basis of a centralised and efficient state, where the control of the flow of information between its offices plays a central role. See Weber 1968, 956–998.

¹⁰⁹ Friedrich 2018, 421.

¹¹⁰ For an introduction to the Ethiopian archival practice and further bibliography, see 'Archives and libraries. I. Archives. a) Introduction; b) Medieval and modern archives in Ethiopia and Eritrea', EAe, V (2014), 244a–248a (G. Fiaccadori).

¹¹¹ For more information on 'golden gospels', see 'Wängelä Wärq (Golden Gospel)', EAe, IV (2010), 1130b–1132a (A. Bausi)

¹¹² Bausi 2014, 74. The essay offers a contribution to the discussion on the definition of the term 'archive' starting from the peculiar case of Ethiopian multiple text manuscripts.

that of archive and tends to coincide with the concept of book collection and/or the place where the book collection is located.¹¹³

Although Ethiopian and other practices may not fit a strict definition of an archive as a collection of documentary texts, they still share the archival goal of preserving records deemed important. Understanding the reasons behind the universal archival need permits the cross-cultural comparative analysis. It is, therefore, necessary to overcome the Neo-Eurocentric dichotomy between European and non-European archival practices that risks considering the latter only in the light of differences with the former.¹¹⁴

A further consideration that challenges the Eurocentric idea of an archive is that some archives are created not as a reflection of bureaucratic rationality but of a purely individual will. These are personal archives whose main function is not to guarantee an efficient and quick retrieval of the stored artefacts. Nor are these archives designed for external access, but only for private consultation. Their primary function is to preserve artefacts significant to the owner, so alongside bureaucratic documents are written artefacts whose documentary nature is difficult to weigh. These can be, for example, notes, drawings, photographs, recordings, and videotapes. However, the archive may include the most diverse objects preserved as tangible memories of significant moments, such as train tickets, shells, leaves. The list is potentially infinite, as it can include anything the owner deems important. In the contract of the contract o

Canadian archivist and archival theorist Hugh A. Taylor after noting the groundless dichotomy between libraries and archives, ¹¹⁷ pushed the borders of the archival dominion by vindicating the documentary role of pictorial categories. He considered drawings and oil paintings as texts of archival material, examples of what he called 'documentary iconography'. ¹¹⁸ Therefore, as the Weberian view proves to be inapplicable to certain archival phenomena, this research embraces a broader definition of 'archive', unrelated to the concept of documents produced by or for an administrative body.

Building on this broader understanding of archives, this research explores archival practices, focusing on Egyptian book collections and books. It highlights how bindings serve as tools to define the content type of the codices. Bindings visually clarify the intellectual value of the books, ordering them on a virtual scale of importance by using techniques and materials of varying quality. Additionally, bindings play a crucial role in preserving books, ensuring their transmission to future generations.

The research employs a post-modernist interpretation of the term 'archive' as it appears in Foucault's *L'archéologie du savoir* and Derrida's *Mal d'archive*. These influential works have inspired a new approach to studying the history of knowledge systems by examining how societies

¹¹³ The survey accounts for the words used for 'library' in Alevi, Chinese, Ethiopic, Greek, Japanese, Medieval Latin, Sanskrit, Swahili, Tai Lü, Tamil, Tibetan, and Vietnamese manuscript culture, see Delhey and Lorusso 2015. ¹¹⁴ Burak et al. 2022.

¹¹⁵ Personal archives may be inventoried and classified at a later stage when, becoming part of an institutional archive, they must provide for public access.

¹¹⁶ In this regard, the archive has close relations with the features of notebooks, investigated in the Cluster of Excellence 'Understanding Written Artefacts' of the Universität Hamburg by an appositely dedicated Research Field.

¹¹⁷ Taylor 2003a, 152.

¹¹⁸ Taylor 2003b.

¹¹⁹ Derrida 1995; Foucault 1969.

understand and organise information through archives.¹²⁰ Giovanni Leghissa, building on these studies, argues that an archive encompasses all the inscribed (*iscritta*) knowledge of a society, which constitutes its common cultural heritage. By interpreting 'inscribed' knowledge as all the recorded and ascribed information, the concept of an 'archive' can be extended to include all the knowledge produced by *Homo sapiens*, manifested in their artifacts. The archive then becomes the memory of human cultural evolution.¹²¹ This memory, according to Leghissa, who draws on Foucault definition of 'archive', ¹²² also includes the rules that enable a social group to recognize certain experiences as part of its shared knowledge.

Therefore, by studying the archive—the memory of a society evidenced by the artifacts it has produced—we can gain insights into the society itself. This includes understanding the history of its knowledge formation and its cultural evolution. Through this lens, the archive is not merely a collection of documents but a dynamic repository of human experience and intellectual development.

Therefore, this research considers the archive as the memory of a society embodied in the artefacts produced according to conventions stemming from collective knowledge, symptoms of its cultural identity. Thus, although cultural identity varies, giving rise to a multitude of archival practices, the biological process of memory formation is constant among cultures because it is inherent in human nature. Human beings use their cognitive and technical capacities to shape materials and create artefacts that meet the criteria dictated by their cultural identity.

From this consideration, it follows that Coptic bindings are seen as part of the embodied memory of the Egyptian society between the third and thirteenth centuries, expressing its cultural identity. These bindings are produced within the conventions of collective knowledge, incorporating technical and decorative elements. Their archival function derives not only from their ability to ensure the long-term preservation of texts but also from their capacity to enrich these texts with additional meanings. The form and technique chosen for binding a specific content provide information about its function, classify it according to its intellectual value, and ensure its transmission to future generations.

Bindings are then regarded as archival instruments because they are used to prepare written artefacts for archiving, aiming for long-term preservation. Moreover, binding a book offers the advantage of keeping the leaves together in the desired order, minimising the risk of accidental displacement, and can offer them extra protection by furnishing the book with a cover.

The research moves away from Henrichs' idea that a book's identity is more precisely defined by its textual contents than materiality. It instead embraces Donald McKenzie's concept that 'form effects meaning'. The book is then seen as 'a process of communication in which meaning is made through the relationship between signs, structures, and materials'. Indeed, the

¹²⁰ Head 2010, 193. The reflection on the connection between the archive and cultural history is well present in the essays from the Sawyer seminar gathered in the volume *Archives, Documentation, and Institutions of Social Memory* (Blouin and Rosenberg 2006) and in the collection of groundbreaking essays (including one by Derrida) in the volume *Refiguring the Archive* (Hamilton et al. 2002).

¹²¹ Leghissa 2020, 244–245.

¹²² Leghissa 2020, 249.

¹²³ McKenzie 1999, 13.

¹²⁴ Bland 2010, 1.

material form, like a text, conveys information that enriches the core-content of a further layer of significance, which can or cannot be related to its intellectual content. Bindings act as paracontent, adding depth and context to the texts they preserve.¹²⁵

Bindings are created through the skilful use of materials, modified by technique, according to the conventions stemming from collective knowledge. The bindings' design is planned to convey specific messages without needing to open the book. Bindings capture the onlookers' gaze, inspiring religious veneration, esthetical admiration, or simply manifesting the purpose for which the manuscript has been created. The information transmitted by the binding varies according to the materials and techniques adopted in the manufacture. Bindings can be used to declare the ownership, function, and prestige of books and possibly order them in a collection based on their intellectual value.

However, Roger Chartier highlights how, although books 'always aims at installing an order', to understand the codes that govern that order' supposes that the principles underlying the processes of production, communication, and reception of books (...) will also be deciphered in a rigorous manner'. The aesthetic reception of books then presupposes the presence of a reader who can interpret the material forms by drawing from the inscribed shared knowledge. Studying the messages conveyed by bindings means studying the society that was able to read them and revealing the paradigms underpinning its organisation of knowledge. One of the leading proponents of studying society through bookbinding is Mirjam Foot. Looking particularly at European bindings dated from the fifteenth to the nineteenth century, she showed how binding techniques reflected the way books were traded and linked to economic, political, and social trends. Looking particularly are considered to the suppose of the leading techniques reflected the way books were traded and linked to economic, political, and social trends.

If all bindings can be seen as archival instruments, this research specifically focuses on the study of Coptic bindings, to delve deeper into their unique characteristics and roles. Therefore, this research considers Coptic bindings as *archival* instruments, as they are part of the embodied memory of Egyptian society between the third and thirteenth centuries and express its cultural identity. By drawing on a common heritage of knowledge, bindings communicate messages to the reading society through their form and materials, adding a new layer of meaning to the core content. They define the content they bind by informing on its function and order the manuscripts according to their intellectual value using more or less refined materials and binding techniques. By preserving the memory of selected content, protecting it from external agents and accidental physical damage, these bindings ensure its transmission to future generations.

1.2. Coptic bookbinding studies: State of the art

1.2.1. The text-focused approach

The importance of bookbinding for understanding written artefacts was overlooked for a long time, much like other material aspects of the book. However, additional factors delayed the development of bookbinding studies.

¹²⁵ For a definition of paracontent, as elaborated within the TNT group of the CSMC, see Ciotti et al. 2018.

¹²⁶ Paraphrasing Rousseau 2007, 1.

¹²⁷ Chartier 1994, viii-ix.

¹²⁸ Foot 1998, 2006.

First is the scarcity of original bindings, intended as the first binding the manuscript received, whose manufacture is usually contemporary with the writing. In fact, as a practice, since antiquity, bindings had been thrown away and replaced with new ones when they deteriorated and could not perform their protective function, or to update their design to a new owner. The finely decorated covers escaped more often this fate, partly explaining why the first studies on bindings focused on their aesthetic.

As far as Coptic bindings are concerned, since the late eighteenth century, Coptic and Greek manuscripts from Egypt have entered European and non-European collections due to scholars' interest in investigating the earliest expressions of the Christian faith. However, a fact evident from the first glance at the collections is that these manuscripts are in a highly fragmentary state and rarely has a codex been preserved intact in a single institution. Coptic and Greek manuscripts have either suffered the ravages of time or were intentionally torn into pieces when discovered to sell them separately and thus increasing the sale proceeds. As a result, fragments belonging to the same codicological unit are scattered in various collections worldwide.¹²⁹

Moreover, as researchers focused on the language and intellectual content rather than the materiality of the manuscripts, even codices preserved in good condition underwent invasive processes to facilitate the handling of the leaves. For example, the bindings were separated from the bookblock; the sewing was cut to free the quires and allow the bifolia, sometimes cut in half for the purpose, to be housed between glass panes. The procedure was common in many European and non-European institutions until the second half of the twentieth century. In some cases, the treatment was even worse, as, in antiquity, discarded fragments of old manuscripts were often reused, glued together, to provide rigid supports to leather coverings. Therefore, text-focused interests led the boards to be split to extract the precious manuscript fragments, thus reducing the binding to an empty leather cover, as the one shown in Figure 2.

¹²⁹ The manuscript fragments originating from the White Monastery (PAThs ID 112) testify well to this practice. For example, CLM 264: the leaves belonging to this codicological unit are scattered in collections in Egypt, France, Germany, Italy, U.S.A., and United Kingdom.



Figure 2. Full brown leather cover whose laminate papyrus boards have been removed. Torino, Museo Egizio, Provv. 6206 (CLM 6561). © Museo Egizio.

Furthermore, the dismembering process was often not documented, so that today it is impossible to understand to which binding the fragments originally belonged. For example, Bentley Layton affirms that the box Or. 7558 in the British Library contains manuscript fragments extracted indistinctly from the boards of Or. 7021 (CLM 187), Or. 7025 (CLM 196), Or. 7030 (CLM 179), Or. 7022 (CLM 194), Or. 7023 (CLM 190), Or. 7024 (CLM 193) Or. 7023 (CLM 190), Or. 7026 (CLM 192), Or. 7027 (CLM 181), Or. 7028 (CLM 186), and Or. 7029 (CLM 189).

Moreover, since the bindings were deemed of little value, they could also be disposed of by conservation institutions after these invasive operations. For example, between 1907 and 1909 the British Library purchased twenty-one Coptic manuscripts from Edfu still preserving their bindings. However, of these, only eight bindings remain, separate from the relevant manuscript. Of the now lost bindings, the only surviving documentation is a photograph that emerged among Crum's papers during my visit in November 2021 to the Griffith Institute in Oxford. 132

'Most of the time, only the finely decorated covers have been preserved. So, after being neglected for a long time, the first studies on bookbindings only focused on their external appearance'. Alfred Grohmann proposed a first classification of the decorative techniques, 134

¹³⁰ Layton 1987, 48 (= n° 46).

¹³¹ The table 1 of the *Catalogue of Coptic literary manuscripts in the British Library* lists the manuscripts 'from whose bindings yet other papyrus, parchment, and paper fragments were extracted'. The manuscripts were acquired from the antique dealer in Cairo Maurice Nahman on 13th July 1907 and 15th June 1909, the Revd. Chauncey Murch on 16th July 1907, and the Egyptologist Robert de Rustafjaell on 12th November 1907. See Layton 1987, XXVI–XXVII.

¹³² See this dissertation, section 3.2.2.2.

¹³³ Dal Sasso 2020, 283.

¹³⁴ Arnold and Grohmann 1929.

later simplified by Geoffrey Hobson.¹³⁵ Maria Cramer focused on the description of decorative motifs of the Egyptian art in the Christian period between the fourth to the nineteenth centuries, but a small chapter of her book is devoted to bookbinding.¹³⁶

The second obstacle for the development of the research in the field is the inconsistency or lack of data regarding bookbinding structures. For example, the existence of an ancient binding is noted but it is not described in detail, in the case of Betley Layton's *Catalogue of Coptic Literary Manuscripts in the British Library Acquired since the Year 1906*. When compiling the catalogue, the author explicitly excluded any information regarding the bindings but did note their presence by stating: 'Not included in the catalogue are magical amulets, documents, private letters, synthetic papyri, forgeries, ancient bindings now detached from their MSS, (...)'. Although the catalogue does not provide direct information on the appearance of the bindings, Layton indirectly references them by listing the documents extracted from the binding boards. From this information, it can be inferred that these bindings are composed of laminated boards. ¹³⁸

Furthermore, information on bindings, if present, is often circumstantial, limiting to note the presence of a binding and the material of which it is made. For example, Alla Elanskaya reports a brief passage by Oscar von Lemm who firstly described the manuscript on which she was working, that is I.1.b.686 (CLM 4510) now kept at the Puškin Museum.

The information is found in a report written by von Lemm in 1908. This report was a brief account of Vladimir Golenishev's collection of Coptic manuscripts presented at the Imperial Russian Archaeological Society meeting. According to the account, the manuscript still possessed its ancient leather binding, Von Lemm affirmed that the manuscript had 'the form of a codex in a leather binding which is still extant'. However, Elanskaya could not locate the binding during her research in 1994. Therefore, the only information we have on the binding relies in the scant information given by von Lemm. A luckier example relates to the binding kept in the Preußischer Kulturbesitz of the Staatsbibliothek zu Berlin, Ms. or. oct. 408 (CLM 424). Although until now only Schüssler's meagre note 'the codex was purchased with its wooden binding, now in Berlin'¹⁴¹ was known, this can now be supplemented with a more detailed description thanks to the photographic documentation provided by the library for this research (Figure 3).

¹³⁵ Hobson 1938.

¹³⁶ Cramer 1964, 125-134.

¹³⁷ Layton 1987, XXIV.

¹³⁸ Layton 1987, XXVI–XXVII.

¹³⁹ Elanskaya 1994, 41.

¹⁴⁰ Elanskaya 1994, 41–42.

¹⁴¹ Schüssler 2001, 104.



Figure 3. External surface of the upper wooden cover of Berlin, Staatsbibliothek zu Berlin – Preußischer Kulturbesitz, Ms. or. oct. 408 (CLM 424).

Therefore, when the research started, the study of Coptic bindings still largely relied on contributions of a few conservators and scholars of Coptic language and literature, who focused on specific collections or manuscripts. The description of binding structural elements, when given, was mostly brief and inconsistent, so of little use for research purposes. As a result, the quality of the descriptions was heterogeneous and identical features were described using different terms.

The first descriptions of Coptic bindings started to appear at the beginning of the twentieth century. Limiting the list to the first half of the twentieth century, the work of some scholars deserves a mention. E. A. Wallis Budge described how the codices appeared like when they were still bound in their original bindings, ¹⁴² sometimes even providing a graphic representation of the decoration and furnishing. ¹⁴³ In the catalogue of the Coptic manuscripts of the British Library, Walter E. Crum mentioned for each entry if the ancient binding was preserved and gave a concise description of its decoration. ¹⁴⁴ Studies specifically focused on Coptic bookbinding appeared, ¹⁴⁵ others, as mentioned above, encompassing only their decoration. Of particular interest are the studies of Berthe van Regemorter who, despite sometimes coming to conclusions that are outdated today, is ahead of her time by conducting comparative studies with other binding traditions. ¹⁴⁶

¹⁴² Budge 1898, 1912.

¹⁴³ Budge 1910, 1915.

¹⁴⁴ See, for example, the description of Or. 5001 (CLM 21) in Crum 1905, 60 (= n° 171).

¹⁴⁵ These were Adam 1912; Cockerell 1932; Ibscher 1911a; Lamacraft 1939; van Regemorter 1958, 1960.

¹⁴⁶ See, for example, van Regemorter 1948, 1949, 1951, 1957, 1962, 1967.

However, the most significant contribution is by Theodore C. Petersen on the bindings of the Hamuli manuscripts kept at the Morgan Library and Museum. Unfortunately, the catalogue, completed in 1948 after a twenty-year effort, was never sent to the press. In 2021 it was finally published posthumously, edited by Francisco Trujillo for the Legacy Press. However, Petersen described the bindings after their conservation treatment at the Vatican Library (1912–1922), which following the conservative approach of the time, separated the bindings from the manuscripts. Franz Ehrle, prefect of the Vatican Library, even if conscious of the importance of this collection for studying the history of the book, performed the operation himself with his table scissors. Luckly, during this research, emerged photostats documenting the state of the sewing prior of the manuscript dismemberment at the ICOR Library that Monica J. Blanchard kindly shared with me. House the bindings from the ICOR Library that Monica J. Blanchard kindly shared with me.

Despite being far from being consistent or complete, the first binding descriptions testify to the development of a new branch of codicology. Namely, the study of the history of bookbinding and its technological and artistic development. In the Germanic area, the terms *Einbandwissenschaft* and *Einbandkunde*¹⁵⁰ were created and, like a proper science, they started to develop specific procedures to investigate their field of inquiry.

1.2.2. The archaeological approach

The increasing attention toward the materiality of the codex and, thus, the structural aspects of bookbinding, ¹⁵¹ together with the development of digital cataloguing standards have radically changed the approach to bookbinding studies.

When the book began to be considered valuable not only as a textual medium but also for its materiality, a new sensibility for its preservation developed. The English bookbinders Roger Powell (1896–1990) and Sydney Cockerell (1906–1987) aimed to maintain the original elements of a book as much as possible, balancing the need to use it with the need to preserve it from further damage. This methodology was passed on to the international conservators who gathered in Florence after the 1966 Arno flood to repair damaged books in the Biblioteca nazionale centrale, marking the beginning of modern conservation practice. ¹⁵²

This new sensibility changed the approach to the documentation of the existing original elements, leading to the development of a growing focus on the structural aspects of binding. As a result, the new approach, called 'archaeological', made it possible to highlight the presence of recurring patterns in the structures and to group bindings accordingly, thus identifying macro-areas corresponding to different binding traditions (Coptic, Ethiopian, Islamic, Byzantine, etc.). This archaeological approach looks at the book as an object through which it is possible to reconstruct technological, artistic, social, economic and intellectual aspects of a society. In this context, Janos Szirmai's work entitled, not surprisingly, *The Archaeology of Medieval Book-binding*, represents a milestone in the systematisation of binding studies. ¹⁵³

¹⁴⁷ Petersen 2021.

¹⁴⁸ Trujillo 2021, ii–iii.

¹⁴⁹ See this dissertation, section 3.2.2.2.

¹⁵⁰ Mazal 1997; 'Einbandforschung', *LGB*, I (1935) (F.-A. Schmidt-Künsemüller), 782. For a short overview of the development of this branch of research see Gumbert 2004, 518–519.

¹⁵¹ To see how bibliographical studies effected bookbinding studies and further bibliography, see Foot 2006, 3–12. ¹⁵² Campagnolo 2020, 55–60.

¹⁵³ C. 1000

¹⁵³ Szirmai 1999.

The process of studying the binding of a book can be compared to an archaeological investigation. In both cases, changes that have occurred over time are analysed, layer by layer. For a binding, this means identifying and interpreting various modifications made to it at different points in history. Each change represents a specific period and has left a trace on the binding.

By using an archaeological approach to examine the binding of the manuscript Milano, Biblioteca Ambrosiana, C 313 inf collection, it is possible to investigate its stratigraphy. Stratigraphy, in this context, refers to the different layers of modifications that the binding has undergone. This method allows researchers to understand how the binding has been altered and preserved through time, providing insights into its history.

The manuscript is a Syro-Hexaplaric Bible dated, on paleographic grounds, to the late eighth or early ninth centuries.¹⁵⁴ On folio 193 of the codex, an ownership note in Syriac was written by a monk named John asking for prayers for himself. The note has been dated on paleographic grounds to the twelfth or thirteenth century,¹⁵⁵ and attests that the manuscript was in the Wadi Natrun Monastery of the Syrians (PAThs ID 206) during that period. This ancient monastery was founded in the first half of the sixth century and starting from the ninth century was converted for the use by Syrian monks from Takrit (TM Geo 11286) in the modern Iraq, who established the library of the monastery. In the early seventeenth century emissary of Cardinal Federico Borromeo purchased the manuscript from the monastery for the newly founded Biblioteca Ambrosiana in Milan. A note in Italian, also on folio 193, attests to this event.¹⁵⁶

The first notes on the binding appear in 1874 in the photolithographic edition of the codex by Antonio M. Ceriani¹⁵⁷ and in 2005 it was further studied by Cesare Pasini.¹⁵⁸ Today the codex presents a binding in wooden boards with raised endbands covered with an elaborated blind-tooled motif on brown leather.

At present, it is not possible to examine directly the codex because of conservative issues. Nevertheless, the Biblioteca Ambrosiana has supplied updated images of the binding for this research (Figure 4b). Confronting these images with those available from the lithographic edition (Figure 4a), interpreting the data considering the information given by Ceriani and Pasini, and applying an archaeological approach it is possible to identify at least three phases in the life of the codex. Each phase is characterised by elements which form a layer.

- 1. Ancient phase (from eighth or ninth century)
- 2. Intermediate phase (until 1992)
- 3. Modern phase (1992 today)

The wooden boards and the blind-tooled leather cover, which bears a Greek inscription reading 'First book of the Sacred Scriptures of the Old and New Testament: It belongs to the deacon Basil', belong to the ancient phase.

In the intermediate phase, the ancient blind-tooled leather cover was obscured with a dark, plain leather, perhaps to hide the name of the original owner, which with time deteriorated and started to fall off.

The modern appearance of the codex derives from the conservation intervention carried out by the monks of Vertemate in 1992. They removed the dark leather covering the blind-tooled

¹⁵⁴ Pasini 2005, 22.

¹⁵⁵ The note was dated by Sebastian Brock. See Pasini 2005, 23.

¹⁵⁶ For the history of the codex and further bibliography, see Pasini 2005.

¹⁵⁷ Ceriani 1874, 139-140.

¹⁵⁸ Pasini 2005, 30-34.

leather, reinforced the spine with a new layer of leather, added raised endbands, and removed the pastedowns, revealing the surface of the boards and exposing the 'fori per l'aggancio dei nervi'¹⁵⁹ (holes for the attachment of sewing supports). This latter feature has been probably misinterpreted by those who carried out the conservation intervention. Indeed, Syriac bindings were 'probably sewn with an unsupported link-stitch sewing' and later threaded through holes drilled in the boards. ¹⁶¹

The Bohairic note, dated to the tenth-eleventh century, is a request for mercy and prayers for who writes, and reads 'Con Dio. Ricordati del peccatore che ha scritto. Dio, abbi pietà di lui. Amen. Così sia.'¹⁶⁵

¹⁵⁹ Pasini 2005, 32.

¹⁶⁰ Balicka-Witakowska 2015, 265.

¹⁶¹ This structure can be seen in a ninth century codex (HMML project number CPB 00440) from the Chaldean Catholic Church of the Patriarchate of Baghdad, accessible upon registration in the vHMML reading room, https://w3id.org/vhmml/readingRoom/view/503234.

¹⁶² The Syriac notes have been edited by Emidio Vergani (Pasini 2005, 39–55) and the note in Bohairic Coptic by Philippe Luisier (Pasini 2005, 56–58).

¹⁶³ T, John, monk by name (only), from Bet Sbīrīnā, from the monastery...' (Pasini 2005, 46, translation mine).

¹⁶⁴ '_____ deteriorated _____ went away _____ image, exemplar (?) _____ pray for me (they prayed)' (Pasini 2005, 51, translation mine).

¹⁶⁵ 'With God. Remember the sinner who wrote. God, have mercy of him. Amen. So be it.' (Pasini 2005, 57, translation mine).



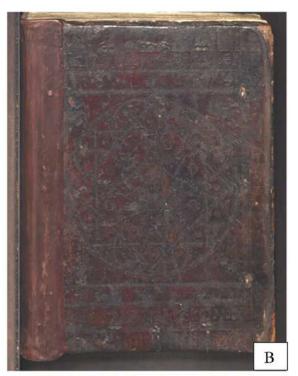


Figure 4. Upper leather cover of Milano, Biblioteca Ambrosiana, C 313 inf collection. a) As it was in 1874 with fragments of the dark leather covering the ancient blind-tooled leather cover. Source: Ceriani 1874. b) As it is today, after the 1992 conservation treatment which remover the dark leather cover from the surface. Source: Biblioteca Ambrosiana.

The binding from the ancient phase has been identified as Coptic based on the decorative motifs tooled on the cover and the presence of the note in Bohairic. However, after developing the typological classification, it is evident that despite the Egyptian appearance of the decoration, the binding has elements entirely foreign to the Coptic tradition. No recorded Coptic binding features wooden boards covered with leather, and the board attachment is executed in a completely different manner. Furthermore, as shown by the typological classification developed in this research, no bindings with wooden boards are attested after the eighth century.

The binding is more probably a product of the Syrian tradition with Egyptian decorative elements deriving from the peculiar cultural syncretism in the Wadi Natrun Monastery of the Syrians.

As this example shows, the archaeological study of the binding allows for the identification of three distinct phases in the life of the binding and assigns them to specific periods. Furthermore, it enables the recognition of interventions as belonging to one tradition rather than another.

The possibility to improve the quality of bookbinding records has been made possible thanks to the use of digital technologies. Their first application in Saint Catherine's project¹⁶⁷ resulted

¹⁶⁶ The features of Coptic bindings in wooden boards have been classified in binding Typology 2A presented in 3.2.2.1.

¹⁶⁷ The Saint Catherine's project is a project by Ligatus and the University of the Arts London for the conservation of the library of Saint Catherine's Monastery on Mount Sinai, for more information see https://www.ligatus.org.uk/stcatherines/.

in the development of a consistent terminology, that is, the LoB, ¹⁶⁸ and a database for the collection and ordering of the surveyed data. After this experience, a growing sensitivity toward the issues preventing the development of the study of bookbinding arose, strongly encouraging the improvement of the efficacy of documentation systems and the adoption of high-quality resources to produce consistent descriptions and share them with the research community. ¹⁶⁹ Based on this documentation practice, guidelines and a selected vocabulary for the description of Ethiopic bookbinding features have been developed within Bm and others. ¹⁷⁰

The research on Coptic bindings had not yet taken advantage of the possibilities offered by digital research environment. The data collected by Petersen and recently published, while of irreplaceable value, are marred by the absence at the time of a recognised and agreed terminology to adhere to. Therefore, the only comprehensive study according to modern standards is the one conducted on Late Antique binding structures in general by Georgeos Boudalis, whose interest focuses on the dynamics that led to the development of the codex form.¹⁷¹

Therefore, to avoid the loss of further information regarding Coptic bindings, this research, in collaboration with the PAThs project, set-up a protocol for bookbinding recording by formulating a standard survey to document particular bookbinding features and selecting the terminology from the LoB thesaurus.¹⁷²

While Szirmai's work dating back to 1999 and Petersen's research published in 2021, but concluded in 1948, form a crucial foundation for our understanding of Coptic bindings, ¹⁷³ subsequent archaeological excavations and new studies have brought to light exciting discoveries. ¹⁷⁴

¹⁶⁸ The Language of Bindings (LoB) is a reference tool created by the Ligatus Research Unit at the University of the Art London, see https://www.ligatus.org.uk/lob/. The LoB thesaurus includes specific terms which describe historical book structures.

¹⁶⁹ Velios et al. 2020.

 $^{^{170}}$ For an overview of the digital projects adopting controlled vocabularies for manuscript recording, see Dal Sasso 2022.

¹⁷¹ Boudalis 2018

¹⁷² The LoB thesaurus, based on Semantic Web technologies, deals with the definition of concepts (not words), avoiding the confusion which can arise when different terms are used to describe the same concept. To each entry is associated a persistent URI, which permits the definition to be retrieved even if the host websites change domain, avoiding the loss of information associated with the link. Furthermore, the vocabularies are freely available to the research community as they are released as Linked Open Data.

¹⁷³ The two reference works for the study of Coptic binding are Szirmai 1999, 7–44 and Petersen 2021.

¹⁷⁴ For example, the excavations in Western Thebes area have yielded some surprising finds. In several places in St Paul monastery in Deir el Bachit (PAThs ID 192), new bindings and binding fragments have been found (Eichner 2015) and three codices complete with their bindings emerged in the area of Sheikh Abd el-Gurna, in a rubbish dump in the southern part of the hermitage in the MMA 1152 (PAThs ID 82) (Górecki 2007). Recent research includes two noteworthy projects. Julia Miller, book conservator and bookbinding historian, has been the guest curator of the online exhibition 'Puzzle me this', which brings to light the early binding fragments held in the University of Michigan Papyrology Collection (Miller and University of Michigan Library n.d.). The publication resulting from Sophie-Elisabeth Breternitz's PhD thesis, restorer for many years at the Papyrussammlung der Universität zu Köln, has brought to light the presence of one Coptic binding in that collection (Breternitz 2020).

2. The methodology of the research

The present chapter delves into the methodological approach developed and adopted during the research to study the role of Coptic bindings as archival instruments. The chapter is divided into four sections, each describing one of the consecutive phases of the research, involving structuring the survey for the description of binding and practices of recovery, repair and reuse, the creation of a database, the collection and the surveying of the data.

Section 2.1, 'Preliminary phase: survey design', addresses the need to approach the study of Coptic binding with an orderly and systematic method. Section 2.1.1, 'A survey for Coptic bookbinding recording', presents how the research, to obtain consistent descriptions of Coptic bindings, developed a survey that could also facilitate a comparative study with different binding traditions using a standard form and terminology. Finally, section 2.1.2, 'A survey for recovery, repair, and reuse practices recording', describes the criteria and the method developed to record practices of recovery, repair and reuse in Coptic book production.

Section 2.2, 'Construction of a database', describes how a database has been set up in the informative system of the Universität Hamburg, Heurist, based on PAThs and Bm databases to incorporate the aspects highlighted in the surveys and how the database benefits of a large amount of data freely available in PAThs database, the Atlas. A new database has been necessary to collect data on bindings pertaining to non-literary and non-Coptic manuscripts that are not the object of the PAThs project and, therefore, are not included in the Atlas.

Section 2.3, 'Data collection', presents the actual process of data collection by applying the developed survey. Specifically, section 2.3.1, 'Indirect data collection', describes how the data have been collected from the literature and photographic reproductions. Section 2.3.2, 'Direct data collection', presents the method for collecting data from firsthand and on-site examination of bindings. Furthermore, this section describes the workflow adopted to work directly with these fragile objects. Finally, section 2.3.3, 'Recording practices of recovery, repair, and reuse', explicates how data on recovery, repair, and reuse practices have been collected.

Lastly, section 2.4, 'Data query', describes how the collected data, stored in the database, can be queried and possibly published online to become a web application open to public users.

In summary, this chapter presents the methodology adopted to document and thus better understand Coptic bindings. It presents the survey developed to create uniform descriptions, the database in which the data is stored and organised, the data collection phase and the possibilities offered by querying the database.

2.1. Preliminary phase: Survey design

2.1.1. A survey for Coptic bindings recording

To achieve consistent and comprehensive binding descriptions, it has been necessary to develop a survey specifically tailored to the present research.¹⁷⁵ It was indeed necessary to make binding descriptions obtained from different sources – literature, photographic documentation, and direct observation – homogeneous and comparable. Furthermore, to share the research results with the scientific community, the survey was designed to produce binding descriptions incorporating terms that are commonly used within the technical jargon, making the descriptions accessible to a wider audience.

To achieve this goal, the first step has been the use of a controlled terminology to avoid the use of different terms to describe the same concept, thus limiting data redundancy, and increasing the efficiency of the documentary system. The terminology has been selected from the structured LoB vocabulary. Since the LoB vocabulary has become a reference tool for bookbinding studies, this research uses it as much as possible to create widely understood and agreed upon descriptions. The research refers to it for the definition of most technical terms. Nevertheless, given that standard terminology for the specific characteristics of the Coptic bookbinding tradition was not available, a tailored terminology was developed in collaboration with the PAThs project to produce consistent and homogeneous descriptions of bindings and provide accurate data to researchers. The terms were typically chosen from those most frequently found in the literature. At the end of the dissertation, a Glossary of technical terms with explanations of these recurring technical terms is included.

The second step to create homogeneous binding description was to organise the information in a structure that could be applied repeatedly to all the bindings and fragments observed. The structure was developed from the systematic descriptions of binding techniques in Szirmai's *The Archaeology of Medieval Bookbinding*. Hence, it subdivides the information according to the constituent elements of the binding: sewing, boards, spine lining, cover, and fastening system.

The survey was also designed to facilitate the comparative study of different binding traditions to highlight their similarities and differences. Therefore, instead of developing new terminology and protocols, existing ones were used and supplemented whenever possible. Hence, the survey was modelled on the one developed for Bm to describe Ethiopian bindings. ¹⁷⁸ Furthermore, the study draws on previous research on other binding techniques, namely Greek and post-Byzantine, using and adapting the descriptive systems designed for them.

¹⁷⁵ Notwithstanding Petersen's pioneering contribution to Coptic bindings studies, the survey he developed in 1948 has become outdated and does not reflect the latest advancements in binding studies. Therefore, the present study aims to update Petersen's survey by incorporating recent methodologies.

¹⁷⁶ The vocabulary, based on Semantic Web technologies, deals with the definition of concepts rather than words to overcome language barriers and thus create a common ground for understanding. To each entry is associated a persistent URI, which permits the definition to be retrieved even if the host website changes domain, avoiding the loss of information associated with the link. Furthermore, the vocabulary is freely available to the research community as it is released as Linked Open Data. See https://www.ligatus.org.uk/lob/.

¹⁷⁷ See Szirmai's table of contents to see how the information on bindings have been structured (Szirmai 1999, iii–viii).

¹⁷⁸ For a description of the schema, see Liuzzo and Reule 2022 and Dal Sasso 2022.

Table 2 presents an overview of the survey for Coptic binding and binding fragments description. The fields here summarised are detailed in the following section 2.2.

Table 2. Summary of the survey fields for bookbinding description.

Evidence of former binding

Information on evidence of a former binding.

Dimensions (mm) and proportions

Measurement in mm (H X L) of the boards and the back (if applicable), or of the fragments.

Sewing

Information on the sewing or sewing thread including presence of sewing, type of sewing, number of sewing stations, fold pattern.

Boards

Information on the material and technique used for board formation and description of specific features, such as board attachment system, bevels, and edge grooves.

Cover

Information on the cover's material, presence of fore-edge flap and description of specific features, such as turn-ins, mitres, and decoration.

Endbands

Information on the endband type.

Spine lining

Information on the spine lining's material.

Fastenings

Description of the type of fastenings or their remnants.

Other ties

Notes on the position and description of other ties or their remnants.

2.1.2. A survey for recovery, repair, and reuse practices recording

Looking at Late Antique and Medieval Egyptian book production reveals a widespread desire not to waste any material, as evidenced by the recurrence of recovery, repair, and reuse practices. For this research, these practices have been defined as follows:

- Recovery = use of waste materials left over from producing other objects, usually discarded because they are too small or of low quality.
- Repair = practice aimed at prolonging the existence of an object, both manuscript leaves and binding, in its present function.
- Reuse = use of a pre-existing object to create something new, conceptually or materially different.

An example of recovery is the use of the extremities of the skin processed to produce leather or parchment. These areas are irregularly shaped because corresponding to the legs, abdomen, and neck of the animal skin. When the skin is mounted on a frame to obtain parchment, these parts cannot be stretched properly (Figure 5a). Furthermore, since it is difficult to eliminate the hypodermis and hairs completely with the parchmenter's knife, these areas are often thicker, translucent, ¹⁷⁹ or hairy. Because of their irregular shape and low quality, they are often excluded

¹⁷⁹ It is a consequence of incomplete removal of hypodermis from the skin which causes, due to the presence of fats, the deterioration of collagen.

from the regular cut of rectangular bifolium. Nevertheless, in some manuscript they are recovered to produce bookblocks, as in the case of the Coptic manuscript from the city of Edfu (PAThs ID 95) kept in London, BL, Or. 7022 (CLM 194) (Figure 5b). The practice of recovery is found also in covers, when, for example, leather offcuts are joined to form a larger piece of leather to use it as a cover, like in NHC V (CLM 666) (Figure 5c).



Figure 5. Examples of practices of recovery. a) Skin stretched on a frame for parchment creation. Marginal areas are not tensioned. Source: photography mine. b) Recovery of marginal areas in the production of the bookblock. London, BL, Or. 7022, f.23v (CLM 194). © British Library. Source: British Library. c) Detail of the cover of the Nag Hammadi Codex V (CLM 666). Several pieces of leather are recovered and stitched together to make the flap. © The Claremont Colleges Digital Library . Source: The Claremont Colleges Digital Library, Nag Hammadi archive, https://ccdl.claremont.edu/digital/collection/nha/id/1994/rec/10.

As far as repair is concerned, examples are the stitching of tears and mending of losses formed in the leaves. For example, in Cologny-Genève, Fondation Martin Bodmer, P.Bodmer XXI (CLM 38) the tears on some papyrus leaves have been repaired by stitching them together (Figure 6a). An interesting feature of reparations of holes on parchment writing supports, has been observed on some manuscripts under research. The holes were repaired as part of the production process using an ancient technique documented by Jiří Vnouček. This method involves applying 'epidermis patches' on the hair side of the skin. ¹⁸⁰ The technique has been observed in manuscripts from Edfu (PAThs ID 95), such as London, BL, Or. 6783 (CLM 195) and the Freer Gospel (TM 61831) (Figure 6b and c).

Additionally, repairs can be made to the binding, such as when sewing is consolidated or redone due to wear and tear. In the upper wooden board of Torino, Museo Egizio, Provv. 7117/02 (CLM 1121), as holes were drilled for threading the slips of the thongs to attach the board, the wood broke, forcing the binder to drill another hole nearby (Figure 6d). In Barcelona, Arxiu Històric de la Companya de Jesús a Catalunya, P. Palau Ribes 181-183 (CLM 3956) instead, it was necessary to address a defect in the wood, which had a knot that could cause distortion and breakage. The knot was removed, and a paste was used to fill the hole (Figure 6e).

¹⁸⁰ The results of the study on 'epidermis patches' are presented in Vnouček 2022.

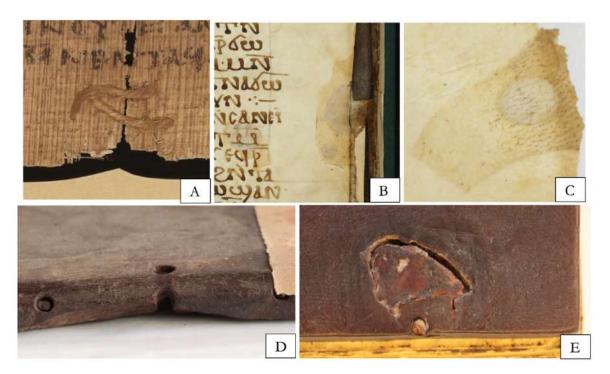


Figure 6. Examples of repairs both to the writing support and the binding. a) Stitched tear on a papyrus leaf of Cologny-Genève, Fondation Martin Bodmer, P.Bodmer XXI (CLM 38). Source: Bodmer Lab. b) Holes in the parchment leaf of London, BL, Or. 6783 (CLM 195) f. 60r repaired with 'epidermis patches'. Source: British Library. c) A hole in the parchment leaf of the Freer Gospel (TM 61831) repaired with an 'epidermis patch'. Source: https://manuscripts.csntm.org/manuscript/View/GA_032. d) Repair to the wooden board of Torino, Museo Egizio, Provv. 7117/02 (CLM 1121). Source: Photograph mine. e) Repair to the wooden board of Barcelona, Arxiu Històric de la Companya de Jesús a Catalunya, P. Palau Ribes 181-183 (CLM 3956). Source: Photograph mine.

Reuse practices involved not only the reuse of written leaves as writing support to produce palimpsests but also bindings. Covers could maintain their function and be reused as inner covers, just turned of 90 degrees, adapted to a new format, or simply pasting over with a new layer of leather or boards. Leather covers could lose their original function and be reused as raw material to create rigid boards. In this framework can be set the reuse of manuscripts fragments in Coptic bookbinding. The fragments of old, discarded books were often reused as sewing guards to reinforce the centrefolds of the quires, endleaves to protect the textblock, pastedowns, and adhered together to provide stiff boards to the cover. Figure 7 shows vertically oriented writing lines on the boards of the binding of New York (NY), The Morgan Library and Museum, M577 (CLM 253), which testify to the reuse of manuscript papyrus leaves to produce them. As already mentioned in section 1.2.1, since researchers were interested in the content and language of ancient manuscripts, Coptic bindings were often the object of invasive interventions to facilitate the handling of the leaves, and the boards could even be split to extract the ancient writing fragments. Unfortunately, the binding from which the fragment came was often not annotated. Thus, information on the provenance of many fragments is rather laconic.



Figure 7. Papyrus manuscript leaves reused to produce stiff boards for the leather cover of New York (NY), The Morgan Library and Museum, M577 (CLM 253). © The Morgan Library and Museum. Source: https://www.themorgan.org/collection/coptic-bindings/46.

2.2. Construction of a database

The survey for the description of bindings developed during this research was integrated into the scheme for the codicological description of codicological units developed by the PAThs team. The terminology adopted was published in the PAThs *Manual for the correct use and reading of the codicological descriptions of the codicological units*.¹⁸¹ Hence, the descriptions of bindings associated with Coptic literary manuscripts firstly appeared in the PAThs database and are openly accessible online via the web application of the project PAThs, the Atlas, looking for the relative manuscript description.¹⁸² The web application allows studying in-depth the Coptic literary production between the third and thirteenth centuries, where the description of the bindings is only a tiny part of the detailed codicological study of the manuscripts, their contents and places of production, storage and discovery.¹⁸³

However, during the research, few texts with Coptic bindings emerged that could not be included in the PAThs project, as they were neither literary nor written in the Coptic language. Consequently, to study the specific characteristics of the Coptic binding technique as a whole,

¹⁸¹ The Manual for the correct use and reading of the codicological description of the codicological units is available at https://docs.paths-erc.eu/handbook/manuscripts. I would like to thank Julian Bogdani for implementing the scheme in the PAThs database.

¹⁸² The research can be performed following the link https://atlas.paths-erc.eu/manuscripts.

¹⁸³ This research is made possible through the teamwork at the foundation of the PAThs project. One of the outcomes of the project is the online web application, the Atlas, comprising several sections that facilitate a comprehensive investigation of various aspects of Coptic literary production (places, manuscripts, works, authors, titles, colophons, persons, collections). Each section of the Atlas comprehends descriptive cards identified by a unique ID, edited by experts in the specific field. My profound gratitude goes to all the researchers of the PAThs team.

a database was created in the information management system adopted by Universität Hamburg, ¹⁸⁴ Heurist. ¹⁸⁵ The database created in Heurist has been modelled on PAThs and Bm ones.

To contextualise the production of Coptic bindings and study their archival function, the descriptions of Coptic bindings could not be independent but had to be linked to the description of the enclosed manuscripts. Therefore, the database was designed to collect data from existing databases, mainly PAThs but also Trismegistos (a database that collects information on ancient texts mainly from Egypt), which offer the user a wealth of information regarding the textual content, dating and significant locations related to the manuscript. Therefore, only the data considered essential for the present research were selected for the survey.

The database thus contains records of detailed descriptions of Coptic bindings and contextual information on the relevant codicological units. The records are structured to follow the standard TEI¹⁸⁷ developed as much as possible to represent texts in digital format. The TEI Guidelines define an XML schema for correctly representing texts and highlighting their specific characteristics using XML elements and attributes. Therefore, the manuscript descriptions which conform to TEI guidelines are machine-readable XML files. Bm manuscript descriptions – therefore, binding descriptions – conform to TEI guidelines.

It should be noted that information is not entered into Heurist in XML format. However, since it is possible to export the data in Heurist as XML files and customise them according to an integrated template system,¹⁹⁰ it is possible to export the data in a schema that conforms to the TEI Guidelines. Therefore, the information is already structured according to TEI guidelines to facilitate possible export. Thus, the manuscript description comprises five components: manuscript identifier, manuscript content, physical description, manuscript history and additional information. Within the five main components, the information is organised according to a series of headings that reflect, as far as possible, the order proposed by the TEI guidelines. However, in the survey developed in Heurist, additional headings are present that are not part

¹⁸⁴ I thank Ralf Möller and Sylvia Melzer for their support. Despite the user-friendly interface of Heurist, their expertise has been essential in setting up the database.

¹⁸⁵ Heurist is an open-source web database service specifically tailored for humanities research, which allows users to create and manage databases. The system was born at the University of Sydney in 2005 by the designer Ian Johnson and the engineering skills of Artem Osmakov (https://heuristnetwork.org/history. Today, one Heurist server runs in Germany, and this information management system has been adopted by the Universität Hamburg (https://www.fdm.uni-hamburg.de/en/service/heurist.html. Heurist resource code is freely accessible online on Github (https://github.com/HeuristNetwork/heurist. Furthermore, Heurist is built on MySQL, a widely used open-source relational database server. The data stored in Heurist can be exported in various formats (including XML), ensuring the system's sustainability.

¹⁸⁶ The focus of the project is gradually expanding, see https://www.trismegistos.org/about_history.php. According to the coverage estimates for Egypt and the Nile valley, the project currently treats almost all Greek and Coptic papyrological texts from 800 BCE to 800 CE. In comparison, after 800 BC, it covers 90% of the Greek papyrological material while it includes only the documentary texts in Coptic. See https://www.trismegistos.org/about_coverage.php.

¹⁸⁷ The Text Encoding Initiative (TEI) is a non-profit association of international academic institutions, research projects, and individual scholars that develops and maintains a standard for the representation of texts in digital form, see https://tei-c.org.

¹⁸⁸ The TEI schema is imposing as a standard for manuscript description and various institutions and project already adopted it for binding description. For a review of project and institutions using TEI schema for binding descriptions see Dal Sasso 2022.

¹⁸⁹ XML stays for Extensible Markup Language, a markup language, and a standard format for data storage and exchange. It is designed to be both human-readable and machine-readable. In an XML document, the fundamental logical unit is the element. Attributes define properties or characteristics of an element.

¹⁹⁰ https://heuristnetwork.org/faq/.

of TEI guidelines. Instead, they are derived from the descriptions of codicological units in the PAThs database or they have been introduced for the specific purposes of this research.

Within each heading, further fields have been created to describe specific features. For example, in the compartment 'physical description', the heading 'binding' has been created together with a series of fields, each corresponding to an element of the binding (evidence of former binding, dimensions and proportions, sewing, boards, cover, spine lining, endbands, fastenings, and other ties). In addition, each field may contain, in a hierarchical structure, subfields describing characteristics and properties of the field to which they refer. For example, in the field 'dimensions and proportions', the subfields 'board height', 'board width', 'proportion height/width', 'board thickness', 'spine width', and 'notes' have been created.

Heurist requires to define some specifications to create a new field (and subfields). Some of the specifications are optional, and others are mandatory. For example, a possible specification is whether the fulfilment of the new field will be necessary to complete the survey. It is also possible to determine whether the new field allows the choice of multiple values. If the field has an exact semantic correspondence with a concept with a URI, it is possible to specify it. The creation of a new field instead is conditional on adding the field's name, an explanatory text, and the type of data of the information to be inserted. It is possible to choose among different data types:

- Numeric = the information is given as a positive or negative number, with or without decimals.
- Text (single line or multi-line) = the information is contained in a short or long description.
- Date / time = this data type accommodates calendar dates and date ranges.
- Geospatial = the information can be entered as coordinates to pinpoint a location on the earth's surface.
- Dropdown (terms) = this data type is at the base of the creation of consistent descriptions since it allows the choice of single or multiple values from a selected vocabulary (Figure 8a).

The selected vocabulary comprises a controlled list of terms identifying variants of the described characteristic. Each term must have a label to be added to the vocabulary and may be accompanied by a short definition. If an exact semantic correspondence exists between the term and a concept in the LoB thesaurus, it is made explicit by providing the URI of the concept definition. In addition, a small image can be added to facilitate understanding of the term.

Figure 8b shows the addition of the term 'Dec 6' to the vocabulary for the description of decorative designs 'Design vocab', where a thumbnail image is added to identify the design.

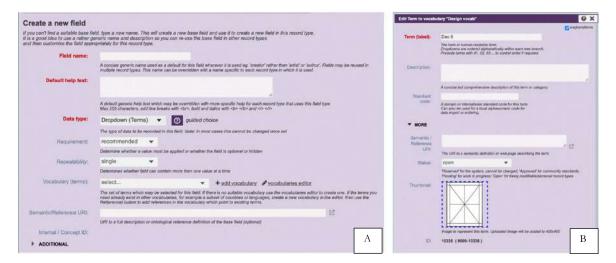


Figure 8. Snapshots of the database in Heurist. a) Dialogue window to create a new field in the Heurist database with Dropdown (terms) data type, b) Window to add a new term to the controlled vocabulary 'Design vocab'.

Table 3 presents the general structure of a manuscript description in the Heurist database. First, the information is organised thematically into the five main compartments, indicated in the table on italics. Next, the data is grouped under headings according to the subject matter, represented in the table as a list text. The table shows which headings have further specifications in brackets, while sub-fields are not displayed.

The binding description is part of the 'physical description' compartment. When a specific feature could not be observed, the corresponding heading was removed from the description.

Table 3. General structure of manuscript descriptions in the Heurist database.

Manuscript identifiers

- CLM
- TM
- Shelfmarks

Manuscript contents

- Language
- Works (conventional title and, if applicable, 191 Clavis Coptica and PAThs ID)

Physical description

- Writing support
- Leaves dimensions (leaf width, leaf height)
- Condition (repair, recovery, reuse, modern restoration)
- Binding (evidence of former binding, dimensions (mm) and proportions, sewing, boards, cover, spine lining, endbands, fastenings, and other ties)

Manuscript history

- Dating (source for dating, dating, dating criteria)
- Relevant places (type, place name, mappable location, source of information)
- Modern history

Additional information

- Bibliographic references
- Acknowledgments (editors, links, link to files, and source of information)

¹⁹¹ The Clavis Coptica is attributed to Coptic literary works only.

Once the database structure was designed, it was first populated with data already available in existing databases, mainly PAThs but also Trismegistos. Since the contents of the PAThs database are freely available, it was possible to extract them using the BraDypUS database API. The relevant data were then extracted to fill in the survey fields of the Heurist database. In contrast, automatic data import from Trismegistos is impossible, as there is no API to query the entire database. Therefore, the data were added manually. However, in both cases, the link to the source web page of the information is always provided, together with the names of the editors of the manuscript descriptions, if known.

After this general introduction, it is possible to examine the survey in detail.

Manuscript identifiers

The compartment contains the information required to identify the manuscript.

CLM and TM

The identifiers are unique and stable numerical sequences that identify a codicological unit unambiguously. An identifier is unique since it refers to the codicological unit regardless of the fact it can be fragmented into different collections (a striking example is the one mentioned in 1.2.1 relating to the manuscript fragments from the White Monastery) and thus can consist of different shelfmarks. Furthermore, identifiers are stable because they do not change over time, as shelfmarks can do. However, since a universal system for identifying manuscripts has yet to be used, ¹⁹⁵ projects develop identifiers tailored to their needs, as in the case of the PAThs and Trismegistos projects. The PAThs project developed the CLM (Coptic Literary Manuscript) identifier, and the Trismegistos project assigns each codicological unit a TM (Trismegistos number). Both projects reference to the identifiers of other projects when these have already classified or described the codicological unit.

The first phase of the research occurred within PAThs database. Therefore, as part of the documentation method, if the binding belonged to a manuscript with a CLM identifier, the same identification number was assigned to the binding to indicate that it belonged to the same codicological unit. Furthermore, in the case of detached bindings or fragments, a CLM was assigned to each binding or significant fragment that could be reliably determined as part of a Coptic binding to confirm the presence of a codicological unit, as classified by the PAThs project classification system.¹⁹⁶

When the Heurist database was created in the second phase, the research avoided producing new identifiers and used existing ones (CLM and TM) to refer to codicological units. The manuscript identification number can be the CLM for literary Coptic manuscripts or the TM for manuscripts outside the scope of the PAThs project. Thus, the entities in the Heurist database comprehend the manuscripts with bindings and detached bindings described in PAThs and

¹⁹² BraDypUS is the relational database where the data of the project PAThs can be found. API stands for Application Programming Interface. Via the API it is possible to query the BraDypUS database to harvest the desired PAThs data.

¹⁹³ My gratitude goes to Sylvia Melzer who developed the mapping to import the data from the PAThs API in Heurist. For an overview of the functioning the PAThs API, see https://atlas.paths-erc.eu/api.

¹⁹⁴ APIs for smaller sets of data on specific topics are provided, see https://www.trismegistos.org/dataservices/. ¹⁹⁵ Even if the International Standard Manuscript Identifier (ISMI) initiative has proposed to create a universal manuscript identifier. See Bougard et al. 2020.

¹⁹⁶ See https://atlas.paths-erc.eu/manuscripts.

manuscripts with bindings outside the scope of PAThs but included in the Trismegistos database.

Shelfmarks

Shelfmarks indicate the present physical location of a manuscript (or its part). Since a codicological unit can be fragmented into multiple locations, the manuscript description may include multiple shelfmarks. The shelfmark in the survey is a string where the first part indicates the storage institution, and the second reports the item number in the collection.

Manuscript contents

The component describes the intellectual content of a manuscript.

Language

Notes the language in which the manuscript is written. It admits the choice of multiple values among Arabic, Coptic, Greek, and Latin.

Works

Under this heading, the fields record the textual content of the manuscript. This part of the database enables to analyse the relationship between the manuscript's content and the type of binding, to determine if the specific contents were bound consistently and thus assess the archival function of the bindings.

In the case of a literary manuscript in the Coptic language, the information relating to the work is imported from PAThs. It includes the work's common title, the *Clavis Coptica*, ¹⁹⁷ and the PAThs ID of the work. If the manuscript falls outside the scope of PAThs, the content is manually inputted from the Trismegistos database from the field 'Authors/works'.

Physical description

The component contains a physical description of the manuscript subdivided into specialised headings.

Writing support

Under this heading, the type of material used as writing support is specified, allowing multiple choices among the values papyrus, parchment, and paper. The section assesses whether a specific binding typology was associated with a particular type of writing support.

Leaves dimensions

This section aims to determine if the dimensions of the binding correspond to the dimensions of the leaves. In ancient book structures, the boards were cut to match the size of the leaves until squares¹⁹⁸ made their appearance in the sixteenth century. However, in some recorded specimens the dimension of the boards is larger than that of the leaves.¹⁹⁹ The relative size of

¹⁹⁷ The *Clavis Coptica*, assigned by the *Corpus dei Manoscritti Copti Letterari* (http://www.cmcl.it/), allows univocal identification of each text. It is formed by a 4-digit number preceded by 'cc'.

¹⁹⁸ For a definition of *squares*, see http://w3id.org/lob/concept/3816.

¹⁹⁹ See Dal Sasso 2023a, 105.

the leaves and the boards seems to be related to how the books were stored, as squares were not necessary until books were stored horizontally.²⁰⁰

Leaf dimensions are imported from the PAThs database to Heurist and include the height and width of the leaves in relative numeric data type fields. The measurements are expressed in millimetres (H X W).

Condition

Under this heading are grouped fields that describe the condition of the codicological unit and its modifications through time. It comprehends four fields: recovery, repair, reuse, and modern restoration.

Recovery, repair, and reuse

The fields 'recovery', 'repair', and 'reuse' give the possibility to note the presence of the relative phenomenon, choosing from a dropdown list the term 'yes' or 'no'. The sub-field 'note' can describe what has been observed with a multi-line text. The field 'reuse' comprehends two additional sub-fields named 'reused items' and 'elements of reuse'. The subfield 'reused items' is a record pointer data type directly connecting to another database record. Thus, a direct link to the description of the items reused in the codicological unit is provided. Therefore, if information permitted, the reused elements were virtually reassembled into their *unités de circulation*, ²⁰¹ codices as before being dismembered. The sub-field 'elements of reuse' indicates which parts of the described codicological unit were made by reusing older discarded codicological units. The sub-field allows multiple choices from the possible values:

- Binding
- Board laminates
- Endleaves
- Pastedowns
- Sewing guards
- Writing support

Data on repairs on Coptic literary manuscripts were imported to Heurist from the field 'ancient restoration' in the PAThs database. A list of reused Coptic literary manuscripts and relative information was also imported from PAThs database while the list of reused manuscripts which fall outside the scope of PAThs was extracted from Trismegistos (see section 2.3.3). The rest of the fields have been fulfilled manually.

Modern restoration

The field gathers information on the conservation treatments following the acquisition of the codices. Therefore, it records the interventions, with a particular focus on the separation of the binding from the manuscript. If observed during the direct examination of the bindings in the

²⁰⁰ Another characteristic that indicates that the book has been stored horizontally is the presence of protective fittings, usually of metal, at the four corners and at the centre of the pane. The use of bosses (see http://w3id.org/lob/concept/1230), usually of metallic material, was in fact added to prevent the cover from being damaged by contact with the surface of the storage place. Their presence also indicates that the book was not in direct contact with other books, the covers of which could have been damaged by rubbing against them.
²⁰¹ For a definition of 'unité de circulation' see Andrist et al. 2013, 59.

collections, it summarises of the current conservation state of the items and their housing. Data already present in the PAThs database have been imported to Heurist.

Binding

This part of the database reflects the survey introduced in section 2.1.1 developed for the present research to obtain consistent and detailed descriptions of Coptic bindings.

Therefore, the heading 'binding' is structured in fields corresponding to bookbinding elements (sewing, boards, cover, endbands, fastenings, and other ties), plus two fields to register the evidence of former binding and the binding dimension and proportion. The fields dedicated to binding elements include one or more sub-fields that describe that element's features. A controlled vocabulary was developed for each feature, indicating, whenever available, the semantic correspondence with concepts in LoB. Therefore, the feature description is not entirely free, as the survey only allows the choice of values from the controlled vocabulary. However, for each bookbinding element, it is possible to add multi-line texts in the sub-field 'notes' and photographs or drawings in the sub-field 'images' to clarify the described feature.

If not differently stated, the data relative to bindings of Coptic literary manuscripts have been harvested from the PAThs database. In contrast, the descriptions of Coptic bindings of manuscripts outside the scope of PAThs have been added manually.

Evidence of former binding

The multi-line text field records the evidence of the existence of a former binding, which can be noted if the manuscript leaves show an unused set of sewing holes. However, this assessment is often not possible due to the absence of photographic reproductions of the manuscript, the fragmentary condition of the bifolia and, not least, because even intact bifolia have been separated to be housed between glass plates.

Dimensions (mm) and proportions

The field indicates the dimensions of the binding in millimetres. It reports the height, width, and thickness of the boards. If it has been preserved, it also records the dimension of the spine. Furthermore, the field provides the ratio of the board height to the board width (proportion height/width) to determine whether different eras preferred specific proportions. Square formats approach a ratio of 1:1, while the ratio value for rectangular formats is greater than 1. Ratios smaller than 1 indicate an oblong format in which the board width exceeds the height. In the case of the bindings of the manuscripts from Hamuli (PAThs ID 99), the dimensions of the boards are taken from Petersen's catalogue of *Coptic bookbindings in the Pierpont Morgan Library*. If only binding fragments are preserved, their dimensions are reported in a field 'note' along with other observations, but the ratio cannot be provided.

The data on board dimensions are imported from PAThs, gathered from literature, or obtained from the direct examination. The data in the sub-field 'proportion' are obtained by automatically calculating the ratio between the height and width values of the boards.

Sewing

²⁰² Please refer to the Glossary of technical terms for an explanation of the terms used in the controlled vocabularies to describe the bindings.

²⁰³ Petersen 2021.

Sewing is an element that is rarely preserved in Coptic bindings as they have been customarily detached from the respective manuscripts. Detaching the covers involves cutting the sewing if it is not damaged or broken. In lucky cases, the data in this section is derived from direct observation of specimens in which the sewing or part of it has been preserved. Other manuscripts do not preserve the sewing, but the information was gathered from photographic documentation and written reports before the books were disassembled. In some cases, although it was not possible to collect information on the appearance of the sewing, it was possible to read the traces of its presence by recording the number of sewing holes corresponding to the number of sewing stations. However, the field is often left blank due to the absence of such information. Nevertheless, since sewing is crucial in placing the binding in its cultural-historical context, the database provides as many sub-fields as necessary to describe any remaining traces in detail.

Presence of sewing

The sub-field notes whether information on the sewing could be gathered.

Type of sewing

It describes the sewing technique which has been preserved or was recorded before the manuscript dismembering. Since in Coptic binding more than one type of sewing could be present, the field allows the choice of multiple values among the following:

- Chainstitch sewing simple
- Chainstitch sewing paired sewing stations
- Stab sewing
- Overcasting
- Tacketing

Number of sewing stations

The numeric sub-field records the number of sewing stations, which is the number of times the sewing thread pierces and passes through the fold of the quire. If the thread is missing, but the bifolia are still conjoint, counting the number of holes along the fold is possible, corresponding to the number of sewing stations. However, it must be noted that there may be other holes along the fold besides the sewing stations. For example, holes located close to the head and tail may indicate the sewing of the endbands, which may be a separate operation from the sewing of the quires, performed with a different thread.²⁰⁶ However, since the endbands, like the sewing, are often lost during the dismantling of manuscripts, it is only possible to know whether

²⁰⁴ The specimens with remnants of sewing that I could directly observe are the following: Barcelona, Arxiu Històric de la Companyia de Jesús a Catalunya, P. Palau Ribes 181-183) (CLM 3956); Leiden, RMO, 134 (AMS 9) (CLM 3355); Dublin, CBL, BP XXI (TM 61873); Cologne, Papyrussammlung der Universität zu Köln, P. Theol. 53–60 (TM 145317).

²⁰⁵ Most of the manuscripts still preserving the sewing are in Cologny-Genève at Fondation Martin Bodmer and are P.Bodmer III (CLM 33), P.Bodmer VI (CLM 34), P.Bodmer XVI (CLM 35), P.Bodmer XVIII (CLM 36), P.Bodmer XIX (CLM 37), P.Bodmer XXI (CLM 38), and P.Bodmer XXIII (CLM 40). In the latter, the leaves cracked along the inner margin so that the inner portion of the quires, is detached from the bookblock.

²⁰⁶ Petersen (2021, 157 = binding 25) notes that endbands were executed with separate sewing in New York (NY), The Morgan Library and Museum, M570 (CLM 208).

the holes at the head and tail ends are those for sewing the endbands if the information was recorded before the codex was dismembered.

Therefore, if it was impossible to establish with certainty which holes correspond to sewing stations, the sub-field provides an integer number representing the overall number of holes in the fold.

Fold pattern

The fold pattern is 'the sequence of stitches visible in the fold'.²⁰⁷ Since in Coptic bookbinding the fold pattern can switch from continuous to periodic, a sub-field allows the choice of more than one value among those in the controlled vocabulary:

- All-along one length of thread
- All-along two lengths of thread
- Periodic one length of thread
- Periodic two lengths of thread
- Sewing guards

Boards

The field allows for describing the board material, board features, and the board attachment in dedicated sub-fields.

Board material

The sub-field indicates the material of which the boards are made. Various materials could form the boards of Coptic bindings; therefore, the sub-field admits the choice of multiple values among the following:

- Mud-like substance²⁰⁸
- Leather
- Paper
- Papyrus
- Vegetal fibres
- Wood

Board features

The sub-field describes the features relating to the form of the boards. Possible values include:

- Bevels
- Edge grooves
- Double boards
- Folded boards

²⁰⁷ Spitzmueller 1982, 45.

²⁰⁸ The use of a mud-like substance as filler has been recorded only in AMS 9 (CLM 3355).

Board attachment

The board attachment is the system used to attach the boards to the bookblock or between them. The sub-field also describes the thread pattern moving from one sewing station to another. It is possible to choose one or multiple values among the following:

- n.d. (not visible)
- n.d. (not preserved)
- Hinging slips
- Back strip
- Hinging loops C pattern
- Hinging loops Z pattern
- Hinging loops I pattern
- Integral part of the sewing

The value 'hinging loops – C pattern' defines a board attachment system similar to that found in some post-Byzantine bindings, described by Boudalis in his doctoral thesis as 'I Uns/5'. According to this system, the board attachment made with hinging loops is named 'I Uns' followed by a number representing the variation in the movement of thread which connects one attachment station to the next. However, this research departs from that nomenclature to adopt a simpler one, as Boudalis himself does in a recent publication, where he describes the patterns of board attachment with hinging loops in Coptic bindings as U, Z, and X patterns²¹⁰ to emphasise their similarity with the letters of the Latin alphabet.

However, identifying the similarity of the board attachment pattern with the letters indicated by Boudalis is not immediate. It was therefore deemed appropriate to modify the terminology to make evident the similarity of the board attachment pattern with one of the capital letters of the Latin alphabet when looking at the inner surface of the boards. Therefore, the board attachments with hinging loops are described in the present research as C, S, and I pattern. The 'C pattern' corresponds to the 'U pattern' codified by Boudalis in 2018 and to the pattern 'I/Uns 5' codified by Boudalis in 2004 for post-Byzantine bindings. The 'S pattern' has no parallels in post-Byzantine tradition and corresponds to the 'Z pattern' used by Boudalis in 2018. The 'I pattern' does not find parallels in late-Byzantine tradition and corresponds to the 'X pattern' codified by Boudalis in 2018. Table 4 presents the concordance between the nomenclature for board attachment with hinging loops used by this research and that used by Boudalis in 2004 and 2018.

²⁰⁹ Boudalis 2004, 778–780.

²¹⁰ Boudalis 2018, 73 and Fig. 48.

Table 4. Concordance of nomenclature for board attachment with hinging loops.

This research (Coptic binding)	Boudalis 2018 (Coptic binding)	Boudalis 2004 (post-Byzantine binding)	Image
C pattern	U pattern	I Uns/5	
			New York (NY), The Morgan Library and Museum, M597 (CLM 233). Source: Petersen
			2021, Fig. 26.
S pattern	Z pattern	-	New York (NY), The Morgan Library and Museum, M588 (CLM 229). Source: Petersen 2021, Fig. 27.
I pattern	X pattern	-	New York (NY), The Morgan Library and Mu-

Cover

The field describes the cover of the binding, if present.

Presence of cover

The sub-field records the preserved parts of the cover. It allows multiple selections among the values upper, lower, and back.

seum, M634 (CLM 257) . Source: Petersen 2021, Fig. 25.

Cover material

The sub-field describes the material of which the cover is made. Possible values are leather, paper, parchment, and textile.

Turn-ins

The sub-field describes the aspect of the turn-ins concerning trimming. Possible values include irregular, rough-trimmed, straight-trimmed, and trimmed out.

Mitres

The sub-field describes the aspect of the mitres. Possible values include butt mitres, lapped mitres fore-edge over, lapped mitres head/tail over, sewn mitres, open mitres, and tongued mitres.

Presence of fore-edge flap

The sub-field notes the presence of a fore-edge flap.

Decoration technique

The sub-field indicates the technique used to decorate the cover and allows multiple selections among the values colouring, blind-tooling, gilding, lacing, cut-leather, appliqué, intaglio, and embroidery.

Tools

The field is dedicated explicitly to describing the tools used in blind-tooled decoration. The decoration with blind tools is achieved by impressing metal tools onto the leather covers. As the tools were handmade, their impression is unique. Therefore, it would be possible to recognise the use of the same tool on different bindings by assessing the similarity of the decorative motifs imprinted on the covers. In this way, it would be possible to trace the circulation of the craftsmen – or their tools – and highlight the relationships between the bookbinding workshops. However, such a comparative analysis is only possible if there are detailed photographs of the motifs with metric references. Unfortunately, such photographs are only available for some bindings examined directly during this research. Therefore, even if the classification system for tools has been developed, outcomes are possible only if further comprehensive photographic documentation becomes available.

The blind-tooled motifs found on the leather covers have been classified according to the classification system proposed by Nicholas Sarris for the tool impression found on the Greek bindings in the St. Catherine's Monastery in Sinai opens to possible research in a comparative perspective. According to Sarris' classification, each tool is identified by a unique alphanumeric string – for example, Hm.cr16. The first letter identifies the type of tool. In the case of Coptic bindings, the impressions are produced by small hand tools, represented by the letter H. The second letter of the string identifies the theme represented by the motif. Sarris chooses a small number of theme categories, only five, to limit the ambiguities arising from the subjective interpretation of the designs. The motifs tooled on the covers can be classified as animal (a), vegetation (f), ornamental (o), and miscellaneous (m) motifs. After the full stop, the two letters identify the sub-categories representing a further level of distinction.²¹¹ As a rule, the categories proposed by Sarris have been maintained to foster research from a comparative perspective. However, new sub-categories have been introduced to identify themes not included in his classification. Lastly, each tool is identified by a unique number given in bold. Therefore, the string

²¹¹ Sarris 2010b, 2-3.

Hm.cr16 identifies a miscellaneous motif, in the specific the cross with the accession number 16.

The database has created a vocabulary of the terms corresponding to the identified subcategories. The sub-field then allows to indicate which decorative motifs are on the cover, making multiple choices among the values prompted by the controlled vocabulary.

The identification string of the decorative motif, including the sequence number, is made explicit in the multi-line 'notes' sub-field. In the database, each distinct tooled motif was assigned an access number. Nevertheless, in the absence of measurements, also similar motifs were given different access numbers. Therefore, if future investigations establish that the motifs presently classified with distinct numbers are the same, one of the two numbers should be eliminated and not assigned to any other ornamental motifs.

Table 5 presents the classification of blind-tooled motifs as used in the research.

Table 5. Classification of blind-tooled motifs.

Theme Category	Sub-category	
Theological and Human Figure (h)		
	Saints	(ag)
Animal (a)		
	Birds	(bi)
	Single quadrupeds	(sq)
Vegetation (f)		
	Rosettes	(rs)
	Spikes	(sp)
	Fleur-de lis	(fl)
	Floral curving branches	(fw)
	Flowers and leaves	(fe)
	Quadrilobs	(ql)
	Stems	(st)
Ornamental (o)		
	Single circles	(sc)
	Triple circles	(tc)
	Fourfold circles	(fc)
	Cogged single circles	(cs)
	Dots	(do)
	Dotted single circles	(ds)
	Dotted double circles	(dd)
	Single X-forms	(sx)
	Double X-forms	(dx)
	Pyramidal	(py)
	Squares	(qu)
Miscellaneous (m)		
	Crosses	(cr)
	Amphoras	(am)

Design

The sub-field records the arrangement of elements on leather covers according to a uniform classification system. It should be noted that some designs are also recurrent in the post-Byz-antine tradition, the subject of Boudalis' doctoral thesis, which classified the design with a label consisting of 'Dec' and a progressive number (1–14) plus a letter (a, b) indicating the number of concentric frames enclosing the design (one or two respectively).²¹² In addition, new terms were created for those designs in the Coptic tradition that had no parallel to the Boudalis'

²¹² Boudalis 2004, 810–813.

research. However, the database only records the family of designs and does not indicate the number of concentric frames.

Twenty-seven designs were identified, so the vocabulary includes this many terms, each accompanied by an explanatory thumbnail image.

Spine lining

The field includes only the sub-fields 'notes' and 'images' to describe this element of the binding with text and photographs. The description includes the material, position and extension on the boards of the spine lining.

Endbands

The field allows for the description of endbands. Unfortunately, endbands, like the sewing, are rarely preserved since they are lost during the dismantling of the codex.

Type

The sub-field allows the description of the type of endbands, choosing one value between the link-stitch endband and cord endband.

<u>Fastenings</u>

The field is dedicated to describing the fastening system, the mechanism for keeping the codex closed. Frequently it has not been preserved, and solely fragments or perforations endure on the boards. Occasionally, when the fastenings are made of leather, identification is feasible through stains on the initial or final folios of the manuscript caused by the dye from the material. The survey allows multiple choices among the values: ties and metal rings, loops and toggles, loops and ties, loops and pins, paired ties, wrapping bands, and wrap-around ties.

Other ties

In Coptic bindings, other ties may be present typically in the upper external corner of the boards or the centre of the fore-edge of the boards. The first has been interpreted as bookmarks and the latter as lifting tabs, aids to open the book. However, Boudalis observed the presence of the same feature in Byzantine bindings and has demonstrated, based on the imprints left between the leaves of the bookblock, that the leather ties inserted in the centre of the fore-edge were likely bookmarks as well.²¹³ Therefore, the survey notes only the position of the ties.

Position

The sub-field is used to register the position of eventual other ties. Possible values are centre of the fore-edge and upper external corner.

Manuscript history

This component groups information on the history of a manuscript that have been considered necessary for contextualising the production of bindings and understand its modern history. It is structured in three headings: dating, relevant places, and modern history.

²¹³ Georgios Boudalis, *The codex and crafts in Late Antiquity* presented at Care and Conservation 17, 11 April 2021.

The information contained therein was primarily imported from the PAThs database, and in a smaller number of cases, the information was entered manually from the Trismegistos database.

Dating

Dating information is essential for assessing the evolution of the binding technique, as the manuscript's dating gives information on the binding date.²¹⁴

When the dating information relates to a Coptic literary manuscript, it is derived from PAThs. It includes the 'source for dating' sub-field indicating the source data on which the dating is based. Possible values are archaeological data, content, prosopography, palaeography, related manuscripts, and colophon (which may contain explicit dating). If the dating information does not refer to a Coptic literary manuscript, it is taken from Trismegistos, from the field 'date'. In these cases, only the field 'dating' is compiled.

Relevant places

In order to study the evolution of the Coptic binding technique in relation to geographical factors, the Heurist database records under this heading the relevant locations of a manuscript. If the manuscript is a literary work written in Coptic, the information is imported from the PAThs database.

The PAThs Atlas is noteworthy for distinguishing between the place of production, storage, and discovery of a manuscript. The Heurist database reflecting the data structure of PAThs database, in a 'type' sub-field, allows for differentiation between production, storage, and discovery locations related to the manuscript. The 'source of information' sub-field indicates the source data on which the identification of the type of place is based, which may include contents, colophon, title, archaeology, decoration, palaeography, dialect, or modern reports. The site is identified by a 'standard site name, corresponding to the most common name used in the scientific literature'. Each location bears its PAThs ID, which provides access to a dedicated page on the PAThs Atlas describing the location in detail, including its historical development. When the information pertains to a manuscript not included within the PAThs Atlas, the relevant location is manually entered from the field 'provenance' in Trismegistos. In these cases, the sub-fields' source of information' and 'type' are not used.

In both cases, it has been possible to add the longitude and latitude coordinates that permit locating the place on a map. The coordinates are automatically harvested from PAThs or manually added from Trismegistos.

Modern history

The field provides information on the history of the manuscript, from its discovery to its acquisition and inclusion in the current collection. This field is harvested from PAThs and is manually compiled for manuscripts in Trismegistos.

Additional information

Acknowledgements

²¹⁴ However, the binding may not be the first binding the manuscript's content received.

²¹⁵ See https://atlas.paths-erc.eu/places.

'Scientific integrity forms the basis for trustworthy research'. Therefore, following good scientific practice, the contributions of all authors are acknowledged, and the user is allowed to consult the source from which the information was taken. Therefore, the field contains the sigla, which identifies the editors of the descriptive cards in PAThs and the links to PAThs and Trismegistos databases. ²¹⁷

2.3. Data collection

The section is divided into three subsections that describe the data collection methods. Subsection 2.3.1 outlines the indirect collection method, which involves gathering information from literature, photographs, and digitisation. Subsection 2.3.2 details the workflow to record the bindings firsthand on the spot. The section also describes the protocol for handling and examining these ancient and fragile objects. Due to the heterogeneity of the information available on manuscript bindings, the standard survey was necessary to produce homogeneous and comparable binding descriptions. Furthermore, the survey can ensure that important details are not overlooked or omitted and that the descriptions are as accurate and comprehensive as possible. Lastly, subsection 2.3.3 elaborates on the data collection method of recovery, repair, and reuse practices.

2.3.1. Indirect data collection

The indirect data collection involved searching through relevant literature, specialist bibliographies on Coptic binding studies, and browsing through manuscript catalogues and editions that might mention information on bindings in their introductory sections. The first publications to be surveyed have been those listed in section 1.2.1. Hobson provided the initial census of the eighty-five extant Coptic bindings known at that time, ²¹⁸ a quantity which Petersen and Szirmai subsequently augmented.

However, the quality and degree of detail of the descriptions found during this research are highly variable. While some publications offer detailed descriptions, others simply mention the presence or absence of binding. Examples are the already mentioned description of I.1.b.686 (CLM 4510) by Alla Elanskaya, who could only provide information on the binding material and the brief notes in Layton's *Catalogue of Coptic Literary Manuscripts in the British Library Acquired since the Year 1906*.²¹⁹ Hence, it is imperative to refer to additional publications to obtain a more

²¹⁶ As stated in the English translation of the DFG Code of Conduct *Guidelines for Safeguarding Good Research Practice*, 7. See https://www.dfg.de/download/pdf/...).pdf.

²¹⁷ In PAThs Atlas each descriptive card contains, in a field named 'editors', the initials of the authors who compiled it. In the specific, the realisation of the Atlas is due to Julian Bogdani (JB) and Paolo Rosati (PR) for the digital cartography part. The research on the places of the manuscripts is due to Paola Buzi (PB), Angelo Colonna (AC) and Ilaria Rossetti (IR). The manuscript research part is due to Francesco Valerio (FV), Annunziata Di Rienzo (AD), Paola Buzi (PB), Nathan Carlig (NC), Marta Addessi (MA), Tea Ghigo (TG) (inks), Eliana Dal Sasso (EDS) (bindings), Alexandros Tsakos (AT) (Coptic manuscripts from Nubia, Schøyen Collection, Fayyum manuscripts) and Ivan Miroshnikov (IM) (Schøyen Collection, Fayyum manuscripts). The part on works refers to Paola Buzi (PB) and Francesco Berno (FB). The search related to authors refers to Francesco Berno (FB); titles to Paola Buzi (PB); colophons to Agostino Soldati (AS) and Marta Addessi (MA); persons to Agostino Soldati (AS).

²¹⁹ Layton 1987, XXVI–XXVII.

exhaustive understanding of bindings. For instance, one could refer to Petersen's and Lindsay's works for the manuscript bindings held at the British Library.²²⁰

When available, the research collected the data from photographs and digitisations, which can provide more substantial information, particularly regarding old photographs that predate the conservation of bindings and the destruction of structural components. For instance, photographs found during this research at the Griffith Institute document the leather covers and the sewing of some bindings of the codices from Edfu now at the British Library. Another piece of evidence comes from Hyvernat's photostats of the Hamuli Coptic codices in the Morgan Library and Museum.

Recent digitisation projects have enabled the observation of binding characteristics unobstructed by verbal descriptions, thus permitting independent assessment of the object's features. ²²¹ Nevertheless, despite the excellent level of detail that can be obtained, the two-dimensional nature of digital images imposes certain limitations. Some features, such as the thickness and texture of the binding material, can be difficult to assess from digital images alone accurately. For instance, Petersen affirms that the boards of the binding New York (NY), The Morgan Library and Museum, M569 (CLM 206) are double but this feature is not discernible from the digital images. ²²²

Due to the limitations of digital imaging in capturing the full range of physical features and characteristics of a manuscript binding, direct codicological examination remains the preferred data collection method.

2.3.2. Direct data collection

Direct data collection through codicological examination requires careful planning and methodical execution. Indeed, the examination must be conducted within a limited time frame in a way that does not damage or otherwise harm the manuscript and the binding being studied.

The planning phase of direct data collection for this research has been particularly challenging since it began during the outbreak of the COVID-19 pandemic, which led to the closure of many institutions and made it impossible to visit those with whom appointments had already been made. As a result, for long, the research relied on the email exchange with library personnel working from home, which often resulted in slow communication.

When the institutions began to reopen, they did so at a reduced capacity, which meant that they could only accommodate some requests for visits from researchers. Therefore, the visits had to be deferred due to limited access and safety measures. For example, it was possible to visit the Chester Beatty Library, which was contacted in September 2019, only in August 2022.

Despite the challenges posed by the pandemic, the research project persevered and ultimately succeeded in conducting direct codicological examinations and data collection on the Coptic bindings kept in some European institutions, namely the Arxiu Històric de la Companyia de

²²⁰ See the oft-cited Petersen 2021, and Lindsay 2001. Jen Lindsay has published an updated study of the Coptic bindings kept at the British Library Lindsay 2023.

²²¹ As an example, one can consider the digitisation of the detached bindings of manuscripts from Hamuli at the Morgan Library and Museum, see https://www.themorgan.org/collection/coptic-bindings. Additionally, the Fondation Bodmer has also digitised their collection of papyrus and parchment codices, which is known as the 'Bodmer Papyri', see the BodmerLab https://bodmerlab.unige.ch/fr/constellations/papyri.

²²² Petersen 2021, 85 (= binding 1).

Jesús de Catalunya in Barcelona, the BnF in Paris, the British Library in London, the Chester Beatty Library in Dublin, the Kölner Papyrussammlung Institut für Altertumskunde in Cologne, the Museo Egizio in Turin, the ÖNB in Wien, the RMO in Leiden, the Staats- und Universitätsbibliothek Hamburg Carl von Ossietzky in Hamburg, and the Vatican Library in Città del Vaticano. However, the process was slower and more complex than initially anticipated.

Seeing the manuscript bindings in person was imperative. However, the time allowed for the examination had to be carefully planned. The time and hours allowed for the work were reduced due to various constraints, such as limited access to the institutions and the security measures still in place to counter the spread of the virus. The planning was made even more difficult since many of the bindings did not have existing descriptions, and their actual condition was unknown, which could affect how much time a description would take and how much detail could be included. There was also the possibility that some of the bindings whose presence was once noted may no longer exist. Other bindings were wholly unknown and emerged during this research, which represent the first available documentation of the artefacts.

The investigation was conducted under exceptional circumstances that amplified the challenges typical of direct examination of collections, which always require flexibility and adaptability in the planning and execution of research. These qualities proved essential in the uncertain and rapidly changing circumstances in which the research was conducted.

2.3.2.1. The workflow adopted to work in the collections

The initial step in examining the collection was establishing contact with the responsible person to determine the feasibility of inspecting the objects in person. This process was conducted through email communication, which allowed for obtaining information regarding the collection's consistency, often revealing the presence of unknown bindings and binding fragments. Once the number of objects in the collection and the time slot available for examination were determined, a strict work schedule was developed. Then, the survey on the spot was conducted rapidly to collect all necessary information within the allotted time. It was necessary to refrain from the examination of small details to consider the broader objectives of the research. For example, if time constraints were present, prioritization was used to inspect the elements deemed of utmost importance while postponing the inspection of the other elements until later. This has been the method adopted, for example, at the Chester Beatty Library (Figure 9).

High priority	Cpt 2019 &2020		
	BP XXI		
	Cpt 813		
	Cpt 814		
	Cpt 815		
	Cpt 2018/Pap 1991.58/16		
	Cpt 824,		
	Cpt 825,		
	Cpt 826		
Medium priority	Cpt 804,		
	Cpt 806,		
	Cpt 807 and		
	Cpt 808,		
	Pap 1991.44,		
	47,		
	48,		
	51,		
	56,		
	57,		
	61		
Low priority	Cpt 801,		
	Cpt 802,		
	Cpt 803,		
	Cpt 805,		
	Cpt 809,		
	Cpt 810,		
	Cpt 811,		
	Cpt 812		
	Pag 1991.9, 10, 11, 12, 16, 18		

Figure 9. Prioritisation of direct examination of the binding shelfmarks at the Chester Beatty Library.

The information collected from the literature and entered in the Atlas was verified to correspond with the observed reality. Whenever possible, each binding and binding fragment was photographed. A Canon EOS-1300D camera captured images of the front, back, and all four sides of the object, close-up shots of the blind-tooled ornaments and specific features, including metric references. The camera's white balance was adjusted with a grey card to obtain high-fidelity images while keeping the camera orthogonal to avoid aberrations of the shape of the bindings. Although it was not feasible to travel with a tripod, the best efforts were made to obtain stable and sharp images. Extreme caution was exercised in handling the fragile Coptic bindings to avoid damaging them.

As part of the documentation process, objects originally belonging to a binding were assigned a unique and stable identifier, the Coptic Literary Manuscript (CLM) number, to indicate the existence of a codicological unit following the PAThs project classification. Objects lacking sufficient evidence that they were part of a binding did not receive a CLM. At times, an examination of an object has revealed that it includes fragments belonging to different codicological units. Therefore, sub-shelfmarks were created to assign different CLM and describe them individually.

Traditionally, blind-tooled motifs are reproduced by rubbing, which entails repeatedly moving a pencil back and forth with firm pressure on a sheet of paper placed over the blind-tooled motif. However, this method could not be used on fragile Coptic bindings. So instead, each motif was photographed with a metric reference, and its shape was enhanced by transforming it into a black-and-white image. Figure 10 shows the documentation of the blind tooled motif on Torino, Museo Egizio, Provv. 6205 bis 1 (CLM 6560).



Figure 10. Documentation of a blind-tooled motif on Torino, Museo Egizio, Provv. 6205 bis 1 (CLM 6560). Source: Photograph and B/W elaboration mine.

The method of housing the objects influences the manipulation and the ability to gather information. For example, objects stored between glass panes can be handled more safely. However, this method is inappropriate for covers, as it alters their three-dimensionality and some of their characteristics, which cannot be recorded during the examination. In addition, the issue of condensation between the plates arises if some humidity was present in the object at the time of placement. Few covers kept in Torino at the Museo Egizio are housed according to this system. Figure 11 shows, for example, the cover Provv. 5061 (CLM 6554) in the Museo Egizio in Turin housed between glass plates. The white haloes are due to the condensed humidity probably originating from the glue used for conservation.



Figure 11. Cover housed between glass plates. Torino, Museo Egizio, Provv. 5061 (CLM6554), Source: Museo Egizio, Turin.

A frequent housing system, thought to be temporary, is placing the objects in boxes. However, if the base of the box is not transparent, it is impossible to examine the opposite side of the binding, since flipping it would cause its breakage. Other objects are loose in paper folders, allowing for free manipulation but posing a high risk of breakage and loss of fragments. For example, most Coptic binding fragments kept at the ÖNB are housed in paper folders, placed in reused paper boxes 'AGFA professional' (Figure 12).



Figure 12. Housing of binding fragments. a) Paper folder and reused box 'AGFA professional'. b) Loose binding fragments within the folder. Wien, ÖNB – Papyrussammlung, P.Vindob. BD 1. Source: Photograph mine.

Some past interventions were invasive and altered fundamental characteristics while consolidating the artefacts, leading to an interpretation that is only sometimes accurate. Other interventions are mimetic and are not easily recognizable. Therefore, the preferred approach is minimal intervention, which ensures safe handling and consolidation of the object without removing the original materials. In the case of Coptic bindings, special housings with descriptive cards are particularly effective. For example, at the Chester Beatty Library, fragmentary Coptic bindings are housed in boxes, in Plastazote® foam cut to the shape of the fragments. Figure 13 shows, for example, the housing of the fragments once forming the binding of Cpt 813 (CLM 64) which was dismantled during the intervention by Theodore C. Lamacraft.



Figure 13. Fragments of Coptic binding housed in Plastazote® foam. Dublin, CBL, Cpt 813 (CLM 64). Source: Photograph mine.

2.3.2.2. The contacted collections

Not all institutions that are considered to preserve Coptic bindings were contacted due to time constraints and the ongoing pandemic. Therefore, only European collections that preserve Coptic bindings of significant importance were contacted.

While it was possible to arrange an appointment with most institutions, in some cases, it was impossible to physically inspect the artefacts due to their precarious condition. Specifically, the binding collections in Berlin the Staatliche Museen and the Preußischer Kulturbesitz of the Staatsbibliothek, were inaccessible for this reason. The few bindings belonging to the Louvre, on the other hand, were not accessible because kept in the storage or due to closures imposed by the pandemic. Nevertheless, photographic documentation and supplementary data were provided, facilitating the reconstruction of some missing details.

The following paragraphs resume the issues, the challenges, and the working condition in the contacted institutions.

Austria, Wien, Österreichischen Nationalbibliothek (ÖNB) – Papyrussammlung

The Coptic bindings are part of the Papyrus Erzherzog Rainer collection, established in 1883 and initially kept at the Österreichischen Museum für Kunst und Industrie (today Museum für Angewandte Kunst – MAK). The collection consists of the papyri purchased in Egypt by the antiques dealer Theodor Graf (1840–1903) on behalf of Josef von Karabacek (1845–1918), Professor of History of the Orient at the University of Vienna, who later convinced the Archduke Rainer (1827–1913) to buy them. The foundation core of the collection, the papyri found close to Arsinoe (PAThs ID 33) between 1877 and 1878, was implemented over the years with the finds from Hermoupolis Magna (PAThs ID 28), Herakleopolis Magna (PAThs ID 32), and from various archaeological sites in Fayyum (PAThs ID 323).

When the present doctoral research started, four Coptic bindings and binding fragments were known to be in the Papyrussamlung of the Österreichische Nationalbibliothek. However, their identification in the collection has been difficult since researchers called them by different names over the years, following successive cataloguing activities. The bindings were all included in the 1929 publication by Arnold and Grohmann, *The Islamic book*, where they were identified by old inventory numbers. They were Inv. No. 34,²²⁴ Inv. Gr. Pap. 30501,²²⁵ Inv. Gr. Pap. 30502,²²⁶ Inv. Gr. Pap. 30503,²²⁷ and Inv. Perg. Ar. 336.²²⁸

After contacting the curator, Claudia Kreuzsaler, I was able to arrange a direct inspection of the bindings from October 11 to October 15, 2021. This allowed me to reconstruct the history of the collection, clarify its consistency, and determine the concordance between past inventory numbers and present shelfmarks.²²⁹ According to the documentation kept in the Papyrussamlung, a group of bindings and binding fragments was inventoried, separately from the manuscripts, as G 30501–30505 and stored in a special case named *Einband-capsa* (bookbinding-

²²³ Frimmel 1885, 241–242; Karabacek 1894, XI–XIII.

²²⁴ Arnold and Grohmann 1929, 33–34.

²²⁵ Arnold and Grohmann 1929, 42–43.

²²⁶ Arnold and Grohmann 1929, 39 and 42.

²²⁷ Arnold and Grohmann 1929, 41-42.

²²⁸ Arnold and Grohmann 1929, 43.

²²⁹ I am grateful to Claudia Kreuzsaler for sharing with me the information regarding the collection history and the data contained in the inventory book.

capsa). Each inventory number referred to more than one binding and binding fragment, regardless of they belonged together or not. Starting from Arnold and Grohmann's publication in 1929, new inventory numbers were used. In 1991, an inventory group 'P.Vindob. BD' (where BD stays for *Buchdeckel*, that is, bookbinding) was introduced and the past inventory numbers were replaced. At this point also some inventory numbers precedingly associated with Greek materials received the shelf mark 'P.Vindob. BD'. Thus, at present the items with shelfmark 'P.Vindob. BD' are thirty-eight.²³⁰

The research made it possible to identify and resolve the confusion that had arisen since 1972 with Helen Loebenstein's catalogue where the binding P.Vindob. BD 37 was listed as G 30501. The correspondence inv. no. G 30501 = BD 37 still appears on the wooden box that holds the binding. The confusion has been passed down over the years, so in 2018 Boudalis referred to the binding P.Vindob. BD 37 with the shelfmark P.Vindob. G 30501, which, however, does not exist. 33

Table 6 shows the concordances between the present shelfmarks and past inventory numbers.

²³⁰ I reported this description in the dataset PAThs in the descriptive charts of the bindings preserved in Vienna.

²³¹ Loebenstein 1972, no. 39.

²³² I am grateful to Claudia Kreuzsaler for this information.

²³³ Boudalis 2018, 110, Fig. 82.

Table 6. Concordances between the present shelfmarks and past inventory numbers.

Buchdekel-capsa number (until 1929)	Old inventory number (1929– 1991)	Present shelfmark (from 1991)	
G 30505		P.Vindob. BD 1	
G 30505		P.Vindob. BD 2	
G 30505		P.Vindob. BD 3	
G 30505		P.Vindob. BD 4	
G 30505		P.Vindob. BD 5	
G 30505		P.Vindob. BD 6	
G 30505		P.Vindob. BD 7	
G 30505		P.Vindob. BD 8	
G 30505		P.Vindob. BD 9	
G 30505		P.Vindob. BD 10	
G 30505		P.Vindob. BD 11	
G 30505		P.Vindob. BD 12	
G 30505		P.Vindob. BD 13	
G 30505		P.Vindob. BD 14	
G 30505		P.Vindob. BD 15	
G 30505		P.Vindob. BD 16	
G 30504		P.Vindob. BD 17	
G 30505		P.Vindob. BD 18	
G 30505		P.Vindob. BD 19	
G 30505		P.Vindob. BD 20	
G 30505		P.Vindob. BD 21	
G 30505		P.Vindob. BD 22	
G 30505		P.Vindob. BD 23	
G 30505		P.Vindob. BD 24	
G 30505		P.Vindob. BD 25	
G 30505		P.Vindob. BD 26	
G 30505		P.Vindob. BD 27	
G 30505		P.Vindob. BD 28	
G 30505	Inv. Gr. Pap. 30501	P.Vindob. BD 29	
_	1	P.Vindob. BD 30	
-		P.Vindob. BD 31	
_		P.Vindob. BD 32	
_		P.Vindob. BD 33	
G 01371		P.Vindob. BD 34	
G 30503	Inv. Gr. Pap. 30503	P.Vindob. BD 35	
-	1	P.Vindob. BD 36	
G 30501	Inv. No. 34	P.Vindob. BD 37	
-		P.Vindob. BD 38	
-	Inv. Gr. Pap. 30502	Not found	
	Inv. Perg. Ar. 336	A. Perg. 336	

Table 7 presents the concordance between the current shelfmarks and past inventory numbers as they appeared in the literature relating to bookbinding studies. In the table, the incorrect shelf number reported by Boudalis is marked in italic.

Table 7. Concordances between present and past inventory numbers as they appear in the literature related to bookbindings.

Present shelfmark	Arnold and Grohmann 1929	Hobson 1938	Petersen 2021	Schefzyk 2006	Boudalis 2018
P.Vindob. BD 37	Inv. Nr. 34	Inv. Nr. 34	Inv. Nr. 34	-	P.Vindob. G 30501
P.Vindob. BD 29	Inv. Gr. Pap. 30501	-	-	P.Vindob. BD 29	-
-	Inv. Gr. Pap. 30502	Inv. Gr. 30502	-	-	-
P.Vindob. BD 35	Inv. Gr. Pap. 30503	-	-	-	-
A. Perg. 336	Inv. Perg. Ar. 336	-	-	-	-

The objects, along with additional items whose identification as binding fragments was questionable,²³⁴ were examined in person at the Papyrussamlung between 11th and 15th October 2021.

It is important to note that the identification of some of the shelfmarks as actual fragments of bookbindings is uncertain. At the time of the research, there was no documentation of the provenance of the fragments. The study was conducted through careful examination of the objects; however, the study did not reveal any features that could unequivocally identify them as part of a binding. Nevertheless, these objects were provisionally assigned to the group of binding fragments due to their markings as 'BD' and their uncertain identification is acknowledged, pending further analysis or the discovery of documents that could clearly establish their provenance.

The study has revealed that the group of thirty-eight shelfmarks includes (1) Complete bindings, retaining their original leather covers over laminated papyrus boards (2) Binding fragments or groups of binding fragments, consisting of fragmentary leather covers stretched over papyrus laminated boards, fragmentary textile spine linings, and fragmentary papyrus laminated boards (3) Late binding fragments, that is, fragments of bindings from later periods, which fall outside the scope of this research, and (4) Other fragments, items that, based on their characteristics, cannot be identified as part of bindings.

(1) Complete bindings

The group comprises two complete bindings that retain their original leather covers over laminated papyrus boards. These are P.Vindob. BD 29 (CLM 6510) and P.Vindob. BD 37 (CLM 6506).

As previously mentioned, P.Vindob. BD 29 (CLM 6510) was first described by Arnold and Grohmann, however, they did not provide a photographic record of it. It was not until 2006 that Schefzyk published images of this binding, showing the inner surface of the boards.²³⁵ The binding is currently displayed in a case within the museum, exposing its inner surface to view and it cannot be removed from its housing (Figure 14). Therefore, the only information about the cover's decoration is derived from Arnold and Grohmann's description.

²³⁴ These were P.Vindob. A. Ch. 14100 a, b, and c, P.Vindob. A. Ch. 28001, P.Vindob. A. Ch. 28002, P.Vindob. A. Ch. 14000, P.Vindob. A. Ch. 25790, P.Vindob. A. Perg. 294, and G. 21025.

²³⁵ Schefzyk 2006, 85.



Figure 14. P.Vindob. BD 29 (CLM 6510) displayed in the museum. Source: Photograph mine.

P.Vindob. BD 37 (CLM 6506) is considered one of the finest examples of Coptic bindings, where the intricate cut-out decoration in leatherwork demonstrates the exceptional skills of Egyptian craftsmen. It is housed open and flat in a box, with the outer decorated surface visible and has not undergone any restoration. Therefore, it still preserves many original features unaltered. Nevertheless, it is also very fragile due to the lack of conservation treatment, and it has not been possible to handle it to examine the inner surface of the boards (Figure 15).



Figure 15. P.Vindob. BD 37 (CLM 6506) as it appeared in 2021. Source: Photograph mine.

(2) Binding fragments

This category encompasses fragmentary leather covers stretched over papyrus laminated boards, fragmentary textile spine linings, and fragmentary papyrus laminated boards. As such, it is the most extensive, comprising a total of twenty-six items.

It has been observed that certain binding fragments belong to the same codicological unit, despite not always having shelfmarks that are proximate in number to one another. For example, P.Vindob. BD 3 and A. Perg. 336 were found to be part of the same unit due to their matching design and were subsequently attributed the same CLM 6507 and reunited in the conservation lab. Similarly, P.Vindob. BD 17, P.Vindob. BD 18, and P.Vindob. BD 26 were determined to belong together due to the perfect fit of the pieces and comparable characteristics such as crude sewing of different pieces of leather together, incised decoration in square, modern note in chalk, and modern reparation with scotch. Therefore, they were attributed to the same CLM 6508 (Figure 16).



Figure 16. Virtual recompositing of matching binding fragments. a) P.Vindob. BD 18 (CLM 6508), and P.Vindob. BD 26 (CLM 6508). Photograph mine. b) P.Vindob. BD 3 (CLM 6507) and A. Perg. 336 (CLM 6507). Source: Photograph mine.

Other shelf marks may also belong together and can be merged under the same CLM, such as P.Vindob. BD 2, P.Vindob. BD 4, P.Vindob. BD 6, and P.Vindob. BD 10. Additionally, it is possible that P.Vindob. BD 7, P.Vindob. BD 8, and P.Vindob. BD 13 may also belong to the same unit. However, sufficient evidence has not been found to group them together, therefore, no CLM has been attributed to the items.

The group also comprises fragments of papyrus boards, some of which retain fragments of thread and holes that allow to identify them as fragments of boards with a certain confidence, whilst others do not retain any of these features. However, since they belong to the group BD, they have been included, such as P.Vindob. BD 11, P.Vindob. BD 12 which could belong together, P.Vindob. BD 13 (which could belong to P.Vindob. BD 6, P.Vindob. BD 22, P.Vindob. BD 23, P.Vindob. BD 24, and P.Vindob. BD 34.

(3) Late binding fragments

This group comprehends binding fragments that could be dated later that the thirteenth century and, therefore, fall outside the scope of this research. As such, they did not receive a CLM. These binding fragments are P.Vindob. BD 14, P.Vindob. BD 15, P.Vindob. BD 16, P.Vindob. BD 36, P.Vindob. BD 38 (Figure 17), A. Ch. 14100 a Pap, A. Ch. 14100 b Pap, A. Ch. 14100 c, A. Ch. 28001, and A. Ch. 28002.



Figure 17. The paper and parchment laminate board P.Vindob. BD 38 in the paper folder. Photograph mine.

(4) Other fragments

In the group are included fragments that certainly do not belong to bindings and, therefore, did not receive a CLM. Two fragments likely derived from pastedowns (A. Ch. 25790 and A. Perg. 294). P.Vindob. BD 20 is a fragment which include fragments of chalk, P.Vindob. BD 27, and P.Vindob. BD 28 have pointed shape and a sort of padding in vegetal fibres that could remind the aspect of shoes (Figure 18).



Figure 18. fragments that certainly do not belong to bindings. a) P.Vindob. BD 27 and P.Vindob. BD 28. Source: Photograph mine. b) P.Vindob. BD 20. Source: Photograph mine.

One binding fragment known from bibliography has not been found during my visit to the library. It is the Gr Pap 30502,²³⁶ that likely should have changed shelfmark with a DB sigla but nothing similar has been found.

Table 8 presents an overview of the composition of the group of items directly studied at the ÖNB.

²³⁶ The only existent image of the fragment is Arnold and Grohmann 1929, Plate 17d.

Table 8. The 48 examined fragments in the Österreichische National Bibliothek – Papyrussamlung.

CLM	Shelfmark	Short description		
	P.Vindob. BD 1	Binding fragment		
	P.Vindob. BD 2	Binding fragment		
6507	P.Vindob. BD 3	Binding fragment		
6507	A. Perg. 336	Binding fragment		
	P.Vindob. BD 4	Binding fragment		
	P.Vindob. BD 5	Binding fragment		
	P.Vindob. BD 6	Binding fragment		
	P.Vindob. BD 7	Binding fragment		
	P.Vindob. BD 8	Binding fragment		
	P.Vindob. BD 9	Binding fragments		
	P.Vindob. BD 10	Binding fragments		
	P.Vindob. BD 11	Binding fragments		
	P.Vindob. BD 12	Binding fragments		
	P.Vindob. BD 13	Binding fragments		
-	P.Vindob. BD 14	Late binding fragment		
-	P.Vindob. BD 15	Late binding fragment		
-	P.Vindob. BD 16	Late binding fragment		
	P.Vindob. BD 19	Binding fragment		
6708	P.Vindob. BD 17	Binding fragment		
6708	P.Vindob. BD 18	Binding fragment		
6708	P.Vindob. BD 26	Binding fragment		
-	P.Vindob. BD 20	Other fragments		
	P.Vindob. BD 21	Binding fragment		
	P.Vindob. BD 22	Binding fragment		
	P.Vindob. BD 23	Binding fragment		
	P.Vindob. BD 24	Binding fragment		
	P.Vindob. BD 25	Binding fragment		
	P.Vindob. BD 27	Other fragments		
	P.Vindob. BD 28	Other fragments		
6510	P.Vindob. BD 29	Entire binding		
	P.Vindob. BD 30	Binding fragment		
	P.Vindob. BD 31	Binding fragment		
	P.Vindob. BD 32	Binding fragment		
	P.Vindob. BD 33	Binding fragment		
	P.Vindob. BD 34	Binding fragment		
6520	P.Vindob. BD 35	Binding fragment		
	P.Vindob. BD 36	Late binding fragment		
6506	P.Vindob. BD 37	Entire binding		
	P.Vindob. BD 38	Late binding fragment		
	A. Ch 14100 a Pap	Late binding fragment		
	A. Ch 14100 b Pap	Late binding fragment		
	A. Ch 14100 c	Late binding fragment		
	A. Ch 28001	Late binding fragment		
	A. Ch 28002	Late binding fragment		
	A. Ch 1400	Other fragments		
	A. Ch 25790	Pastedown		
	A. Perg. 294	Pastedown		
	G 21025	Papyrus fragment		

Due to limited time for examination, a strict schedule was enforced to examine all the objects. The time constraints were further exacerbated by the variable nature of the items, ascertaining the specific aspect of which was impossible prior to the visit.

The autoptic analysis was carried out, with a great degree of autonomy, in the reading room, enabling the acquisition of photographs for further reference.

France, Paris, Bibliothèque nationale de France (BnF)

According to the literature, at the BnF preserved Paris, BnF, Copte 28 (CLM 3011), but the curator, ²³⁷Vanessa Desclaux, when contacted, referred to a further shelfmark Paris, BnF, Copte 169 (CLM 6518). The material, previously booked and authorised for consultation, was examined on October 28 and 29, 2021, in the manuscript reading room of the library. The study of the binding of the third century Paris, BnF, Supplément grec 1120 (TM 62376) was closely supervised by the curator. The library allowed to take photographs so that it was possible to examine the characteristics of the bindings also later (Figure 19).



Figure 19. The bindings examined at the BnF. a) Paris, BnF, Copte 169 (CLM 6518 b) Paris, BnF, Supplément grec 1120 (TM 62376) c) Paris, BnF, Copte 28 (CLM 3011). Source: Photographs mine.

²³⁷ I thank Vanessa Desclaux.

France, Paris, Louvre

The bindings in possession of the Louvre have not been examined. The antique cloth cover Paris, Louvre, E 25402 (CLM 6519) is in a storage 200 km from Paris. However, Florence Calament, curator of the *Département des Antiquités égyptiennes* offered her full cooperation by providing a photograph of the recto and further information, including the report on C-14 dating.²³⁸

In addition, it was impossible to examine the two wooden boards bearing the shelfmark AF 1190, classified by the museum as bindings and on display in the room of the Louvre dedicated to Coptic material. Unfortunately, when the museum was visited, the room was not accessible to the public, being too small to ensure safe distancing during the pandemic. Fortunately, the Louvre's website contains high-resolution images, which partially remedy the lack of a direct visit.

Germany, Berlin, Staatliche Museen

The presence of Coptic bindings in the staatliche Museen in Berlin is known after brief descriptions by Hugo Ibscher, accompanied by drawings,²³⁹ and from the catalogue by Walter Beltz in 1980.²⁴⁰ Recent documentation regarding the bindings is limited to descriptive cards of the items used internally in the museum.

However, after direct contact with Verena Lepper, curator for Egyptian and Oriental Papyri collection, emerged that that some of the bindings cited by Ibscher had likely been lost during the Second World War.²⁴¹ The lost bindings are P. 14017 (CLM 6494), P. 14018 (CLM 6495), P. 14024 (CLM 6501), P. 14025 (CLM 6502), P. 14026 (CLM 6503), and P. 14028 (CLM 6504).

The bindings preserved in the museum are P. 8502 (CLM 731), P. 14016 (CLM 6493), P. 14019 (CLM 6496), P. 14021 (CLM 6498), P. 14022 (CLM 6499), P. 14023 (CLM 6500), and P. 20991 (CLM 6505) (Figure 20). Unfortunately, the bindings could not be examined for conservation reasons, but photographic reproductions have made available to address the lack of autoptic analysis.²⁴²

²⁴¹ Personal communication by Verena Lepper on 24.06.2021.

²³⁸ I thank Florence Calament for sharing the information regarding this binding.

²³⁹ Ibscher 1911a, 1911c, 1928.

²⁴⁰ Beltz 1980, 195-196.

²⁴² I thank Jan Moje for having provided further information and photographs of the bindings.



Figure 20. P. 20991 (CLM 6505). Source: courtesy of Berlin, staatliche Museen.

It is known of the existence of another Coptic binding of a manuscript of Hugo Ibscher's property (CLM 6713).²⁴³ At present, it is unknown where the binding is located. This research has revealed that in the staatliche Museen in Berlin few items bear as information of their acquisition 'Sammlung Ibscher 1962'. Which means that they were acquired from the Rolf Ibscher, restorer at the *Papyrussammlung* after his father, Hugo. It cannot be excluded that some items once property of the father passed in the possession of the son and are now in the museum. The binding however could not be found, and for the moment it is considered dispersed.

Germany, Berlin, Staatsbibliothek – preußischer Kulturbesitz

The library hosts the manuscripts Ms. or. oct. 987 (CLM 24), Ms. or. oct. 408 (CLM 424), Ms. or. fol. 3065 (CLM 686) which may preserve the ancient binding. However, the curator, Petra Figeac, revealed that even if the manuscript Ms. or. fol. 3065 (CLM 686) was complete of its binding when entered the library,²⁴⁴ it does not retain it anymore and it has been dispersed.²⁴⁵ The bindings of the other two manuscripts could not be consulted for conservative reasons. However, it was possible to gather information regarding the binding of Ms. or. oct. 987 (CLM 24) from the description and photographic documentation provided in Paola Buzi catalogue of the Coptic manuscripts at the Staatsbibliothek – preußischer Kulturbesitz.²⁴⁶ Furthermore, it was possible to gather precedent unknown photographic documentation of the wooden boards of Ms. Or. Oct. 408 (CLM 424) (Figure 3 and Figure 21)²⁴⁷ of which there was only the laconic information that the wooden boards were in Berlin.²⁴⁸

²⁴³ Described for the first time in Adam 1924 and a photographic reproduction is given in Arnold and Grohmann 1929, Pl. 19A. The decoration of the central leather panel has been integrated with new leather, so that the present decoration may not correspond to the original.

²⁴⁴ Schmidt 1908, 6.

²⁴⁵ The information is present already in Buzi 2014b, 183.

²⁴⁶ Buzi 2014b, 215–216, Plate 5, Pate 6.

²⁴⁷ I thank Petra Figeac for sharing with me the photographs.

²⁴⁸ Schüssler 2001, 104.



Figure 21. Inner side of the upper wooden board of Ms. Or. Oct. 408 (CLM 424). Source: Courtesy of Berlin, Staatsbibliothek – preußischer Kulturbesitz.

Germany, Cologne, Kölner Papyrussammlung Institut für Altertumskunde

After arranging an appointment with the curator, Charikleia Armoni,²⁴⁹ from 15 to 16 November 2021, it was able to inspect the binding of inv. 20833.1-20 (CLM 6628), recently studied by Breternitz.²⁵⁰ However, despite the recent study, locating the binding inside the cupboard in which it was stored took some time, a symptom of the rapid obsolescence to which these artefacts are subject.

The leather cover is fragmentary and currently adhered to a linen cloth, which covers the verso side of the leather.²⁵¹ This cloth is housed between glass panes. Upon direct observation, doubts have arisen regarding the originality of the item. The dimensions of the cover appear to exceed those of the relative papyrus leaves, suggesting that pieces of original covers may have been assembled to create a complete and more valuable cover (Figure 22).

²⁴⁹ My gratitude goes to Charikleia Armoni.

²⁵⁰ Breternitz 2020, 56–64.

²⁵¹ According to Charikleia Armoni, the item was likely purchased already adhered to the cloth.



Figure 22. Binding of inv. 20833.1-20 (CLM 6628). Source: Photograph mine.

Thanks to the collaboration of the curator, it was possible to locate the glass plates with leaves from the Tureh papyri, ²⁵² a collection of papyrus manuscripts found in 1941 in an abandoned quarry in Tureh (TM Geo 2480). ²⁵³ The leaves in Cologne, P. Theol. 53 –60 (TM 145317) are preserved as double leaves between glass panes. The leaves that used to form the central fold of the quires still preserve parchment guards few containing traces of sewing on four sewing stations with independent threads, resulting in a periodic fold pattern. The plates were simultaneously examined after they were placed on the reading room tables. Photographs were taken in this case as well.

Figure 23 shows the fragments of sewing thread (Figure 23a) and parchment sewing guards (Figure 23b) on the leaves of Cologne, P. Theol. 53–60 (TM 145317). The parchment sewing guard in Figure 23a has been removed, leaving only fragments of the sewing thread. The operation was justified by the presence of written text on the guard. On the contrary, blank parchment guards, like the one in Figure 23b, have been left in place. Unfortunately, the removed written parchment guards could not be located at the time of my visit.

²⁵² Also transliterate in English as Tura.

²⁵³ For a brief account of the discovery and further bibliography, see Nongbri 2018, 98–101.

²⁵⁴ The edition of the text is in Wayment 2012. A discussion of the effect that the interest toward the text had on Coptic bindings will appear in my forthcoming publication Dal Sasso, Eliana forthcoming. 'The Effect of Text-Focused Interest on the Preservation of Coptic Bookbinding', in *Care and Conservation of Manuscripts 19: Proceedings of the Sixteenth International Seminar Held at the University of Copenhagen 19th-21st April 2023* (forthcoming).



Figure 23. Central double leaves from Cologne, P. Theol. 53 – 60 (TM 145317). a) Central double leaf with a fragment of sewing thread. b) Central double leaf with blank parchment guard. Source: Photographs mine.

Germany, Hamburg, Staats- und Universitätsbibliothek Hamburg Carl von Ossietzky

The contact with the curator of the manuscript collection, Katrin Janz-Wenig,²⁵⁵ was crucial to arrange an appointment to examine the two binding fragments known from the catalogue,²⁵⁶ Bind. 1 (CLM 6508) and Bind. 2 (CLM 6509), of which did not exist any image.

Locating the two binding fragments in the storeroom was difficult due to the absence of their photographic documentation. Therefore, after initial contact in June 2021, it was only possible to examine the fragments in October. After direct observation on October 19, 2021, it is possible to affirm that the two bindings are late Coptic bindings belonging to Typology 2C or even later, and therefore, outside the period of development of Coptic bookbinding tradition (Figure 24).

²⁵⁵ I thank Katrin Janz-Wenig.

²⁵⁶ Khs-Burmester 1975, 308.



Figure 24. Bindings in Hamburg, Staats- und Universitätsbibliothek Hamburg Carl von Ossietzky. a) Bind. 1 (CLM 6508). b) Bind. 2 (CLM 6509). Source: Photographs mine.

The research at the library also allowed to bring out three binding fragments which had yet to be catalogued. However, since they can be likely dated after the thirteenth century, they did not receive a CLM number and have been numbered simply as Binding 1, Binding 2, and Binding 3.



Figure 25. Additional bindings in Hamburg, Staats- und Universitätsbibliothek Hamburg Carl von Ossietzky. a) Binding 1. b) Binding 2. c) Binding 3. Source: Photographs mine.

Furthermore, in this occasion it was possible to view the uncatalogued fragments of Copto-Arabic manuscripts on paper preserved in the library that might have been associated with the bindings.



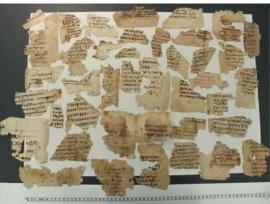


Figure 26. Copto-Arabic manuscript fragments. Source: Photographs mine.

The material was examined in the manuscript reading room, documenting it with a limited number of photographs allowed.

Ireland, Dublin, The Chester Beatty Library (CBL)

The email correspondence was prolonged because, after an initial contact in 2019, the pandemic closure and subsequent reopening with limited hours, along with the accumulation of commitments, caused significant delays. After a lengthy email exchange, I was finally granted permission to examine the collection, which holds some of Europe's most beautiful Coptic bindings, from August 22 to 26, 2022.

I worked in the conservation lab, adapting my work schedule to the lab's calendar and remaining flexible to schedule changes.²⁵⁷ However, my time was limited as the conservation lab was busy with exhibition preparation and regular daily work. Therefore, the work had to be prioritised to ensure that, if there was not enough time to study all the bindings, at least the most important items in the collection would be examined and documented photographically. The highest priority was assigned to the most significant bindings for the history of the studies, medium priority to unknown bindings that emerged during the research, and low priority to small fragments and bindings that had already been commented on by Regemorter.²⁵⁸ In the five days I managed to examine all the twenty-nine bindings and binding fragments on the list in Figure 9, and freely photograph the items. The most interesting item because retaining many original features despite the bad state of conservation is Cpt 804 (CLM 6701) (Figure 27).

 $^{^{257}}$ I thank the curator, Jill Unkel, the former head of conservation, Kristine Rose-Beers, the conservator Julia Poirer and the conservation intern Hoa Perriguey for the hospitality and support in my research.

²⁵⁸ van Regemorter 1958.



Figure 27. Binding Dublin, CBL, Cpt 804 (CLM 6701).

Working in the conservation lab was an opportunity to discuss the characteristics of Coptic binding structures with the conservation team. In particular, the study of the CBL BP XXI (TM 61873) benefited from the point of view of the head of conservation, who was responsible for conserving the manuscript and preparing it for the exhibition 'First Fragments', ²⁵⁹ an occasion for which the codex was subjected to an in-depth study that resulted in a publication in the volume *The Chester Beatty Biblical Papyri at Ninety: Literature, Papyrology, Ethics.* ²⁶⁰ Knowledge of the binding technology of the codex was further deepened during the workshop 'A Multi-Quire Papyrus Codex (CBL BP XXI)'. ²⁶¹ The workshop aimed to produce a 1:1 size model of CBL BP XXI (TM 61873), using historically accurate materials and examining other historical models and original codices displayed in the exhibition 'First fragments'. The workshop offered the opportunity to understand better the techniques by which the ancient codices were made. Furthermore, it was an opportunity to share knowledge and expertise with the other selected participants to promote future research and potential collaborations.

Italy, Turin, Museo Egizio

In the case of the Museo Egizio in Turin,²⁶² information on the bindings was absent in the literature. Fortunately, I could access photographs of the bindings through the PAThs project, which provided essential details such as the shelfmarks and the extent of the binding collection.

 $^{^{259}\} https://chesterbeatty.ie/exhibitions/first-fragments/.$

²⁶⁰ Rose-Beers 2023.

²⁶¹ https://chesterbeatty.ie/workshop-multi-quire-papyrus-codex/.

²⁶² A lucky coincidence made my repeatedly postponed visit to the Museo Egizio possible. I had access to the museum in the week from 22 to 26 February 2021, between a first closure and a second unforeseen but obligatory closure due to the evolving pandemic.

This information was crucial in planning and conducting the research, as it allowed me to identify which bindings to focus on and to prepare for the direct examination process.

After contacting the curator, Susanne Töpfer, ²⁶³ I had the opportunity to work in the conservation laboratory under the guidance of curators and registrars, ²⁶⁴ adapting to their working hours and schedule to accommodate the lab activities. Additionally, I have been allowed to take photographs of the bindings for reference, which I used for further analysis and documentation.

The results of the autoptic analysis on twenty items in the museums have been published in two contributions:

Dal Sasso, Eliana 2023a. 'The Bookbindings: History and Census', in Paola Buzi and Tito Orlandi, eds, *Coptic Codices of the Museo Egizio, Turin: Historical, Literary, and Codicological Features*, Studi del Museo Egizio, 4 (Modena: Franco Cosimo Panini, 2023), 91–104.

Dal Sasso, Eliana 2023b. 'Catalogue of the Coptic Bindings in the Museo Egizio', in Paola Buzi and Tito Orlandi, eds, *Coptic Codices of the Museo Egizio, Turin: Historical, Literary, and Codicological Features*, Studi del Museo Egizio, 4 (Modena: Franco Cosimo Panini, 2023), 105–120.

Spain, Barcelona, Arxiu Històric de la Companyia de Jesús de Catalunya

The archive holds one of the rare bindings complete of sewing, though fragmentary, P. Palau Ribes 181–183) (CLM 3956). The binding had been described in the literature, and a black-and-white photograph exists. After contacting the curator, Alberto Nodar, I was able to arrange a visit to examine the bindings preserved there from October 15 to October 26, 2021. The autoptic analysis proved crucial in identifying misunderstandings by Szirmai in the interpretation of the sewing description, which influenced the opinion on the similarity between Coptic and Ethiopian bindings. The direct inspection of this binding was crucial for the development of the theory on the dissimilarity between Ethiopian and Coptic bindings, which I presented in:

Dal Sasso, Eliana 2023. 'Ethiopian and Coptic Sewing Techniques in Comparison', in Alessandro Bausi and Michael Friedrich, eds, *Tied and Bound: A Comparative View on Manuscript Binding*, Studies in Manuscript Cultures, 33 (Berlin, Boston: De Gruyter, 2023), 251–284.

I worked in the small reading room under the supervision of the curator of the collection and was able to take the necessary photographs.

It was also possible to conduct an autoptic analysis on Palau-Ribes Inv. 410.

The Netherlands, Leiden, Rijksmuseum van Oudheden (RMO)

The museum preserves one of the rare Coptic bindings with the sewing intact, designated as AMS 9. Although the text of the manuscript was studied, the binding was neglected for a long time. Only after Eliza Jacobi, conservator at the museum, conducted an in-depth study during its preservation, the binding finally received the proper attention.²⁶⁷ Subsequently, my analysis was carried out at the museum's conservation lab, on November 2 and 3, 2021, allowing me to work independently and acquire the necessary photographs for reference purposes (Figure 28).

 $^{264}\,\mathrm{I}$ thank Valentina Turina and Valentina Brambilla for their availability.

²⁶³ I thank Susanne Töpfer.

²⁶⁵ See the precise description in Quecke 1984 and Sharpe 1999 for a photograph and further observations on the binding.

²⁶⁶ Szirmai 1999, 21 Fig. 2.3d.

²⁶⁷ The results of this study, conducted in collaboration with the conservator Karin Scheper, are intended for publication.

My involvement in the lab also facilitated valuable interactions with the conservator, providing me with unique insights deriving from her direct contact with the codex structure. ²⁶⁸

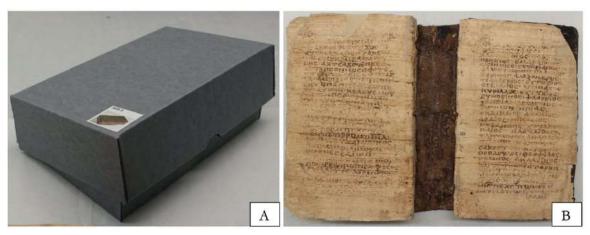


Figure 28. AMS 9 a) Conservative box in which the codex is preserved. b) The codex opened in the middle.

United Kingdom, London, British Library

After contacting the curator of the bookbinding collection, I was introduced to the lead curator of Hebrew and Christian Orient Studies, Ilana Tahan, who was responsible for overseeing the Oriental collections.²⁶⁹ During my research visit to the British Library from November 22 to December 4, 2021, I conducted my work at the St Pancras location. To access the bindings, it was necessary to retrieve them from the automated library system using their precise collection numbers.

Although in 2001 Jen Lindsay, in her publication *The Edfu Collection of Coptic Books*, has provided a list of the Coptic bindings preserved in the British Library,²⁷⁰ the correct collection number was needed to access them. When a request was made, the system automatically retrieved the manuscript from which the binding had been detached, without including the original binding. I could only overcome this obstacle with the help of willing collaborators who searched the library's storerooms for boxes similar to those prepared for bindings.²⁷¹ Once I obtained a list of shelfmarks, I retrieved the desired bindings and conducted my research. The bindings examined at the British Library bear the following shelfmarks, which are presented exactly as they are used in the library, including spaces and asterisks. This precise formatting is important as the bindings will not be retrieved without it:

Or. 5000 (covers)

Or. 5001 (bindings)

Or.6801 (Book clasps)

Or.5001** (original box)

Or.7022 (bindings)

Or.7023 A(bindings)

Or. 7023 B(bindings)

²⁶⁸ I thank Eliza Jacobi for sharing with me her expertise.

²⁶⁹ I thank Philippa Marks and Ilana Tahan for their support in the research.

²⁷⁰ Lindsay 2001, 50.

²⁷¹ My profound gratitude goes to Joe Fellon and Hedley Sutton, British Library staff members.

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Or.7024 (bindings)
Or. 7028 A(bindings)
Or. 7028 B(bindings)
Or. 7027 (bindings)
Or.7029 (bindings)
Or.12689 (bindings&fragments)
Papyrus V
Or. 3367
Or. 14822 (1)
Or. 14822 (2)
Or. 14822 (3)
Or. 14822 (4)
Or. 14822 (5)
Or. 14822 (6)
Or. 14822 (7)
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Due to the fragility and preciousness of the Coptic bindings, the material was marked as 'restricted' and required special permission from the curator to be consulted. Furthermore, I had to work under the close supervision of the Asian & Africa Studies reading room staff and was not allowed to take photographs. Therefore, I had to make some diagrams for reference and requested photographs of the bindings from the library to confront them.

Unfortunately, examining the Coptic binding of Papyrus 1442 (TM 19869) has been impossible because it was stored in the Western Manuscript department with which I had never had contact. Since this binding was also marked as 'restricted', I needed the permission of the curator of the specific department to access it. However, since the curator was in home-office, getting permission before my departure was impossible. However, the binding had already been described in the literature, and photographic documentation exists (Figure 103) which could partially substitute the direct examination.

A total of 27 shelfmarks have been directly examined at the library. Five shelfmarks have been added to the list above: Or. 7597 (CLM 259), which was rebound upside down in its cover when it was restored;²⁷² Or. 6801 (CLM 184), where the original upper and lower covers have been repurposed as doublures lining the internal surface of the modern binding; Or. 6805, the binding detached from an Old Nubian codex; Or. 1321 (CLM 3189), a late Coptic binding; and Papyrus 1786 (TM 38874), a leather cover detached from a papyrus codex.²⁷³

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Vatican City State, Vatican Library (BAV)
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After registering in the library, the protocol for obtaining the manuscript material was straightforward and did not require further authorisation. Subsequently, I could examine the bindings in the manuscript reading room, but photography was prohibited. Therefore, I had to create sketches as a reference. Fortunately, I could later compare my sketches with the digital reproductions on the library's website.

²⁷² Lindsay 2001, 34.

²⁷³ Bell 1917, 281 (n° 1909).

The manuscripts and bindings studied at the BAV are Pap.Vat.copt. 1 (CLM 6387),²⁷⁴ and Barb.or. 17 (CLM 3070).

2.3.3. Recording practices of recovery, repair, and reuse

Typically, details concerning practices of recovery and repair were not routinely documented. Consequently, such information could be acquired either through direct examination or by examining photographic evidence. Luckily, details of existing repairs on Coptic literary manuscripts had been recorded by PAThs in the 'ancient restoration' field of the Atlas. As a result, this information could be imported from PAThs by querying its API into the 'repair' field in the Heurist database.

Different procedures were adopted to collect information on reused text fragments and their attribution to specific bindings according to their provenance, depending on the nature of the reused text. Literary Coptic manuscript fragments were all censed by the PAThs project, which in its web application allowed for a search for 'manuscript reused in bookbindings', resulting in eighty-nine codicological units. However, since not only literary Coptic fragments have been reused in bindings, a complementary search also in Trismegistos was necessary to provide a more comprehensive view of the phenomenon. Trismegistos database enables a search for texts marked as 'reused as binding', which returns 328 results, including the eighty-nine fragments censed by PAThs and Latin manuscript fragments that have been reused in European bindings. However, it should be noted that the expression 'reused as binding' is fundamentally incorrect because the fragments have been reused as *part of* the binding, and the label attributed by Trismegistos can be misleading. Trismegistos does not provide information on how the fragments were reused, whether in boards, sewing stations, pastedown, or endleaves. Furthermore, it often not specifies in which binding the manuscript was reused.

Lastly, the fragments extracted from the laminated boards of the Nag Hammadi codices were not among the results of the search in Trismegistos. Thus, the use of edition of the fragments was necessary. ²⁷⁶ It later became evident that the fragments were included in Trismegistos but they were not marked as 'reused as binding' and the information on their reuse was included in a non-searchable note.

Once the list of manuscript fragments marked as reused was compiled, it was possible to import the data into the Heurist database. By interrogating the PAThs API, extracting the relevant information to automatically fill the fields in the Heurist database was possible, on the contrary, data from Trismegistos had to be inserted manually.

2.4. Data query

Data on the bindings of Coptic literary manuscripts are openly accessible and searchable from the web application of PAThs, the Atlas, by searching for 'presence of bindings' or 'only

²⁷⁴ I thank Francesco Valerio, former PAThs member and colleague, for pointing me to the existence of the unusual binding of Città del Vaticano, BAV, Pap.Vat.copt. 1 (CLM 6387).

²⁷⁵ Most of the Latin fragments were all digitised in the Earlier Latin Manuscripts database (https://elmss.nuigal-way.ie/catalogue) which allowed to assess the type of reuse.

²⁷⁶ See Barns et al. 1981 for a comprehensive list and edition of the fragments extracted from the Nag Hammadi codices.

bindings preserved'.²⁷⁷ Once the Heurist database was completed with data collected from PAThs, Trismegistos and my direct observation, the database served as a tool to develop the typological classification presented in chapter 3 'A typological classification of Coptic bookbinding'. The database can eventually be published online and made accessible and searchable via a dedicated web application, which allows for detailed exploration individual bindings.

The database in Heurist facilitated the analysis of binding characteristics through various queries. For example, it is possible to filter bindings based on specific features, such as board material, and sewing type. These filters can be combined to search for bindings with a combination of desired features. As Figure 29 sows, it is possible to search for all bindings where the board material is 'wood', and fold pattern is 'all-along – two lengths of thread'. If latitude and longitude coordinates are entered, it is possible to display the distribution of results on a map.



Figure 29. A search in the database in Heurist for binding where board material is 'wood', and fold pattern is 'all-along – two lengths of thread'.

a) The filter builder. b) The results of the search displayed on the map and on a timeline.

The ability to combine binding features with elements of the manuscript content was necessary to develop the research presented in chapter 4: 'The archival function of Coptic bindings'. For instance, it is possible to filter the search for all bindings associated with ninth-century manuscripts with a 'Dec 4' design (Figure 30).

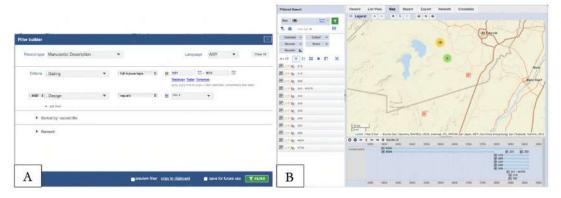


Figure 30. A search in the database in Heurist for binding associated with ninth-century manuscripts with a 'Dec 4' design. a) The filter builder. b) The results of the search displayed on the map and on a timeline.

The availability and accessibility of binding data through the PAThs web application, the Atlas, and the query capabilities of the Heurist database represent significant advancements in the study of Coptic bindings. These resources allow for not only the analysis of individual bindings but also the examination of clusters with shared characteristics, facilitating the identification of patterns and connections that might otherwise be difficult to discern.

²⁷⁷ The search can be conducted at https://atlas.paths-erc.eu/search/manuscripts.

3. A typological classification of Coptic bookbinding

Acquiring knowledge of a given subject necessitates the development of a specific terminology to describe it, followed by a systematic approach to its classification. This principle applies to Coptic bookbinding as well. Therefore, driven by the impulse of understanding this binding tradition, a typological classification of Coptic bookbinding was elaborated first by Theodore C. Petersen in *Coptic Bookbindings in the Pierpont Morgan Library*²⁷⁸ and later by Janos A. Szirmai in *The Archaeology of Medieval Bookbinding*.²⁷⁹

Petersen described the fifty Coptic bindings housed in what is now the Morgan Library and Museum. Additionally, he provided the description of fifty more Coptic bindings from various collections worldwide. His consistent descriptive method, enriched with drawings of the covers, helps interpret details that are not always evident in photographs. The work thus constitutes the most extensive and detailed monograph on Coptic bookbinding to date. However, it has some flaws directly stemming from the fact that it was completed in 1951 as it cannot incorporate the developments in research that have occurred since then.²⁸⁰ For example, the Nag Hammadi codices had been discovered in 1945, only a few years prior the completion of the work; therefore, there is no in-depth treatment of their binding technique.²⁸¹

Such study has been undertaken in Szirmai's work which was published in 1999, providing the most comprehensive overview of Coptic bookbinding from its inception to the late period. However, as his work encompasses various binding traditions beyond just the Coptic one, the book must cover a broader scope. While Szirmai's descriptions of Coptic bindings are rich in detail and aided by line drawings, he cannot delve as deeply into the subject as a more focused study on the Coptic binding tradition would allow, leading to some misinterpretations.

Therefore, this chapter builds upon the works of Petersen and Szirmai by incorporating additional data from recent developments in codicological research, archaeological discoveries, direct inspections of bindings performed during the doctoral research, and applying modern methodology. This includes utilising the terminology derived from the Ligatus Research Centre's *Language of Bindings Thesaurus* (LoB), enriching it with new terms specific for the Coptic binding tradition.

The chapter analyses existing bindings to construct a typology of binding techniques, situating them within their historical context and assessing their potential practical applications over time. Since sewing is considered the defining characteristic of bookbinding, this typological classification of Coptic bookbinding is based on the various sewing techniques used to bind the leaves or quires together. The classification in this chapter is based solely on technological criteria, meaning it categorises items according to their technical characteristics and methods of construction rather than their historical context. However, when these bindings are grouped

²⁷⁸ As anticipated in section 1.2, the work, completed in 1951, was published only in 2021 edited by Francisco H. Trujillo for the Legacy Press. For details regarding the history of the manuscript collection and the edition of the catalogue, see Trujillo 2021.

²⁷⁹ Szirmai dedicates three chapters to the topic. See Szirmai 1999, 7–43.

²⁸⁰ In his overall enthusiastic review of the book, Georgios Boudalis underlines some of its limitations. See Boudalis 2023.

²⁸¹ They are briefly mentioned in Petersen 2021, 18 and appendix I, a list of bindings that can be added to the eighty-five listed by G. D. Hobson in Hobson 1938. For the complete list of bindings, see Petersen 2021, 477.

using these technological criteria, a historical progression becomes apparent. This allows us to trace a historical timeline through the technological advancements of Coptic bookbinding tradition.

In this typological classification, Coptic bindings are categorised into two main groups: those employing linking sewing techniques that are designed to connect the quires together, and those employing non-linking sewing techniques, that do not interconnect different quires. The chapter is structured accordingly, and after a section dedicated to introductory remarks (3.1), it is divided into two main sections corresponding to these categories (3.2 and 3.3 respectively). Each section is further divided into subsections based on whether the sewing is performed through the inner margin of the leaves (3.2.1 and 3.3.1) or through the central fold of the quire (3.2.2 and 3.3.2).

Within this framework, different typologies of binding are systematically organised. Within each typology, homogeneous groups of bindings, categorized by shared features or functions, are further subdivided into sub-typologies. The description of each typology includes an examination of the sewing technique, the period of its usage, and, where applicable, the context in which it was employed, as well as any associations with specific categories of texts. Additionally, the description is accompanied by examples that illustrate the features and applications of the bindings in question.

In summary, the identified typologies are four, subdivided as follows:

Typology 1: Stab sewing through the margin

Typology 2: Sewing through the fold

Typology 2A – Chainstitch with independent threads

Typology 2B – Simple chainstitch

Typology 2C – Late Coptic bindings

Typology 3: Stitching through the margin

Typology 4: Tacketing through the fold

Typology 4A – Single-quire literary codices

Typology 4B – Single-quire booklets

Typology 4C – Preliminary sewing

Since some codices cannot be assigned to a binding typology with certainty because they do not preserve their binding, section 3.4 presents the methodology for tentatively assigning them to a binding typology.

Section 3.5 is dedicated to the part of the research comparing Coptic and Ethiopian sewing techniques. The section illustrates the development of the comparison, starting from the reasons that motivate it (3.5.1) and the factors that must be considered when comparing the traditions (3.5.2) before the actual comparison of the sewing technique (3.5.3). The section also presents the potential of cross-domain research between databases for the progress of comparative bindings studies (3.5.4). Lastly, sub-section 3.5.5 shows how the typological classification of Coptic bindings developed in this research allows us to understand the relationship between Coptic and Ethiopian binding traditions and the reasons behind their similarities and differences.

3.1. Preliminary remarks

Before starting the description of the different Coptic bookbinding typologies, a couple of preliminary remarks are necessary.

First, it must be noted that for most manuscripts, only fragments remain, with not even a single complete double leaf preserved. It is very rare to find those that contain a few intact thread passages. If no thread remains, we are left to reconstruct the thread passages based on the existing sewing holes in the leaves. However, we must acknowledge that our understanding of the thread's path, while logical to us today, may not reflect the actual method used in antiquity. The original mechanism could have been entirely different, seeming odd to us now but making perfect sense at the time. For example, consider a booklet where no traces of thread are left but four holes are visible along the fold, positioned in pairs, ideally forming two sets. The first set is near the head, and the second set is near the tail. Our perception leads us to believe that the holes closest to each other were connected by a thread. In this case the structure would have been bound by two threads: one thread passing through holes 1 and 2, and another thread passing through holes 3 and 4 (see Figure 31).

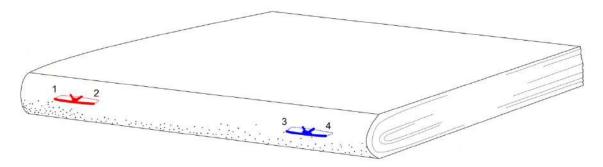


Figure 31. Booklet sewn on four sewing stations with two threads. Source: Drawing mine.

However, alternatives are also possible. For instance, the four holes could have been linked by a single thread knotted on the inside of the booklet as shown in the Figure 32. Therefore, in the absence of thread remnants or their documentation, we are left to interpretation. The likelihood that the binding was done using this method is very low, as it is a less practical technique to implement. Therefore, in the hypothetical reconstruction of the sewing techniques, these alternative structures are not considered. However, it is acknowledged that, without further supporting evidence, there is a minimal possibility that the structure does not follow the proposed pattern.²⁸²

²⁸² This possibility must be kept in mind when constructing ancient binding models.

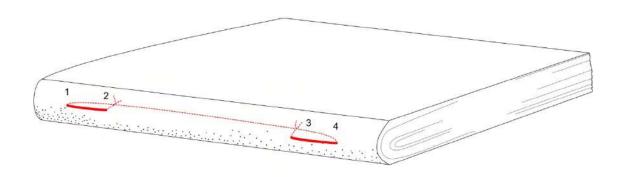


Figure 32. Booklet sewn on four sewing stations with one thread. Source: Drawing mine.

The second remark is that there is evidence that some codices may have existed and used in an unbound state, that is, without any sewing, with their unity maintained only by the double leaves being folded together to form a quire.

To the best of my knowledge, there is only one documented example of this kind of codex structure. It is a single bulk quire 'unsecured by any form of sewing' containing tax receipts bearing dates between 339 CE and 345 CE, among various blank leaves (Figure 33). The quire was assembled reusing two written rolls containing the official correspondence of the Strategus of the Panopolite nome (the region where Panopolis is located, PAThs ID 24) and dating from 298 CE and 300 CE respectively. The rolls were cut into several double leaf-sized pieces, and their written surfaces were glued together so that the blank surfaces could be used for new writing. This unusual-looking codex, lacking any sewing, may lead to think that it was a codex whose manufacture was not complete. However, the fact that tax receipts were written on its pages suggests that the codex was used in precisely that form.

Unfortunately, the codex in this original state is no longer preserved and our understanding relies on the early photograph (Figure 33) and the description provided in Theodore C. Skeat's 1964 edition of the text. In fact, Skeat proposed to Sir Chester Beatty 'that the codex should be taken to pieces,'285 to reveal the text on the fronts of the leaves glued together which 'promised to be of much greater interest than the tax-receipts.'286 Hence, today, the individual leaves that constituted the double leaves are preserved between glass panes and scattered among several collections. A portion of the leaves is preserved in Dublin in the Chester Beatty Library as

²⁸³ A fourth-century codex from Achmim (the ancient Panopolis, PAThs ID24) was constructed in the same manner, by pasting the written sides of old rolls to reuse their blank verso. There is no photograph that allows us to draw conclusions about the material features of this codex. However, according to descriptions, this codex was furnished with papyrus boards made of reused written papyri pasted together (Bouriant 1892, 244) and covered with a 'couverture économique pour un codex' (Collart 1931, 36). The codex has been dismembered, with the individual leaves mounted between glass panes, and the cover has not been preserved. The existence of a binding is confirmed by evidence found on the part of the leaves preserved in Paris, BnF, Copte 135.1.7 (CLM 1006). A tacket along with a parchment stay between two sewing stations is preserved in the upper margin of f. 29v. See https://gallica.bnf.fr/(...)/f58.item.

²⁸⁴ Skeat 1964, vii.

²⁸⁵ Skeat 1961, 194 and Skeat 1964, viii.

²⁸⁶ Skeat 1961, 194 and Skeat 1964, viii. Today, such an operation would not be necessary due to modern imaging techniques that allow hidden texts to be revealed by simply modifying the wavelength of the illuminator source.

PapPan I-V (TM 44882). The leaves are separately mounted between glass panes with a backing that completely obscures their verso and textless parts. ²⁸⁷



Figure 33. Single-quire codex without binding before glazing. Source: Skeat 1964, Plate I.

Kristine Rose-Beers, at the time head conservator at the Chester Beatty Library, points out that our ability to ascertain whether the leaves were fastened 'by adhesive or a discreet single tacketing stitch'²⁸⁸ has been hindered by the dismemberment process. However, it is considered possible to exclude the presence of tackets, given the absence of consistently positioned holes on the leaves.²⁸⁹

3.2. Linking sewing techniques

The branch of the of the typological classification Coptic binding techniques encompassing linking sewing techniques includes Typology 1 and Typology 2, which group bindings techniques aimed to connect one quire to the other in multi-quire codices.

It is necessary to introduce a clarification regarding multi-quire codices. While it is believed that they represent an evolution from single-quire codices, this belief is primarily influenced by

²⁸⁷ See https://viewer.cbl.ie/viewer/image/PapPan_II_8/2/ where the backing has been cut out to reveal the written text appearing on the blank side, which remain concealed otherwise.

²⁸⁸ Rose-Beers 2023, 121b.

²⁸⁹ A digitisation is available at https://viewer.cbl.ie/viewer/search/-/(...)pappan%29/1/random_1522259268/-/.

the order in which topics are presented in texts regarding the structure of the codex rather than by substantial evidence supporting this claim. The most widespread misconception likely stems from the sequence of topics presented in Szirmai's *The Archaeology of Medieval Bookbinding*. Although the book is structured to describe binding structures in chronological order of their development, it explicitly states that chapters 1, "The first single-quire Coptic codices' and Chapter 2 "The first multi-quire Coptic codices' describe book structures that coexisted. Szirmai affirmed:

In Chapter 1 we saw that the single-quire codex was in use in ancient Egypt during the third and fourth centuries AD. But it was not the only codex form at that time: multi-quire codices are extant even from as early as the second century AD and considerably outnumber the single-quire type.²⁹⁰

However, a cursory reading may lead to the misunderstanding that single-quire codices preceded multi-quire codices.

The earliest multi-quire codex which has been preserved with its binding is Paris, BnF, Supplément grec 1120 (TM 62376),²⁹¹ containing works of the Jewish philosopher Philo of Alexandria in Greek and found in a niche of the wall of a house in Koptos (PAThs ID 20). It is a papyrus codex of four quires dated to the third century.²⁹² Victor J. Scheil, the editor of the text, described the condition of the codex when it was found:

Le feuillets d'une grande ténuité étaient (...) cousus ensemble avec une tige herbacée très fine faisant office de fil. Entre le papyrus et le fil, afin que le premier ne fût pas endommagé par le second, on avait glissé dans le pli de petits fragments rectangulaires de parchemin.²⁹³

Collections, such as the 'Biblical Papyri' (BP) and the 'Bodmer Papyri' (P.Bodmer) offer further examples of early multi-quire codices, dated to the third and fourth centuries. Based on the evidence from preserved manuscripts, it is a misconception to consider the single-quire codex as the precursor of the multi-quire codex, as well as to view the binding of Nag Hammadi codices as the earliest bindings.

The so-called 'Biblical Papyri' is a group of twelve papyrus codices which appeared on the antiquities market in Egypt in the 1930s. Frederic G. Kenyon oversaw their edition, which was accompanied by a full facsimile edition. Most of the collection was acquired by Sir Alfred Chester Beatty, while some parts went to the University of Michigan and other European repositories.

Thanks to the publication by Brent Nongbri of an early account of the acquisition, found in the form of a typescript at the Chester Beatty Library, we now have more information about the discovery.²⁹⁴ The manuscripts were found in jars, positioned on top of a wooden coffin. The account is interesting regarding the binding history of the codices because it notes:

²⁹⁰ Szirmai 1999, 15. For the first chapters of Szirmai's book see, Szirmai 1999, 7–31.

²⁹¹ The leaves have been fully digitized in B/W and are available in Gallica at https://gallica.bnf.fr/(...)/btv1b11004472k. In November 2021, the binding has been directly examined at the BnF.

²⁹² The dating is based on palaeographic grounds and on the date of the papyrus fragments of the gospel of Luke. However, this dating has been long debated and does not have a firm point. For a resume of the alternative dates of the fragments, see Nongbri 2018, 247–268.

²⁹³ 'The very thin sheets were (...) sewn together with a very fine herbaceous stem serving as thread. Between the papyrus and the thread, to prevent the former from being damaged by the latter, small rectangular fragments of parchment were added into the fold.' (Scheil 1893, iii; translation mine).

²⁹⁴ For the history of acquisitions of Biblical Papyri and a reassessment of their provenance, see Nongbri 2014.

They [the Biblical papyri, ndr] were shoved in rather loosely and there were no bindings. The leaves, however, were held together in some cases by the binding cord, the holes of which are shown in the margins of many of the papyri [sic] leaves.²⁹⁵

This information is useful because it tells us that, when the codices were found, they no longer had covers, but the leaves were still held together by threads. Today, the codices are not preserved in their original condition; instead, the leaves are preserved between glass panes, and only the holes in the margins of the leaves indicate the former presence of binding threads. We can assume that the codices were already damaged when placed in the jars, as they had no covers, and it is plausible that they were placed in the jars precisely for this reason.

A further example derives from the so called 'Bodmer Papyri' collection. The designation generally refers to a group of Greek, Coptic, and Latin papyrus and parchment codices which include some of the earliest well-preserved ancient Christian codices and are now dispersed in several collections, but the bulk has its repository in the Fondation Bodmer in Cologny-Genève. The context of these papyri is unknown, and it has been connected to Achmim (the ancient Panopolis, PAThs ID 24) and more recently they have been linked to Dishna (PAThs ID 102), following the research by James M. Robinson.²⁹⁶ However, Robinson's theory, which relies on oral testimonies and correspondence from both Egyptian locals and Western individuals, is not universally accepted among scholars. The uncertainties surrounding the collection's discovery led to disagreements regarding both the number of books it comprises and its composition. Furthermore, there remains uncertainty about whether the manuscripts were originally part of a monastic library or originated in an 'urban educational setting.'²⁹⁷

The following sections will introduce the binding techniques necessary to link one quire to the other, which can theoretically be executed either through the margin (3.2.1) or through the fold (3.2.2) of the quire.

3.2.1. Typology 1: Stab sewing through the margin

From the second century, the codex, a new book format, gained prominence.²⁹⁸ Nonetheless, the shift from the scroll to the codex was not immediate. Instead, the codex format evolved alongside scrolls and wax tablets, which continued to be in use, as indicated by depictions discovered in tombs in Rome dating back to the fourth century (Figure 34).

Figure 34a portrays Trebius Iustus, a young man seated with an open codex on his lap, surrounded by various writing instruments and books in diverse formats. Among these are a *capsa* containing scrolls, wax tablets, a *tabula inscripta*, pockets for styluses, and a codex formed by

²⁹⁵ Memorandum 'Rediscovery of Early Biblical Papyri, 18 May 1934', 2.

²⁹⁶ On the reconstruction of the discovery of the Bodmer Papyri based on interviews carried out by author and the connection of the codices with Dishna (PAThs ID 102), see Robinson 2011.

²⁹⁷ Nongbri 2018, 158. For an overview of current research on the Bodmer Papyri, encompassing its discovery, provenance controversies, and recent interpretations in the field of papyrology, see Nongbri 2018, 157–215. The possible composition of the Bodmer library has been proposed by Jean-Luc Fournet in Fournet 2015.

²⁹⁸ The topic has been thoroughly explored by multiple authors. Roberts and Skeat's seminal work, *The Birth of the Codex*, attributes the prevalence of the codex over the scroll to the Christian religion's intention to distinguish itself from the pagan and *élite* practices associated with scrolls. See Roberts and Skeat 1987. A recent work by Boudalis, *The Codex and Crafts in Late Antiquity*, approaches the subject from a practical perspective, emphasizing the existence of a transitional phase, drawing attention to evidence such as the fresco in the tomb of Trebius Iustus. See Boudalis 2018, 1–18.

wooden tablets bound together by a lengthy strap extending from one corner.²⁹⁹ Figure 34b illustrates a woman named Veneranda, accompanied by the martyr Petronilla, gesturing towards a *capsa* filled with scrolls and an open codex.³⁰⁰





Figure 34. Details of fourth century paintings in tombs and catacombs in Rome. a) Trebius Iustus among writing implements. Rome, Hypogeum of Trebius Iustus. Source: https://www.romanoimpero.com/2020/03/ipogeo-di-trebio-giusto.html b) Veneranda and St Petronilla flanking a capsa and a codex. Rome, catacomb of Domitilla. Source: https://www.catacombedomitilla.it/it/le-catacombe.

Typology 1 would encompass the bindings executed with a method, precursor of the binding technique of multi-quire codices sewn through the fold and directly derived from the method to sew together wooden tablets. Theodore C. Petersen affirmed that 'there can be little doubt that the hinging of their parchment leaves must have resembled that of the wooden wax tablets.' The word 'codex' would indeed come from the Latin *caudex*, meaning 'piece/hunk of wood.' Georgios Boudalis in his work dedicated to Late Antique crafts of the codex affirmed:

The belief that the wooden tablets the predecessors of the multigathering codex is common among scholars and is based on the similarities of their functional aspects, despite the difference in the material of the leaves (wood as opposed to papyrus or parchment and, later, paper).³⁰³

Both wooden tablets and codices share a rectangular format, bear writing, and hold their components together along the inner margin. Therefore, it is plausible to consider that the technique used to bind codices, which absolved the same function, evolved from that used for wooden tablets. Figure 35 illustrates a reconstruction of this technique, which involves passing the ends of a thread through each pair of closely spaced holes. When the codex is open, this technique results in two parallel horizontal threads being visible for each pair of holes made in the margin.

²⁹⁹ Andaloro 2006, 259–263.

³⁰⁰ Andaloro 2006, 163–165.

³⁰¹ Petersen 2021, 8.

³⁰² LatDictionary, caudex, caudicis.

³⁰³ Boudalis 2018, 21–22.

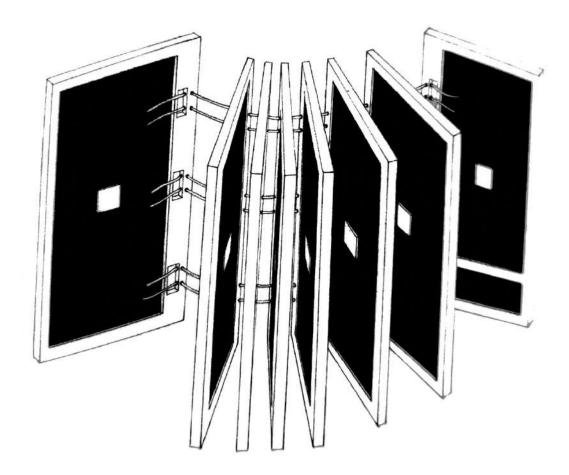


Figure 35. Reconstruction of the binding technique of written wooden tablets based on tablets found in the House of the Bicentenary in Herculaneum. Source: Boudalis 2018, fig. 11.

Boudalis notes that fifth and sixth-century mosaics depict the codices with evident stitching through the margin, resulting in two closely spaced horizontal lines,³⁰⁴ as shown, for example in Figure 36, depicting a detail from a mosaic in the Basilica of San Vitale.

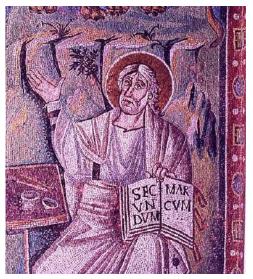


Figure 36. Details of the horizontal stitches on the gospel of St Mark. Ravenna, Basilica of San Vitale, detail of St Mark. Source: Paolo Monti – digital library BEIC, CC BY-SA 4.0, https://commons.wikimedia.org/w/index.php?curid=48075062.

³⁰⁴ Boudalis 2018, 63, fig. 41 and fig. 42.

Boudalis suggests that it would be theoretically possible for a multi-quire codex to be sewn through the margin, using a stab sewing technique, linking the different quires together (Figure 37). This method would involve the thread passing along the outside of the codex's spine which for books without a cover, would be impractical, as it would expose the thread to wear and tear. However, if the codex was covered in leather, the thread would be protected, aiding in its preservation. Despite this, the solution appears impractical and difficult to implement. In the absence of material evidence, however, every hypothesis remains theoretically possible.

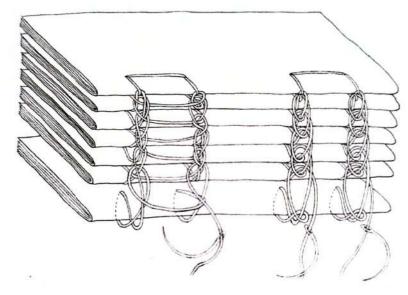


Figure 37. Two hypothetical methods for stab sewing, on the left with one needle, on the right with two needles, elaborated by G. Boudalis. Source: Boudalis 2018, fig. 38.

Yet, the hypothesis lacks supporting evidence beyond the pattern of holes resembling those found in tablets, as no remnants of threads have been preserved. The primary challenge is the absence of extant specimens, namely multi-quire codices displaying this hole pattern. The primary challenge is the absence of extant specimens, namely multi-quire codices displaying this hole pattern.

For instance, the binding of the parchment booklet dated to the first half of the third century, to which the parchment double leaf Berlin, Staatliche Museen, P. 7358 + P. 7359 (TM 97132) belonged,³⁰⁸ is not preserved, but the holes indicating where the binding stitches passed are present. There are four holes (two pairs) pierced through the double leaf when it was closed. One pair is close to the head, and the other pair is close to the tail (Figure 38). Although the double leaf displays a hole pattern similar to that found on writing tablets, the full extent of the manuscript is unknown, and it cannot be confirmed that it was a multi-quire manuscript.

³⁰⁵ Boudalis 2018, 61–62.

³⁰⁶ The main opponent to the thesis that multi-quire codex evolved from the tablets is Szirmai. See Szirmai 1999, 3–4 and Szirmai 1990, 31–32.

³⁰⁷ Although some manuscripts exhibit this pattern, they do not feature multiple quires.

³⁰⁸ The digitisation of the double is available at https://berlpap.smb.museum/record/(...)P.+7358+++P.+7359.



Figure 38. Binding with two pairs of sewing holes of Berlin, Staatliche Museen, P. 7358 + P. 7359 (TM 97132). © Ägyptisches Museum und Papyrussammlung. Source: https://berlpap.smb.museum/record/?result=0&Alle=P.+7358+%2B+P.+7359.

Other double leaves preserve this hole pattern however they all belong to single-quire structures. Consequently, the binding technique of these codices would belong to Typology 3 rather than Typology 1, as no interlinking between quires is required.

For example, Figure 39b demonstrates the similarity between the hole pattern along the inner margin of the closed double leaf from the Harris Homer (TM 61277) and the pattern seen on the inner margin of the wooden writing tablet depicted in Figure 39a.

In addition to the Harris Homer,³⁰⁹ further double leaves from other single-quire codices show this hole pattern. They are Berlin, Staatsbibliothek zu Berlin – Preußischer Kulturbesitz, Ms. Gr. fol. 66 I, II (TM 61946) also known as Genesis Berolinensis³¹⁰ and New York, The Morgan Library and Museum, Gr. Pap. 202.17 (TM 60987) also known as Morgan Homer.³¹¹

³⁰⁹ For information on the Harris Homer, see Kenyon 1891, 81 (= 126).

³¹⁰ A full facsimile is in the II part of Sanders 1927.

³¹¹ The digitization of the leaves is available at http://corsair.themorgan.org/vwebv/holdingsInfo?bibId=350967. The shelfmark comprises the half of a double leaf, making it challenging to discern the arrangement of holes due to its extensive damage. However, in the lower section of the folio, there appear to be two pairs of holes, and it is plausible that a couple of holes were also originally situated near the top.





Figure 39. Comparison between hole patterns along the inner margin of a writing tablet and a papyrus bifolio. a) Wooden writing tablet from Antinoupolis (PAThs ID 53). Paris, musée du Louvre, AF 1194, -30–395 CE. Source: https://collections.louvre.fr/ark:/53355/cl010048497 © Musée du Louvre. b) Double leaf from London, BL, Pap 126 Ro (TM 61277) (Harris Homer). Source: Schironi 2010, 169.

Petersen presented a line drawing, shown in Figure 40, of a binding technique which might have been used to keep together the bifolia of a single quire, achieving the same hole pattern. The stitching technique would belong to the binding Typology 3.

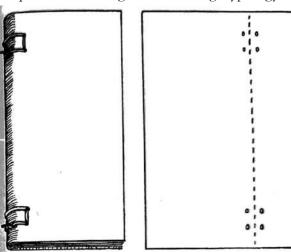


Figure 40. Stitching though the margin of a single-quire codex. Petersen takes as example London, BL, Pap 126 Ro (TM 61277)(Harris Homer). Source: Petersen 2021, fig. 3 and fig. 4.

Another inconsistency with this theory regarding the application of the binding technique used to assemble tablets to the quires of codices, is the existence of tablets that display a different hole pattern, rather than solely consisting of pairs of holes. See, for instance, the writing tablet in Figure 41 featuring three holes along the inner margin.



Figure 41. Wooden writing tablet from Antinoupolis (PAThs ID 53) featuring three holes along the inner margin. Paris, musée du Louvre, AF 1196 3, -30–395 CE. Source: https://collections.louvre.fr/ark:/53355/cl010002616 © Musée du Louvre.

Table 9 lists the shelfmarks associated with codices presenting a pattern in paired holes along the inner margin. However, the binding of these codices does not belong to Typology 1. The codices are listed in chronological order and for each, the table provides the TM and CLM identification numbers, the date—based on the data in Trismegistos or PAThs—the textual content, and the form in which it has been preserved (double leaf or single quire).

Table 9. List of codices presenting a pattern in paired holes along the inner margin.

TM	CLM	Shelfmark	Date	Content	Book form
97132	-	Berlin, Staatliche Museen, P. 7358 + P. 7359	200-250	List of payments	Double leaf
61277	-	London, BL, Pap 126 Ro (Harris Homer)	250-300	Homer	Single quire
61946	-	Berlin, Staatsbibliothek, Ms. Gr. fol. 66 I, II	250-300	Bible	Single quire
		(Genesis Berolinensis)			
60987	-	New York, The Morgan Library and Museum,	301-400	Homer	Single quire
		Gr. Pap. 202.17 (Morgan Homer)			

The only preserved manuscript, so far, whose characteristics could belong to Typology 1 is BP I (TM 61826), part of the 'Biblical Papyri' collection. The manuscript has been digitised and is freely available in the Chester Beatty Digital Collection webpage. Evidence shows that the manuscript was formed by papyrus leaves folded in two to create double leaves, which were then stacked one on top of the other without any quire structure. The presence of two holes along the inner margin of the leaves indicates the former presence of a binding stitched through this margin.

In occasion of the exhibition *First Fragments: Biblical Papyrus from Roman Egypt* held in the Chester Beatty from 28 October 2022 to 3 September 2023,³¹³ a facsimile of the binding was created, proposing a possible reconstruction based on material evidence (Figure 42). A thread was laced through each pair of holes in a group of double leaves, and its ends were tied together outside. This process was then repeated for the next group of leaves. Each group of leaves corresponded to a thread and a knot, as represented in the first (upper) half of the model.³¹⁴ If they were sewn with no intent to link one group of double leaves to the next the binding typology would belong to Typology 3. However, due to the absence of thread remnants, it is not

³¹² CBL Digital Collections, https://viewer.cbl.ie/viewer/search//random_336359722/-/.

³¹³ It is still possible to visit the *First Fragments* exhibition as a 3D virtual exhibition at https://chesterbeatty.ie/exhibitions/first-fragments/.

³¹⁴ See Unkel 2022, 26.

possible to exclude the that the groups of double leaves were not stitched independently but were instead linked. Therefore, the different groups could have been sewn with a single thread, which would also permit easier alignment of the holes, as represented in the second (lower) half of the model, in a technique that would belong to Typology 1.

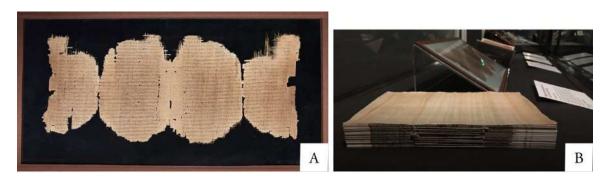


Figure 42. Double leaf from BP I (TM 61826) showing a couple of holes along the inner margin of each leaf. Source: CBL digital collection, https://viewer.cbl.ie/viewer/image/BP_I_ff_13-14/1/LOG_0000/. b) Model of the binding presented at the exhibition First Fragments. Source: https://brentnongbri.com/2022/10/30/first-fragments-at-the-chester-beatty/.

3.2.2. Typology 2: Sewing through the fold

Typology 2 encompasses multi-quire codices sewn through the fold using a chainstitch technique on two, three, four, and in one instance on five sewing stations. The chainstitch technique is defined in LoB thesaurus as:

A type of unsupported sewing in which the sewing thread, as it emerges from an individual sewing station, is taken down and round the thread emerging from the same station in the previous gathering(s), forming linked chains of thread across the spine.³¹⁵

Georgios Boudalis has traced the origins of chainstitch sewing to the cross-knit looping method typical of knitting, a technique in use in antiquity. Thus, he demonstrated how, in Late Antiquity, bookbinding techniques were shaped by practices from other crafts like bas-ketry, weaving, and leatherwork. These techniques were not merely decorative but were also essential structural elements, notably in sewing processes. 317

The expertise in these techniques was accessible to those engaged in book production. Archaeological excavations in the monastery of Epiphanius at Thebes have revealed that cells designated for monks involved in bookbinding contained remnants of leather, indicative of their craft, alongside evidence of looms.³¹⁸ In the cell of the monk Frange, located in a tomb that belonged to Amenemope's family during the New Kingdom in Egypt (1548–1086 BCE) in the area of Sheikh abd el Gurna (Western Thebes TT29 – PAThs ID 199), many ostraca were found containing the monk's correspondence with neighbouring communities. These ostraca

³¹⁵ See LoB, http://w3id.org/lob/concept/1249.

³¹⁶ Boudalis 2018, 49-60.

³¹⁷ Theodore Gottlieb had already noticed the similarity between the decoration of the binding of Wien, ÖNB – Papyrussammlung, P.Vindob. BD 37 (CLM 6506) (previously known as Inv. No. 34 and G 30501) and that of shoes from Achmim (ancient Panopolis, PAThs ID 24) published by Heinrich Frauberger. See Gottlieb 1910, 33-34, Frauberger 1895 and for further examples Arnold and Grohmann 1929, 35.

³¹⁸ Winlock and Crum 1926.

testify to his involvement in bookbinding and textile production, illustrating the multifaceted artisanal skills that monks could master.³¹⁹

Returning to the technical aspects, the chainstitch sewing technique encompasses two variations. This technique can involve either using separate threads moving independently between pairs of sewing stations or a single thread moving from one station to the next. These distinctions form the basis for the distinction between Typology 2A and Typology 2B. Typology 2A refers to codices sewn independently with different threads, while Typology 2B refers to codices sewn all-along with a single thread.

The critical date distinguishing Typology 2A from Typology 2B appears to be the eighth century. This period marks the transition from using chainstitch with independent threads to employing a single thread for sewing codices all-along. This shift is likely linked to a significant event in Egyptian history: the Arab conquest. Beginning in 641 CE, with the fall of the Byzantine fortress of Babylon (Old Cairo) (PAThs ID 144) and Alexandria (PATHs ID 38) to Arab rule, ³²⁰ Islamic book collections began to populate newly established cultural centres and those involved in the production of Coptic bindings encountered the new binding technique, which is characterized by an all-along chainstitch sewing.

Unfortunately, the appearance of the earliest Egyptian Islamic bindings remains unknown, as none have survived. However, by examining the oldest Islamic bindings from Kairouan in Tunisia and those dating to the thirteenth century from Egypt,³²¹ we can infer their possible characteristics. These examples suggest that Islamic bindings, at least from a decorative and possibly a technological standpoint, differed from Coptic bindings.

Islamic codices featured an all-along chainstitch on two or four stations, a horizontal book format, and wooden boards covered with leather. Despite the lack of direct evidence, it is reasonable to assume that the earliest Egyptian Islamic bindings had similar characteristics to these later examples.

The distinction between Coptic and Islamic bookbinding techniques reflected a society where the customs and habits of Egyptian inhabitants differed significantly from those of the conquering Arab people. These differences extended to the simplest aspects of daily life, which could indicate a person's identity. For example, the ninth-century historian Ibn 'Abd al-Ḥakam, noted that Egyptian Christians were forbidden to dress like Muslims.³²²

Egyptian were able to preserve their culture following the Arab conquest due to a relatively non-disruptive approach that avoided significant interference in the lives of Christian inhabitants. Initially, the Muslims lived separately and did not seize the homes and lands of the native Egyptians.³²³ Moreover, pre-Islamic institutions were maintained, and Christian administrators were retained.³²⁴ Within a generation, however, the most significant change came with the introduction of a poll tax imposed on local Egyptians, regardless of whether they lived in urban centres or rural areas. Additionally, in 719 CE Christian village headmen were replaced by

³¹⁹ Boud'hors and Heurtel 2010, 19-20.

³²⁰ For the historical events preceding the Muslim conquest of Egypt, see Kaegi 1998, 50.

³²¹ Marcais and Poinssot 1948 offer a detailed study of the Islamic bindings found in Kairouan and information on Medieval Islamic bindings from Egypt are in Gardner 1962 and Weisweiler 1962.

³²² Ibn 'Abd al-Ḥakam 1922. Futūḥ Miṣr. The History of the Conquests of Egypt, North Africa and Spain, ed. Charles Torrey (New Haven: Yale University Press, 1922), 151 in Sijpesteijn 2013, 78.

³²³ Kennedy 1998, 67.

³²⁴ Sijpesteijn 2013, 64.

Muslims.³²⁵ Another significant shift occurred in 706 CE, when an order was issued to compile documents registering Arab stipendiaries in Arabic instead of Coptic, compelling Copts working in administration to learn Arabic.³²⁶

A slow process of conversion and Arabicization has started. Thus, 'toward the end of the eighth century, Egyptians become more intertwined with the Arab community, providing opportunities to pass on cultural traits and knowledge.'327 The interaction between the two cultures had a noticeable impact on binding techniques, with the Coptic tradition gradually incorporating technical and stylistic elements characteristic of Islamic bindings.

3.2.2.1. Typology 2A: Chainstitch with independent threads

The oldest manuscripts where it is possible to determine the presence of a chainstitch sewing executed with independent threads are part of the 'Bodmer papyri' collection (P.Bodmer III (CLM 33), P.Bodmer XVI (CLM 35), and P.Bodmer XVIII (CLM 36)) and are dated to the fourth century. They have been fully digitised and are accessible via the website dedicated to the digitisation of the Bodmer papyri, the *BodmerLab*.³²⁸ The latest manuscript, in this research, exhibiting this sewing technique is the papyrus manuscript containing the Coptic Encomium on St Pisenthios (Cairo, Coptic Museum, 13447 (CLM 714)), unearthed in 2005 during the archaeological excavations in the region of Western Thebes, in the area of Sheikh abd el Gurna, in the Thebais (Western Thebes MMA 1152 – PAThs ID 82) together with other two codices (Figure 43). This manuscript is dated to the end of the sixth and the beginning of the eighth centuries.³²⁹



Figure 43. The three unearthed manuscripts. The one with remnants of sewing thread is in the middle. Source: Górecki 2007, Fig. 3.

³²⁵ Sijpesteijn 2013, 103 and n. 380.

³²⁶ Kennedy 1998, 72.

³²⁷ Sijpesteijn 2021, 359.

³²⁸ BodmerLab is the research and digitisation project resulting from a partnership between the Faculty of Letters at the Université de Genève and the Fondation Martin Bodmer. For this research, it assumes great significance as it is the online repository hosting the digitisations of the Bodmer Papyri. See https://bodmerlab.unige.ch/fr/constellations/papyri/mirador/1072205288?page=070 for an image of the sewing on paired sewing stations.

³²⁹ Boud'hors 2017, 194.

The study of the sewing was made possible by the excellent state of preservation of the codex at the time of excavation, still complete with its leather cover and held closed by wrapping bands. Thanks to the photographs of the double leaves given by Ewa Wipszycka to Paola Buzi who shared them with the PAThs team, it was possible to verify that the chainstitch executed with independent threads was still preserved within the central fold of the quires.³³⁰

Although cases where the original sewing is preserved and documented photographically are exceptional, it is possible to trace the characteristics of the technique through other forms of documentation. Today, the development of scientific technology has made it possible to study book structures and texts without disassembling the bindings, using methods beyond traditional photographic documentation or textual descriptions. For example, manuscript New York (NY), The Morgan Library and Museum, M910 (CLM 3956) still retains the sewing thread between the folds of its quires. However, the manuscript is impossible to open and study since its parchment leaves are sticking together. A research group from the University of Kentucky has addressed this challenge by studying the codex using X-Ray Micro-CT scanning technologies, which allow for internal scanning of the manuscript. From the available video of the scan, ³³¹ which provides a cross-sectional view of the manuscript, it is observable how the Z-ply thread is visible between a pair of sewing stations but disappears shortly thereafter, testifying to a sewing on four sewing stations with periodic fold pattern. ³³²

Traces left by the sewing on the leaves, such as sewing holes or thread impressions along the fold, also provide valuable insights to understand the binding technique, and among the traditional documentation are the reports produced by conservators who have preserved the manuscripts.

An indispensable source for understanding Coptic sewing technique comes from Theodore C. Lamacraft, who treated three parchment manuscripts (Dublin, CBL, Cpt 813 (CLM 64), Dublin, CBL, Cpt 814 (CLM 65), and Dublin, CBL, Cpt 815 (CLM 66)) acquired by Mr. Chester Beatty of London in the winter of 1924-1925 (Figure 44) and before disassembling them, as was customary at the time, meticulously documented the fold pattern.

These manuscripts, in their original bindings along with some binding fragments and coins, were purchased from a dealer in Cairo who claimed they were found near the Giza (PAThs ID 274) pyramids. The remaining two volumes (Ann Arbor (MI), University of Michigan Library, Ms. 166 (CLM 67) and Ann Arbor (MI), University of Michigan Library, Ms. 167 (CLM 68)) were later acquired by the University of Michigan.

Evidence within one manuscript (CLM 66) suggests it once belonged to the Monastery of Apa Jeremiah at Saqqara (PAThs ID 75). The script and format indicate all five manuscripts originated from the same scriptorium. An invocation in the colophon of CLM 66, invoking holy figures to remember 'brother [En]och,' matches a formula used at the monastery, supporting their common origin.³³³

³³⁰ I thank Paola Buzi for sharing the images with the PAThs team.

³³¹ The video is published in a post in the Thaw Conservation Center's blog, the conservation laboratory at the Morgan Library and Museum, https://www.themorgan.org/blog/inside-story(...).

³³² The results of the analysis are published in Dilley et al. 2022.

³³³ Thompson 1932, IX.

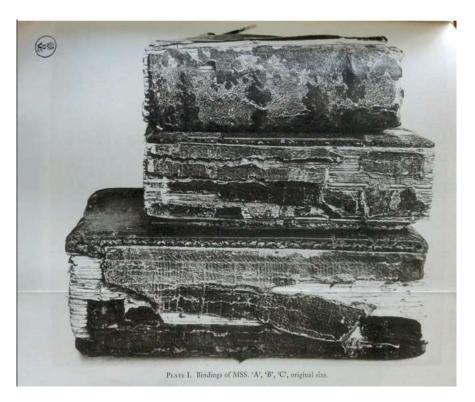


Figure 44. The manuscripts CLM 64 (= A), CLM 65 (= B), CLM 66 (= C) still in their original bindings. Source: Lamacraft 1939, Pl. I.

This documentation, published in the article *Early Book-Bindings from a Coptic Monastery*,³³⁴ is fundamental for comprehending the Coptic sewing technique. For easy reference, the schemes elaborated by Szirmay based on Lamacraft's description of the sewing pattern in Chester Beatty codices, are presented here (Figure 45). Understanding the sewing technique relies heavily on studying the fold pattern designs. Unfortunately, the direct examination of the 'chains' formed by the sewing on the spine, which would provide conclusive insights, is no longer possible since they were dismantled by Lamacraft.

Looking at the diagrams, particular areas of interest are the 'transitional' areas. In CLM 64 the transition occurs from an all-along sewing with double stitches between the sewing stations in the first two and last quires to a periodic sewing pattern with a single stitch between sewing stations (Figure 45a). The understanding of the transitional areas is further complicated in CLM 65 by the introduction of a continuous fold pattern that also employs a single stitch between the sewing stations (Figure 45b). The sewing structure in CLM 66 is the most straightforward as it shows a continuous fold pattern with two thread lengths between the sewing stations (Figure 45c).

³³⁴ Lamacraft 1939.

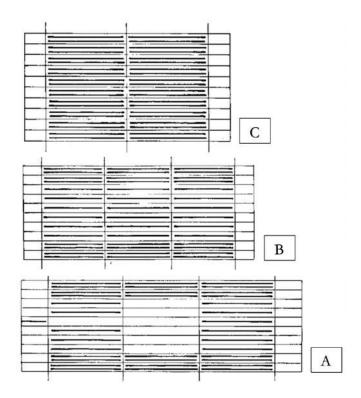


Figure 45. Fold pattern of the three codices at the Chester Beatty Library described by Lamacraft. a) Fold pattern of Cpt 813 (CLM 64) (= A). b) Fold pattern of Cpt 814 (CLM 65) (= B). c) Fold pattern of Cpt 815 (CLM 66) (= C). Source: Szirmai 1999, Fig. 2.3 a, b, c.

From the study of the stitching of Coptic manuscripts with independent thread sewing, it can be affirmed that codices were sewn either on three or four sewing stations organised in pairs.³³⁵ and that this technique is applied to manuscripts either covered with wooden boards or those covered with leather over boards.

I have previously illustrated the characteristics of these bindings in an article appeared in 2023 concerning the collection of bindings at the Museo Egizio in Turin, *The Bookbindings: History and Census* in *Coptic Codices of the Museo Egizio, Turin: Historical, Literary, and Codicological Features* edited by Paola Buzi and Tito Orlandi. For the sake of completeness, I include the information here, expanding the range of examples to encompass bindings beyond those of the Turin codices. ³³⁶

1) Wooden boards

Wooden boards are commonly associated with manuscripts written on parchment, as indicated by the entries in Table 10. However, the table also highlights how the three wooden boards preserved at the Chester Beatty Library (Dublin, CBL, Cpt 824, Dublin, CBL, Cpt 825, and Dublin, CBL, Cpt 826), are thought to be associated with the seven Manichaean codices (CLM 172, CLM 173, CLM 174, CLM 175, CLM 176, CLM 177, CLM 178) written on papyrus. The codices were discovered in 1929, in a wooden box in Medinet Madi, Fayyum (PAThs ID 104), as investigated by Carl Schmidt. These codices were then dismembered, sold, and are now

³³⁵ In codices sewn on three sewing stations, the middle station is shared between the two pairs, meaning it serves as a common anchoring point for threads coming from both the upper and lower parts of the spine.

Dal Sasso 2023a.
 According to Schmidt's report, all the Manichaean manuscripts were situated between two wooden boards, see
 Schmidt and Polotsky 1933. The wooden boards went displaced until they surfaced again at the CBL in 2019.

scattered across various locations including the Chester Beatty Library, the Berlin Papyrus-sammlung, Vienna, Warsaw, and Russia.

Direct examination at the Chester Beatty Library revealed that these wooden boards do not exhibit the typical features found in corresponding examples on parchment codices, such as holes for the attachment of the hinging slips. This suggests that the technology used for binding the Manichaean texts on papyrus differed from that used for parchment manuscripts. Boudalis affirms regarding the method for attaching boards without using hinging thread that 'they [the boards, ndr] probably required the adhesion of some leather or textile extending from the spine of the book block.'338 This adhesive strip could have been glued on the groove running from head to tail edges in the inner margin of the boards which were then joined and adhered to the spine of the manuscript (Figure 46). However, significant remnants of glue have not been observed during the autoptic analysis at the Chester Beatty Library.



Figure 46. One of the wooden boards associated with the Manichaean texts Dublin, CBL, Cpt 824. a) Recto side displaying the groove along the inner margin. b) Verso side. Source: Photograph mine.

Unfortunately, there is a lack of further documentation that could provide a better understanding of the technique used for these wooden boards. Therefore, they remain awaiting a dedicated study that could reveal more about their construction.

A further preliminary note is necessary. In the Chester Beatty Library are preserved wooden boards that have been identified by van Regemorter as belonging to bindings.³³⁹ However, after the autoptic examination conducted at the CBL, the wooden boards have not been identified as such. As Roger Powell had already considered, there are not enough elements to identify them as wooden boards of codices.³⁴⁰ Furthermore, they feature an internal recess typical of

³³⁸ Boudalis 2018, 70–71.

³³⁹ van Regemorter 1958.

³⁴⁰ Powell 1963, 221.

wax tablets (Figure 47) which would make them unsuitable for a direct contact with the leaves. Even though these boards do not show any presence of wax within the recesses, they boards might have been prepared for the purpose but were never used.



Figure 47. Wooden boards with internal recess. Dublin, CBL, Cpt 10. a) Recto. b) Verso. Source: Photograph mine.

Dating

Wooden board covers have been used since the fourth century, possibly even from the third, as evidenced by the wooden boards in CBL (Dublin, CBL, Cpt 803 (CLM 6522)), which unfortunately are not associated with any text. (Figure 48).



Figure 48. Dublin, CBL, Cpt 803 (CLM 6522) in exhibition at the Chester Beatty Library. Source: Photograph mine.

The technique persisted until the eighth century but then appears to have fallen out of use. The only specimen outside this chronological range is one of the codices excavated in 2005 in Sheikh abd el Gurna, in the Thebais (Western Thebes MMA 1152 – PAThs ID 82), containing the second half of Isaias (cc0736), Cairo, Coptic Museum 13446 (CLM 3469), dated to the ninth-tenth century. However, due to its binding typology, it is believed that the codex, or at least its binding, could be dated earlier, supporting Anne Boud'hors' hypothesis suggesting a possible dating to the seventh-eighth century.³⁴¹

³⁴¹ Boud'hors 2017, 194-195.

Context of production and use

Wooden boards appear to have been used for prestigious texts supported by high-quality writing materials. Among the finest examples are the codices from the Monastery of Apa Jeremiah (PAThs ID 75) at Saqqara (Cpt 813 – CLM 64 and Cpt 814 – CLM 65), described by Lamacraft. Autoptic analysis conducted in the CBL has revealed parchment that is remarkably white and thin, nearly flawless, with codices crafted meticulously down to the smallest detail (Figure 49). These characteristics suggest they were likely produced for wealthy patrons or for significant purposes.



Figure 49. Inked drawing on Dublin, CBL, Cpt 813 (CLM 64).

Binding features

The following pages describe the characteristics of Type 2A bindings with wooden boards.

Sewing

Although there are few examples where sewing traces are preserved or where available documentation allows for the sewing type to be documented, these few examples show that the sewing type corresponds to that presented in Figure 45 a, b, c. However, it is often not known how the first and last quires were sewn, making it difficult to establish a complete correspondence with the model.

The Freer Gospel (TM 61831) eludes classification as it is sewn on five sewing stations with a continuous fold pattern, featuring two double thread lengths between the sewing stations.

Boards

Coptic bindings using wooden boards represent early examples of case bindings, where the cover is added to the textblock after sewing, effectively enclosing it. These adhesive-case

bindings are secured solely with adhesive along the spine and pastedown. Each case consists of two wooden boards, externally bevelled and cut flush to the bookblock, connected by a leather back strip and hinging though threaded through holes in the boards (Figure 50).³⁴²

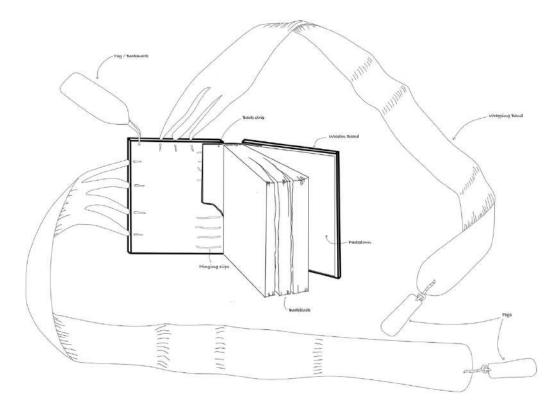


Figure 50. Model of a binding on wooden boards, based on Torino, Museo Egizio, Provv. 7117/02 (CLM 1121). Source: Drawing by the author, adapted from Petersen 1954.

John Sharpe noted that Cpt 813 (CLM 64), CLM 65), and the Freer Gospel (TM 61831) have several characteristics that distinguish their hinge anchoring method. In these bindings the back strip is not a single piece but consists of two layers. The outer layer is a single piece of leather called the back strip, and the inner layer is formed by two leather strips whose ends are fringed to increase the number of anchoring points (known as fringed hinges) in comparison to that found in other codices with wooden boards. The fringed hinges are then threaded through further elements, called 'slips' and are then inserted into tiny holes made along the edge of the board. The slips and the fringed hinges are finally glued to a leather back strip according to a method that Sharpe himself admits is rather cumbersome (Figure 51). 343

³⁴² The construction of bindings in wooden boards has been described in Dal Sasso 2023a. For further details on Coptic bindings in wooden boards, see Szirmai 1999, 23–28 and Sharpe 1999. For considerations specific for el-Mudil Psalter, see Gabra 1995. For observations supported by the realization of binding model, see also Miller 2020. Miller dedicated a study and realized a model of the Codex Glazier (CLM 44), see Miller 2022. The digitization of a part of the binding is available at http://corsair.themorgan.org/(...).

³⁴³ Sharpe 1999, 468–477.

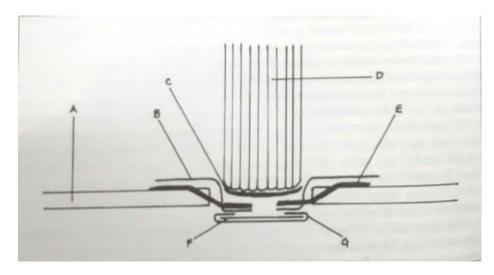


Figure 51. Board attachment system as it appeared in Dublin, CBL, Cpt 813 (CLM 64). A – wooden boards; B – slips; C – parchment spine lining; D – bookblock; E – fringed hinges; F – back strip; G – lining of the back strip. Source: Sharpe 1999, Fig. 11.

Wooden boards are usually undecorated, but few examples of decorated boards have been documented. The boards of Berlin, Staatsbibliothek zu Berlin – Preußischer Kulturbesitz, Ms. or. oct. 408 (CLM 424) and the P.Bodmer XIX (CLM 37) are carved: the former features a pattern of concentric frames, while the latter displays an ankh cross and a regular cross on the leading edge of the boards. The third example is the Freer Gospel (TM 61831) whose boards are painted with figures of the evangelists holding the gospels. The small wooden boards of manuscript Dublin, CBL, Cpt 803 (CLM 6522) exhibit decoration along the inner margin, consisting of a thin strip of gilded leather with geometric patterns.

Spine

Decoration is more often reserved for the leather back strip. For example, P. Palau Ribes 181-183 (CLM 3956) features simple blind-tooled lines that outline the profile of the hinging thongs adhered to the spine. However, the decoration can be more refined, as seen in the guilloche pattern of el-Mudil Psalter, or the richly ornamented spine of Cpt 813 (CLM 64). The latter features hand tooled designs with amphoras, crosses, single quadrupeds, birds, and a vase flanked by birds which echoes the drawing on the leaves (Figure 49).

An interesting characteristic is that the back strips can have an extension that protrudes over the edge of the pages for protection. This feature is present in the Codex Glazier (CLM 44) and el-Mudil Psalter, and from the autoptic analysis of the binding in Barcelona it can be hypothesized that it also existed in Arxiu Històric de la Companya de Jesús a Catalunya, P. Palau Ribes 181-183 (CLM 3956), as a small fragment of leather extends beyond the spine (Figure 52). Julia Miller notes that the extension to cover the exposed edges of the block is reminiscent of similar protection found in Kairouan bindings.³⁴⁴

³⁴⁴ Miller 2022, 303–305.



Figure 52. A small fragment of leather extends beyond the spine of Barcelona, Arxiu Històric de la Companya de Jesús a Catalunya, P. Palau Ribes 181-183 (CLM 3956).

Fastenings

The bindings in wooden boards are kept closed by a fastening system of wrapping bands. These flat and wide strips of leather are attached to the fore-edge, and occasionally also to the head of the upper board (Codex Glazier (CLM 44), Provv. 7117/02 (CLM 1121), and P. Palau Ribes 181-183 (CLM 3956)), and wrapped around the codex. Pegs made of bone or ivory, and often decorated with double circles motifs which secure the closure by sliding them under the windings, may be placed at the extreme ends of the wrapping band.

Notes

A supplementary hole might be drilled in the top outer corner of one or both boards to attach a leather tag, potentially used as a bookmark.

Table 10 lists the shelfmarks associated with bindings of Typology 2A, characterized by linking sewing through the fold of multi-quire codices, with a chainstitch with independent threads on paired sewing stations and wooden boards. The codices are listed in chronological order and for each, the table provides the TM and CLM identification numbers, the date—based on the data in Trismegistos or PAThs—the writing support, and the sewing type, according to Figure 45. In cases where multiple shelfmarks correspond to a CLM or TM identification number, an asterisk is used to indicate the shelfmark associated with the binding.

Table 10. List of shelfmarks associated with binding Typology 2^A with wooden boards.

TM	CLM	Shelfmark	Date	Writing support	Sewing Type
-	6522	Dublin, CBL, Cpt 803	201-300	-	-
-	-	Dublin, CBL, Cpt 824	301-425	Papyrus	-
-	-	Dublin, CBL, Cpt 825	301-425	Papyrus	-
-	-	Dublin, CBL, Cpt 826	301-425	Papyrus	-
61831	-	Washington, Smithsonian, Freer Gallery of Art,	301-500	Parchment	Not defined
		06.274 (Freer Gospel)			
107759	37	Cologny-Genève, Fondation Martin Bodmer, P.Bodmer XIX	375–450	Parchment	Α
107731	1125	Cairo, Coptic Museum, 12488 (el-Mudil Psalter)	375-450	Parchment	A
107756; 59114	44	New York (NY), The Morgan Library and Museum, G67 (Codex Glazier)	401–500	Parchment	С
107734	6296	Princeton (NJ), University Library Scheide, MS 144 (Codex Scheide)	401–500	Parchment	С
107915; 108562;	1131	Torino, Museo Egizio, Provv. 7117	401-600	Parchment	-
108563					
107887	424	London, BL, Or. 3518	401-600	Parchment	-
		Berlin, Staatsbibliothek zu Berlin – Preußischer Kulturbesitz, Ms. or. oct. 408*			
108598	1399	New York (NY), The Morgan Library and Museum, M910	401–700	Parchment	A
107904; 107905;	3956	Barcelona, Arxiu Històric de la Companya de	451-500	Parchment	A
107760		Jesús a Catalunya, Palau Ribes, P. Palau Ribes 181-183			
107868	64	Dublin, CBL, Cpt 813	551-600	Parchment	A
107869	65	Dublin, CBL, Cpt 814	551-600	Parchment	В
107872	68	Ann Arbor (MI), University of Michigan Li-	551-600	Parchment	
		brary, Ms. 167			
111691	3469	Cairo, Coptic Museum, 13446	801–1000	Parchment	Α

2) Bindings in laminate and pulp boards

Following the Ligatus definition, this section deals with bindings featuring laminate boards, described as 'Boards composed of two or more layers of sheet material, which may or may not be adhered together,'345 and pulp boards, adapting to Coptic bindings the definition of Ligatus of pulp boards: 'A board material made in single thick sheets from coarsely pulped paper, typically acquired from the trimmings from the cut edges of book blocks, waste printed or manuscript paper, etc.'346 In Coptic bindings, pulp boards initially were not formed by paper scraps but other materials such as papyrus scraps and vegetal fibres.

A preliminary remark to clarify the reasons behind the chosen terminology is necessary. In this thesis, the term 'papyrus laminate boards' will be used to refer to the boards on which the cover is laid, instead of the term 'cartonnage'. The term 'papyrus laminate boards' describes the form of the boards which are, in fact, composed of layers of papyrus leaves glued together. Although 'cartonnage' is widely used in the literature to describe the boards of Coptic bindings, it is fundamentally incorrect and can lead to misunderstandings. Cartonnage, more accurately, refers to the material produced to cover mummies, which is formed by papyrus leaves or bandages combined with glue, shaped with plaster, and often painted. This is evidently a completely different material used in a different context. The use of the term 'cartonnage' is further

³⁴⁵ See LoB, http://w3id.org/lob/concept/1418.

³⁴⁶ See LoB, http://w3id.org/lob/concept/1528.

confusing as it is used to describe boards utilized in the Western binding tradition starting from 1480s.³⁴⁷

Additionally, the term 'cartonnage' can be misleading because the composition of the boards evolved over time. Initially, the boards were made exclusively of papyrus leaves, often reused from discarded ancient manuscripts. However, later, other materials such as parchment, leather, and paper were incorporated. Therefore, 'papyrus laminate boards' is a more adaptive and precise term. When materials other than papyrus are present, the specification 'papyrus' is omitted, and the term 'laminate boards' is used.

In conclusion, the term 'cartonnage' is considered reductive and misleading. Therefore, the term 'papyrus laminate boards' is preferred because it accurately reflects the materials and methods used in these bindings and facilitates comparative studies by aligning with terminology in use in other binding traditions without creating ambiguity.

Dating

For defining the chronological boundaries of this typology, the dating of the texts associated with the bindings was used. Therefore, bindings separated from the bookblock, for which there is no longer any association, are not included.

The oldest manuscript belonging to this category is Paris, BnF, Supplément grec 1120 (TM 62376), dated to the third century. The later manuscripts discovered so far that can be associated with this typology are the already mentioned CLM 714 and CLM 713, excavated in the region of Western Thebes, in Sheikh abd el Gurna, in the Thebais (Western Thebes MMA 1152 – PAThs ID 82).

Context of production and use

All bindings of this typology are associated with Christian religious texts, including biblical texts and gospels, as well as some apocryphal (Cairo, Egyptian Museum, CG 10759 (TM 59976) and Codex Tchacos (CLM 1064)), written in Greek or Coptic. Additionally, there are a lectionary and grammar (BP XXI (TM 61873), and a text containing alchemic formulary (AMS 9 = CLM 3355). Some bindings are of superior craftsmanship, linked to a wealthier context, while others, such as AMS 9 (CLM 3355), are of inferior manufacture.

Binding features

The following pages describe the characteristics of Type 2A bindings with laminate and pulp boards.

The understanding of the binding technique used in this typology has been enhanced by creating a model of the binding of BP XXI (TM 61873) during the workshop *A multi-quire papyrus codex (CBL BP XXI)* held at the Chester Beatty Library in November 2022 (Figure 53).

³⁴⁷ See LoB, http://w3id.org/lob/concept/1241.

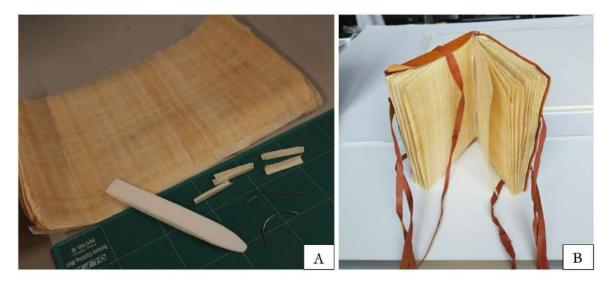


Figure 53. Realization of a model of the binding of BP XXI (TM 61873). a) The prepared materials: papyrus quires, parchment guards with folder and different types of needles for sewing. b) The completed model with sewing passing through parchment guards.

The realization of the model permitted to observe that the characteristic chainstitch with independent threads on four stations of Type 'A' leaves the bookblock not completely fixed, causing the quires to slide over one another. Therefore, parchment guards might have added not only to protect the fold from tearing, but they also served to clip the thread and lock it in position. BP XXI (TM 61873) consists of a laminate papyrus board that lines as a single piece the upper and lower cover and the spine.

The model allows to gather insights on whether a codex was bound after being written. In BP XXI (TM 61873) the laminate board was prepared and wrapped around the bookblock while still damp, allowing it to take shape when drying. If the blotting on the first and last leaves is present, due to the ink transfer to adjacent leaves, it might indicate that the codex was bound after the writing process.

Sewing

In the few preserved examples, the sewing is executed using chainstitch with independent threads, and, therefore, follows the classification proposed in Figure 45.³⁴⁸

For example, even if a description of the extant fragments of thread is not provided, according to the image provided by Florence Darbre, the conservator who took care of the codex, Codex Tchacos (CLM 1064) likely had a sewing of the 'A' Type.³⁴⁹

A common feature of papyrus codices is the presence of sewing guards, strips of parchment that protect the fold from being torn by the sewing. Most of the times the guards are found only between sewing stations (Codex Tchacos (CLM 1064), P.Bodmer III (CLM 33), P.Bodmer XXI (CLM 38), BP XXI (TM 61873), CLM 714) while other times they run along the entire fold and can also be positioned on the outside of the quire. As observed in BP XXI (TM 61873).

The meticulous study conducted by Eliza Jacobi, Karin Scheper, and Eve Menei during the conservation of AMS 9 (CLM 3355) revealed the remnant of a loop of the chainstitch indicating

³⁴⁸ However, even in these cases, the sewing is rarely sufficiently complete to determine an exact correspondence with the models.

³⁴⁹ Darbre 2008, Fig. 4 and Fig. 13.

that the sewing direction proceeded from the last to the first quire,³⁵⁰ contrary to what occurs in P.Bodmer III (CLM 33), where an extant loop of the chainstitch indicates that the sewing proceeded from the first to the last quire.

Boards

Boards are usually formed almost exclusively by reused papyrus leaves to form papyrus laminate boards. However, pulp boards formed by vegetal fibres are occasionally present (AMS 9 = CLM 3355 and CLM 714). AMS 9 (CLM 3355) exhibits unusually thick boards made of papyrus combined with other materials.

Unlike the bindings with wooden boards, the board attachment in this early phase is integrated into the sewing and can be achieved in several ways. These include with certainty a method in which the first and last quires of the book block are left blank, and their leaves are pasted together to form the boards after the sewing. The thread then runs along the fold of the quire, becoming embedded in the board (Figure 54). These are referred to as folded boards. An example of this are P.Bodmer III (CLM 33), P.Bodmer XVIII (CLM 36),³⁵¹ and, even though the binding is not preserved in its entirety and only fragments of the sewing remain, could be seen in Torino, Museo Egizio, Provv. 6204 (CLM 6557).

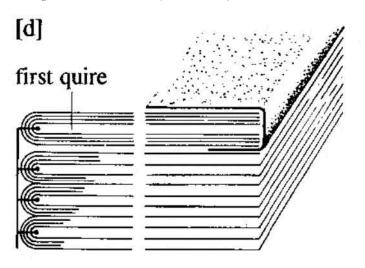


Figure 54. Line drawing showing the attachment of folded boards. Source Szirmai 1999, fig. 2.3 d.

Other systems cannot be codified with certainty and demonstrate the fluidity with which solutions are sought for anchoring the sewn bookblock to the boards. For example, Jacobi demonstrated that the board attachment in AMS 9 (CLM 3355) is completely different from later ones; it is not executed by wrapping the thread around the boards. Instead, the thread exits from under the lower board, which is the starting point of the sewing.³⁵²

The board attachment in BP XXI (TM 61873) is not yet fully understood. The presence of a series of holes on the spine of the laminate board, with fragments of thread embedded, has led Kristine Rose-Beers to believe that it might be a simple, almost erratic passage of the thread between the boards and the sewing threads.³⁵³

352 Jacobi et al. 2023, 163-169.

³⁵⁰ The study has been published in Jacobi et al. 2023.

³⁵¹ Szirmai 1999, 30.

³⁵³ The results of this study have been published in Rose-Beers 2023.

Some boards have been constructed to display a feature which is also seen in Byzantine bindings, that is a groove along the board edges. This effect can be achieved in two main ways: first, by fully covering the boards with leather and pressing a blind-tooled fillet to create a depression along the edge, as observed in Provv. 6205 bis 3 (CLM 6646), a fragment preserved in Turin at the Museo Egizio; second, by using double boards. Double boards consist of two individually covered boards that are then adhered together. The inner" or primary board, which is closest to the text block, may only have its edges covered with a strip of leather known as the edging strip, while the outer, or secondary board, is fully covered with leather. For folded boards, the edging strip is applied to the half of the quire nearest to the text block, with the other half being completely covered (Figure 55).

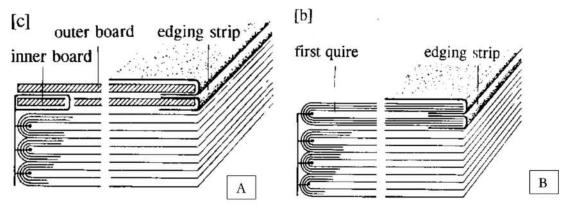


Figure 55. Line drawing showing two methods to obtain the groove along the edge of the boards. a) Double board structure. b) Folded boards structure with edging strip. Source: Szirmai 1999, fig. 2.3 c and b.

The double board could also be achieved by retaining the old binding and gluing a new one on top. This was likely the case for Torino, Museo Egizio, Provv. 5060 (CLM 6553), a fragment of a leather cover that was probably reused to stiffen the boards of a new cover. Evidence supporting this includes a large portion of the leather being cut out from the surface of the cover, the presence of traces of glue and papyrus fibres, and two holes pierced in the margin, which altered the decorative design.

Considering that the detached bindings preserved in the Museo Egizio likely belong to the codices from This (PAThs ID 103) also found at that site and given the elements suggesting a dating to the late seventh or early eighth century,³⁵⁴ it can be said that structures with double boards are documented from that date.

It must be mentioned that a structure in double boards is mentioned in the literature as pertaining to two other seventh century codices: London, BL, Or. 5000 (CLM 21), 355 and Or. 5001 (CLM 22). However, since London, BL, Or. 5000 (CLM 21) has undergone extensive conservation, even after the autoptic analysis at the British Library, doubts about whether the inner cover is original remain. The structure in double boards of London, BL, Or. 5001 (CLM 22) looks authentic and it may have been formed by reusing an old binding as inner board.

³⁵⁴ For considerations on the date of the codices from This in the Museo Egizio, see Buzi 2023, 12–13.

³⁵⁵ Cockerell 1932, 10 and Szirmai 1999, 37.

Cover

In most cases, the cover is made of leather. However, at the Louvre, there is an example of what has been identified as a book cover made of fabric, ³⁵⁶ Paris, Musée du Louvre, E 25402 (CLM 6519).

The textile cover, a gift from Mrs. David-Weill in 1955, lacks thorough documentation regarding its provenance. The inventory describes it as 'étoffe copte couvrant un livre liturgique' (Coptic fabric covering a liturgical book). In 2003, a sample for Carbon-14 analysis was conducted at the Institut Royal du Patrimoine Artistique (IRPA) in Brussels, which dated it to a range from 430 to 600 CE. This textile was restored in 2004 and is now presented on its current linen canvas support. (Figure 56).³⁵⁷

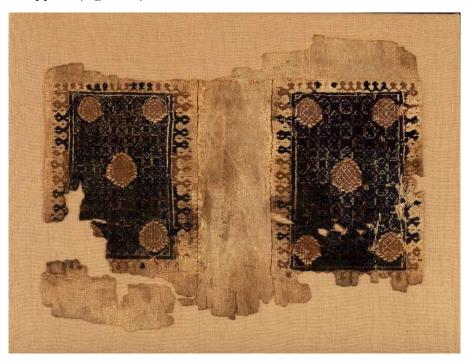


Figure 56. Textile cover. Paris, Musée du Louvre, E 25402 (CLM 6519). Source: Courtesy of Florence Calament.

The leather covers of bindings of this typology might be completely plain (TM 62376, CLM 1022, CLM 1064, CLM 35, TM 61873, CLM 713). However, there are notable exceptions where decorations are impressed with small hand tools, such as rosettes and double circles (CLM 714, CLM 844, CLM 21, CLM 22). The decorations normally represent geometrical motifs, but other 'figurative' examples have been recorded. The blind-tooled decoration of P.Bodmer XVII (TM 61742) features a cross within a temple (Figure 57).

 $^{^{356}}$ Boud'hors 2004, 62 (= $n^{\circ}39$) and Bénazeth et al. 2009, 64 fig.41 and 62–63 (= $n^{\circ}41$).

³⁵⁷ I thank Florence Calament for sharing the image and information about Paris, Musée du Louvre, E 25402 (CLM 6519).



Figure 57. Blind-tooled decoration on the leather cover of P.Bodmer XVII (TM 61742). Source: BodmerLab

AMS 9 (CLM 3355) is decorated by weaving a thin parchment strip through closely spaced slits cut through the leather, alternating between the front and back. Faint blind-tooled lines, which might have been used to construct the design, are visible.

Some covers were painted, such as Torino, Museo Egizio, Provv. 6206 (CLM 6561) and London, BL, Or. 7594 (CLM 1371). Even if the ancient cover has not been preserved after the intervention aimed at housing the leaves between glass plates, Petersen described it as made of laminate papyrus boards covered with a 'plain kidskin, varnished.' 358

The shape of the turn-ins varies so the formation of mitres at the corners. Generally, the turn-ins are regular and the mitres are formed by overlapping them (Codex Tchacos = CLM 1064 and P.Bodmer XXI = CLM 38).³⁵⁹

The leather cover can extend to protect the edges of the codex, and where the cover does not fold around the boards to create a turn-in, the edge of the boards is covered by a leather edging strip, as seen in London, BL, Or. 5001 (CLM 22), and P.Bodmer XXI (CLM 38).

Spine

The bindings can feature a fabric spine lining on the spine, positioned between the leather cover and the boards. The lining covers the spine fully from the head to the tail and extends on the inner margin of the boards. An example is visible in P.Bodmer XVII (TM 61742) (Figure 58).

³⁵⁸ Petersen 1954, 53 (= 18).

³⁵⁹ The cover is digitized and available in the Chester Beatty Digital collection, https://viewer.cbl.ie/viewer/image/Cpt_2020/1/LOG_0000/.



Figure 58. Cloth spine lining on P.Bodmer XVII (ΓM 61742). Source: BodmerLab, https://bodmerlab.unige.ch/constellations/papyri/mira-dor/1072205356?page=214.

Fastening

The closure of the codex was secured by a system of fastenings, with various types being common: paired ties passed through slits cut in the boards and the leather cover. Another type included ties and loops, with the loops positioned on the lower cover, like in AMS 9 (CLM 3355). Paris, BnF, Supplément grec 1120 (TM 62376) features a flap that extends from the upper "over, passes over the edge of the bookblock, and is secured by a wrapping tie attached to the tip of the flap. The closure of CLM 22 features a system of ties passing through metal rings fixed to the lower board. However, due to the extent of the conservation intervention, the autoptic examination did not resolve all doubts regarding their authenticity.

CLM 714 features a closure system reminiscent of those used in bindings with wooden boards. It consists of a wrapping band attached to the upper board, which wraps around the volume and is secured with a wooden peg fixed to its end.

Notes

In the examples examined in this research, no presence or traces of previous endbands were detected.

Table 11 lists the shelfmarks associated with binding Typology 2A, characterized by linking sewing through the fold of multi-quire codices, with a chainstitch with independent threads on paired sewing stations and laminate or pulp boards. The codices are listed in chronological order and for each, the table provides the TM and CLM identification numbers, the date—based on the data in Trismegistos or PAThs—and the sewing type, according to Figure 45. In cases where multiple shelfmarks correspond to a CLM or TM identification number, an asterisk is used to indicate the shelfmark associated with the binding. The binding is assigned to this typology on the base of the sewing features, if the sewing is preserved or documented, otherwise based on the dating of the corresponding text. The latter is the case for London, BL, Or. 7594 (CLM 1371), the Codex Tchacos (CLM 1064), Dublin, CBL, Pap 1991.58 (CLM 1022), London, BL, Or. 5001 (CLM 22), London, BL, Or. 5000 (CLM 21), London, BL, Papyrus V (CLM 844).

Table 11. List of shelfmarks associated with bindings of Typology 2B with laminated or pulp boards.

TM	CLM	Shelfmark	Board Type	Date	Sewing Type
62376	-	Paris, BnF, Suppl. grec 1120	Laminate papyrus boards	201-300	-
107758	33	Cologny-Genève, Fondation Martin Bodmer, P.Bodmer III	Laminate papyrus boards	301-400	A
107762	1271		T 1 1	201 400	
107763 108481	1371 1064	London, BL, Or. 7594	Laminate papyrus boards	301–400 301–400	- A
100401	1004	Cologny-Genève, Fondation Martin Bodmer, temporary loan (Codex Tchacos)	Laminate papyrus boards	301-400	Α
108535	35	Cologny-Genève, Fondation Martin Bodmer, P.Bodmer XVI	Laminate papyrus boards	301–400	Α
108537	38	Dublin, CBL, Cpt 2019 (formerly Ac. 1389)* Dublin, CBL, Cpt 2020* Cologny-Genève, Fondation Martin Bodmer,	Laminate papyrus boards	301–500	Α
		P.Bodmer XXI			
108536	36	Cologny-Genève, Fondation Martin Bodmer, P.Bodmer XVIII	Laminate papyrus boards	351–400	-
108402	1022	Dublin, CBL, Cpt 2018 Dublin, CBL, Pap 1991.58* Dublin, CBL, Pap. 1991.16*	Laminate papyrus boards	375–425	-
108542	40	Cologny-Genève, Fondation Martin Bodmer, P.Bodmer XXIII	Laminate papyrus boards	375–450	A
61873	-	Dublin, CBL, BP XXI	Laminate papyrus boards	401-500	A
61742	-	Cologny-Genève, Fondation Martin Bodmer, P.Bodmer XVII	Laminate papyrus boards	501-700	A
100023	3355	Leiden, Rijksmuseum van Oudheden, 134 (AMS 9)	Papyrus, vegetal fibres pulp boards	501-700	С
59976	-	Cairo, Egyptian Museum, CG 10759	Laminate papyrus boards	550-650	-
107870;	66	Dublin, CBL, Cpt 815	Laminate papyrus boards	551-600	С
108045		-			
107871	67	Ann Arbor (MI), University of Michigan Library, Ms. 166	Laminate papyrus boards	551–600	С
107789	22	London, BL, Or. 5001	Laminate papyrus boards	601-700	-
		London, BL, Or. 5001 (bindings) (*) London, BL, Or. 5001*	1 17		
		London, BL, Or. 5001** (original box) (*)			
108024	21	London, BL, Or. 5000	Laminate papyrus boards	601-700	-
		London, BL, Or. 5000 (covers)*			
108635	844	London, BL, P. V	Laminate papyrus boards	601-900	-
111689	714	Cairo, Coptic Museum, 13447	Laminate papyrus boards	676-800	A
113913	713	Cairo, Coptic Museum, 13448	Vegetal fibres pulp	676-800	-
			boards		

3.2.2.2. Typology 2B: All-along simple chainstitch

This typology includes bindings where the sewing is executed with a simple chainstitch technique. This involves passing the thread from one sewing station to the next, creating a continuous fold pattern with a single thread length between stations (Figure 59).

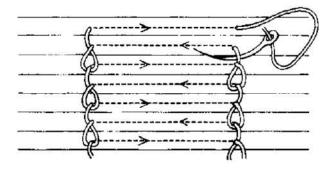


Figure 59. Fold pattern of simple chainstitch on two sewing stations. Source, Szirmai 1999, Fig. 2.1 g.

The research conducted during this doctoral thesis allows to substantiate the identification of late Coptic bindings with Typology 2B with photographic evidence, showing late Coptic bindings before they were cut to release the leaves for preservation in new, modern bindings. Their discovery provides crucial insights into the original state of these bindings, documenting the evolution of the sewing technique.

The evidence concerns the bindings of manuscripts discovered in 1910 among the ruins of the Monastery of the Archangel Michael at Phantoou in Hamuli (PAThs ID 99) in the Fayyum, ³⁶⁰ now housed principally at the Coptic Museum in Cairo and The Morgan Library and Museum (shelfmarks starting with M), which were investigated by Theodore Petersen in *Coptic Bookbindings in the Pierpont Morgan Library*. ³⁶¹ As introduced in 1.2.1, when Petersen examined them, all the bindings have been separated from their respective manuscripts during conservation efforts carried out at the Vatican Library in 1922, under the direction of prefect Franz Ehrle. Consequently, no traces of the original sewing remain today, except for the sewing holes, which allow for the identification of the number of sewing stations.

Fortunately, these manuscripts were photographed before the invasive conservation operation. Fr. Henry Hyvernat, director of the Department of Semitic and Egyptian Languages and Literatures at the Catholic University of America in Washington, DC, was hired to catalogue the collection and took a series of photostats showing the codices still in their bindings. Petersen refers to the photostats in his monography, noting when the original sewing is visible. The photostats are now preserved at the Institute of Christian Oriental Research (ICOR) library, whose curator Monica Blanchard kindly shared them with me, allowing verification that in all instances, the sewing extended continuously along the fold.³⁶²

Figure 60 shows two of the photostats, virtually developed with the Affinity photo® tool. The photostats show the manuscripts sewn all-along on four sewing stations with continuous fold pattern and single thread length between the sewing stions. The image also shows that the manuscripts had stitches at the head and tail for attaching endbands. The short horizontal white lines mark the extension of stitches and were later added on the photostat probably by Petersen.

³⁶⁰ For information relating the discovery, see Depuydt 1993, LVIII-LXII and Valerio 2020, 63-64.

³⁶¹ Petersen 2021.

³⁶² The photostats shows the following manuscripts in their original sewing: M599 (CLM 215), M586 (CLM 251), M585 (CLM 238), M574 (CLM 213), and M605 (CLM 255).





Figure 60. Original sewing on four sewing stations, with continuous fold pattern and single thread length. a) New York (NY), The Morgan Library and Museum, M575 (CLM 214). b) New York (NY), The Morgan Library and Museum, M605 (CLM 255). Source: Hyvernat photostats in Washington, DC, The Institute of Christian Oriental Research (ICOR) Library.

Considering that all the manuscripts depicted in the photostats present an all-along simple chainstitch with single thread length and that all the Hamuli manuscripts were produced, if not in the monastery, in the neighbouring region and are contemporaneous, it is assumed that all the manuscripts in the collection had an all-along sewing, even though not all are documented photographically. Consequently, the shelfmarks of the bindings for the manuscripts in the Hamuli collection are included Table 12 which provide a list of shelfmarks related with binding of Typology 2B.

Further evidence for the sewing technique in use in late Coptic bindings has emerged for the manuscripts from the Monastery of Mercurius at Edfu (PAThs ID 95), now housed at the British Library (shelfmarks starting with Or.). After their acquisition by the British Library from the American Egyptologist Robert de Rustafjaell on 12 November 1907, these manuscripts were separated from their bindings. During this process some bindings have been dispersed. Most of the photographs accompany the description of Rustafjaell's collection that appears in *The Lights of Egypt* (1909),³⁶³ but those showing binding features were not selected for publication.

Depuydt, in his Catalogue of Coptic Manuscripts in the Pierpont Morgan Library,³⁶⁴ mentions photographs depicting the codices, which are now preserved at the Griffith Institute in Oxford. I have been able to verify that the papers mentioned by Depuydt contain also some early photographs showing the manuscripts in their original bindings. These photographs are unique testimonies of the pristine state of the bindings: they show aspects of the external appearance of

³⁶³ de Rustafjaell 1909.

³⁶⁴ Depuydt 1993.

the covers, and internal structural features such as the sewing. The previously unknown photographic documentation makes new observations on Coptic sewing technique possible.

Consulting this material revealed that some photographs astonishingly depicted the sewing of the manuscripts. In these cases, the sewing was also all-along (Figure 61).





Figure 61. Photographic documentation of the codices from Edfu prior of their disassembly. a) The Coptic manuscripts London, British Library, Or. 6799 (CLM 183), Or. 6800 (CLM 197), Or. 6801 (CLM 184) and the Old Nubian manuscript Or. 6805, in their ancient bindings. Source: Oxford, Griffith Institute, Crum mss I.3.12.4 b) Original sewing of London, BL, Or. 6799 (CLM 183). Source: Oxford, Griffith Institute, Crum mss I.3.12.3 © Griffith Institute, University of Oxford.

Following the same criterion applied for the Hamuli collection, all manuscripts from the Monastery of Mercurius at Edfu, dated to the same period, have been attributed to Typology 2B and are listed in Table 12.

Another significant conclusion emerges from this research. The two collections of manuscripts, originates from the geographically distant regions of the Fayyum (PAThs ID 423) and the Southern upper Egypt and dated sequentially. Given that the Islamic bookbinding technique—characterised by an all-along simple chainstitch—was introduced to Egypt with the Arab conquests in the eighth century and the Coptic bookbinders were familiar with it, it is reasonable that these collections document the prevalent bookbinding techniques in Egypt from the eighth century onward, which has absorbed characteristic all-along sewing technique from the Islamic tradition.

The following paragraphs detail the characteristics and features of this binding typology.

Dating

The manuscripts from the Monastery of the Archangel Michael at Phantoou in Hamuli (PAThs ID 99) are the first that can be documented as belonging to Typology 2B, thanks to the photostats by Hyvernat. By extension, it is presumed that the entire collection had homogeneous structural characteristics. The dates of these manuscripts span from 801 to 925, which are the dates of the earliest and the latest dated colophons.

The manuscripts from Monastery of Mercurius at Edfu (PAThs ID 95) cover the subsequent period, from the first half of the tenth century to the first half of the eleventh century.

Context of production and use

All the texts are religious Christian manuscripts found in monasteries, specifically from the Monastery of the Archangel Michael at Phantoou in Hamuli (PAThs ID 99) and the Monastery of Mercurius at Edfu (PAThs ID 95). Therefore, this is a body of literary work either produced internally within the monasteries or produced in associated monasteries. For example, "The Monastery of the Archangel Michael is associated with several other communities of the Fayyūm, among which the Monastery of St Isaac at Dayr el-Ḥammām, Narmouthis, Touton, the Monastery of Qalamūn."

Binding features

Typology 2B represents an evolution of Typology 2A, sharing many features while introducing significant innovations beyond the sewing technique. The following paragraphs details the features of the bindings of Typology 2B as presented in Figure 62.

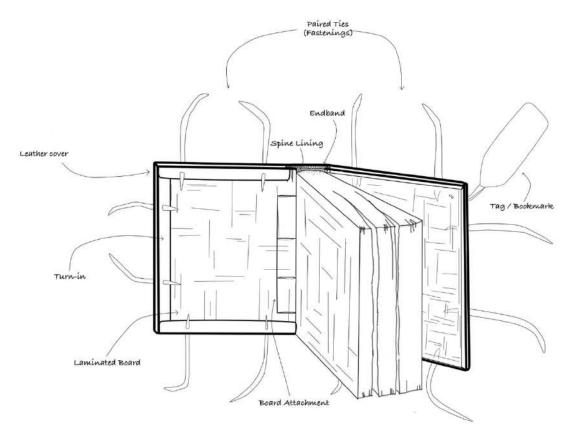


Figure 62. Line drawing of a binding of Typology 2B. Adapted from Boudalis 2018, drawing mine.

Sewing

As previously mentioned, these bindings exhibit a simple all-along chainstitch with a single thread length. The number of sewing stations varies, with some bindings having four stations and others having five. Although there is no strict rule, the examples in Table 12 show an

³⁶⁵ See the descriptive card of the site PAThs ID 99 at the section 'Historical connections / references,' compiled by Angelo Colonna and Paola Buzi.

increased use of three sewing stations in later manuscripts, particularly those from the Monastery of Mercurius at Edfu (PAThs ID 95).

Boards

The manuscripts in this typology feature leather covers over laminate or paste boards, as Typology 2A. The manuscripts predominantly used papyrus, whether in the form of laminates or coarse chopped laminate, with additional materials such as parchment, paper, and vegetal fibres.

A key difference is the stabilization and codification of the board attachment system. In laminate boards, after construction, the thread is wound around the spine edge through holes, creating hinging loops. This sewing anchors the thread to the loops and connects the quires from upper to lower board.

The board attachment system includes two primary patterns, as presented in Chapter 2: the C pattern and the I pattern. The most used is the C pattern, present in the manuscripts London, BL, Or. 7024 (CLM 193), New York (NY), The Morgan Library and Museum, M603 (CLM 226), New York (NY), The Morgan Library and Museum, M580 (CLM 248), New York (NY), The Morgan Library and Museum, M604 (CLM 254), and in the detached bindings London, BL, Or 14822 (1) (CLM 6714), and London, BL, Or. 14822 (3) (CLM 6716). The 'I' pattern is found in manuscripts London, BL, Or. 6801 (CLM 184) and New York (NY), The Morgan Library and Museum, M577 (CLM 253).

The construction of double board" is still documented, as for example in M569 (CLM 206, 366 and in the manuscript from Edfu it is often obtained by reusing ancient covers.³⁶⁷

Cover

In Typology 2B manuscripts, the leather turn-ins are typically straight-trimmed, though irregular examples are found in manuscripts in New York (NY), The Morgan Library and Museum: M633 (CLM 199), M590 (CLM 221), M585 (CLM 238), M601 (CLM 256), M635 (CLM 258), and in the detached binding Dublin, CBL, Cpt 805 (CLM 6521). Lapped mitres are consistently present across the censed bindings but the mitres in the bindings from the Monastery of Mercurius at Edfu (PAThs ID 95) have not been preserved.

The preferred decoration technique remains blind tooling; however, in hamuli manuscripts is often use the cut-leather technique consisting in cutting a design from the leather cover and back the surface with parchment. Cut leatherwork also appears in some examples from The Morgan Library and Museum in New York (NY), such as manuscripts M590 (CLM 221) and M635 (CLM 258). One of the most exquisite examples of decoration can be found in manuscript M569 (CLM 206) where both the upper and lower covers exhibit a similar design achieved through a cut-out openwork of red leather stitched onto gilded parchment. Strips of parchment, threaded through narrow slits in the leather, delineate the border of the central panel as well as the enclosed design, which consists of a circle with an ornamental band above and below it. The upper band is divided into five panels, with the central one featuring a cross, the outer ones displaying eight-lobed rosettes, and the middle ones containing two interlacing zigzag lines. The lower band comprises a guilloche pattern, with its circular areas alternately filled with diminishing circles of parchment and red leather. The central area boasts a geometrical pattern of

³⁶⁶ See Petersen 2021, 85 and Szirmai 1999, 35.

³⁶⁷ The use of old covers in the collection of Edfu has been noted by Jen Lindsay, who publish her discovery in 2001 (Lindsay 2001) and recently updated and integrated data from her research (Lindsay 2023).

intersecting lines within a circle, with a cross at the centre. Each of the four corners contains heart-shaped leaves. The cross and the areas within the circle are embellished with diminishing circles of parchment and red leather. The upper and lower covers differ in the geometrical pattern of intersecting lines within the central panel and the absence of diminishing circles on the central cross of the lower cover. Along the top inner margin of the upper cover, a strip of red leather, decorated with the same cut-out openwork, bears an upside-down inscription in Coptic: ΠΑΡΧΑΓΓΕΛΟΣ ΜΙΧΑ.

The decoration of this cover explicitly indicates the provenance of the manuscript. In some cases, this information can be inferred from the decorative design of the cover itself.³⁶⁸

Endbands

Thanks to this research on the typological classification of Coptic bindings, it has also emerged that the earliest evidence of the use of endbands is found in bindings of Typology 2B.

They have been recorded in two varieties described by Petersen and reported by Szirmai as shown in Figure 63. Figure 63a shows a variant constructed as a link-stitch through the textile spine lining. Figure 63b shows an endband attached to the board through three holes and constructed around a core made of cord.

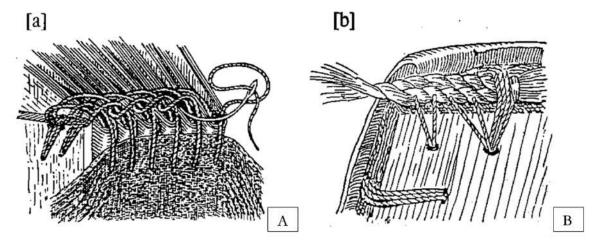


Figure 63. Two types of endbands recorded and described by T.C. Petersen. a) Link-stitch endband. b) Cord endband. Source: Szirmai 1999, Fig. 3.7.

Examples of the two typologies on actual bindings are presented in Figure 64, where Figure 64a shows a link-stitch endband that emerged during the survey of the bindings at the Österreichische Nationalbibliothek (ÖNB), and Figure 64b shows a well-preserved cord endband as it appears in the digitization in The Morgan Library and Museum's gallery dedicated to the Coptic bindings there preserved.

³⁶⁸ See chapter 4.

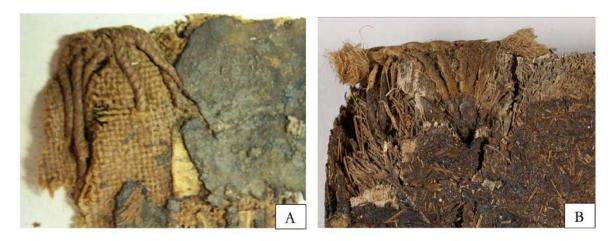


Figure 64. The two types of endbands recorded in Typology 2B. a) Link-stitch endband on Wien, $\ddot{O}NB$ – Papyrussammlung, P.Vidob. BD 1. b) Cord endband in New York (NY), The Morgan Library and Museum, M599 (CLM 215)-.

Fastening

Various fastening systems are evident on Coptic bindings with leather-covered boards. Wrapping bands and wrap-around ties disappear, replaced by systems of 'paired ties' and 'loops and ties'. In the 'paired ties' system, ties pass through slits cut in corresponding points on upper and lower boards. In the 'ties and loop system', leather ties passing through the upper board, close in loops of leather fixed to the lower board. London, BL, Or. 7023 A (bindings) (CLM 190) presents the remnants of 'loops and slit-braid ties' consisting of slit-braid ties closing in leather loops (Figure 65).



Figure 65. Remnants of slit-braid ties on London, BL, Or. 7023 A (bindings) (CLM 190).

A new fastening system emerges, which has been named 'loops and pin' system, where loops on the upper board close in pins, of metal or bone, in corresponding positions on the lower board.

Normally, one or two ties are found at the head and tail, and two or three at the fore-edge. However, the fastening system is often not preserved, leaving only holes and leather fragments as evidence of its existence.

Notes

The bindings often show holes pierced in the upper external corner which can retain remanence of leather ties; these are usually identified as tags or bookmarks. It is possible to find another hole in the centre of the board which is identified as a lifting tab.

Table 12 lists the shelfmarks associated with binding Typology 2B characterized by linking sewing through the fold of multi-quire codices, a simple all-along chainstitch, arranged in chronological order. For each codex, the table provides the TM and CLM identification numbers, the date—based on the data in Trismegistos or PAThs—and the number of sewing stations.

Table 12. List of shelfmarks associated with binding Typology 2B.

TM	CLM	Shelfmark	Date	No. Sewing Sta- tions
-	6544	New York (NY), The Morgan Library and Museum, M614bis	-	
-	6496	Berlin, Staatliche Museen, P. 14019	-	4
108091	1150	Cairo, Coptic Museum, Hamuli-Ms. 3822 ff. 1-2 (bifolio)	801-893	
		Cairo, Coptic Museum, Hamuli-Ms. 3822*		
-	205	Cairo, Coptic Museum, Hamuli-Ms. 3821 (JdE 47557)*	801-925	
-	238	New York (NY), The Morgan Library and Museum, M585	801-925	4
-	242	New York (NY), The Morgan Library and Museum, M594*	801-925	
-	208	New York (NY), The Morgan Library and Museum, M570	801-925	4
-	212	New York (NY), The Morgan Library and Museum, M573	801-925	
-	217	New York (NY), The Morgan Library and Museum, M576	801-925	4
-	218	Leuven, Katholieke Universiteit Leuven, Copte 41	801-925	4
		New York (NY), The Morgan Library and Museum, M609		
-	224	New York (NY), The Morgan Library and Museum, M614	801-925	4
-	232	New York (NY), The Morgan Library and Museum, M581	801-925	3
-	235	New York (NY), The Morgan Library and Museum, M598	801-925	
-	240	New York (NY), The Morgan Library and Museum, M584*	801-925	4
_	244	New York (NY), The Morgan Library and Museum, M610	801-925	4
-	246	New York (NY), The Morgan Library and Museum, M582	801-925	4
-	249	Egypt, Cairo, Coptic Museum, Hamuli-Ms. 3816 (JdE 47552)	801-925	4
-	254	New York (NY), The Morgan Library and Museum, M604	801-925	4
-	6443	New York (NY), The Morgan Library and Museum, M663 bis 2	801-925	
-	6444	New York (NY), The Morgan Library and Museum, M663 bis 3	801-925	
-	6445	New York (NY), The Morgan Library and Museum, M663 bis 4	801-925	
108046	206	New York (NY), The Morgan Library and Museum, M569	801-925	
-	205	Cairo, Coptic Museum, Hamuli-Ms. 3821 (JdE 47557)	801-926	4
		Germany, Berlin, Staatliche Museen, P. 11966		
		New York (NY), The Morgan Library and Museum, M568*		
-	242	New York (NY), Columbia University Library Plimpton, Coptic MS 1	801–926	
-	240	Cairo, Coptic Museum, Hamuli-Ms. 3818 (JdE 47554)	801-926	
-	205	New York (NY), The Morgan Library and Museum, M568	801-927	
-	240	Cairo, Coptic Museum, Hamuli-Ms. 3814 (JdE 47550	801-927	
-	240	Cairo, Coptic Museum, Hamuli-Ms. 3817 (JdE 47553)	801-928	
_	240	Strasbourg, Bibliothèque Nationale et Universitaire, Copte 583	801-929	
_	199	New York (NY), The Morgan Library and Museum, M633	820-1000	3
_	229	New York (NY), The Morgan Library and Museum, M588	842	5
-	251	New York (NY), The Morgan Library and Museum, M586	844	4
44376	241	New York (NY), The Morgan Library and Museum, M583	848	
-	215	New York (NY), The Morgan Library and Museum, M599	854-855	4
-	243	New York (NY), The Morgan Library and Museum, M595	855	4

-	207	Cairo, Coptic Museum, Hamuli-Ms. 3820 (JdE 47556)	861-862	4
-	234	New York (NY), The Morgan Library and Museum, M596	871-872	4
-	248	New York (NY), The Morgan Library and Museum, M580	889-890	4
-	231	New York (NY), The Morgan Library and Museum, M578	891–893	
		Cairo, Coptic Museum, Hamuli-Ms. 3815, pastedown (JdE 47551 bis)*		
_	204	New York (NY), The Morgan Library and Museum, M567	892-893	4
-	214	New York (NY), The Morgan Library and Museum, M575* Berlin, Staatliche Museen, P. 11967	892–893	4
_	221	New York (NY), The Morgan Library and Museum, M590	892–893	4
-	223	New York (NY), The Morgan Library and Museum, M593	892–893	4
-	213	New York (NY), The Morgan Library and Museum, M574	894-895	4
-	253	New York (NY), The Morgan Library and Museum, M577	894-895	3
-	247	New York (NY), The Morgan Library and Museum, M587* Freiburg, Universitätsbibliothek, Hs. 699	897–901	
-	6709	New York (NY), The Morgan Library and Museum, M603 bis	801-902	
-	180	London, BL, Or. 6784	901-1200	3
135953	918	New York (NY), The Morgan Library and Museum, M663bis (1)	901-1100	4
-	255	New York (NY), The Morgan Library and Museum, M605	901-904	4
114339	239	New York (NY), The Morgan Library and Museum, M613 Cairo, Coptic Museum, Hamuli-Ms. 3819 (JdE 47555)*	901–904	4
43101	226	New York (NY), The Morgan Library and Museum, M603	902-903	4
43113	219	Cairo, Coptic Museum, Hamuli-Ms. 3811 (JdE 47547)	903-904	4
-	216	New York (NY), The Morgan Library and Museum, M600	905–906	4
-	233	New York (NY), The Morgan Library and Museum, M597	913–914	4
-	258	New York (NY), The Morgan Library and Museum, M635	951-1000	3
-	256	New York (NY), The Morgan Library and Museum, M601	951-1000	3
-	185	London, BL, Or. 6802.1	951-1050	4
		London, BL, Or. 6802.2-8		
		London, BL, Or. 6802.9-18		
		London, BL, Or. 6802.19-24		
		London, BL, Or. 6802.25-43		
-	257	New York (NY), The Morgan Library and Museum, M634	957-1000	4
-	184	London, BL, Or. 6801*	976–1025	3
		London, BL, Or. Or. 6801 (Book clasps)*		
-	194	London, BL, Or. 7022	981	3
		London, BL, Or. 7022 (bindings)*		
-	196	London, BL, Or. 7025	981	3
-	188	London, BL, Or. 6781	983–983	
-	193	London, BL, Or. 7024	987	3
		London, BL, Or. 7024 (bindings)*		
-	187	London, BL, Or. 7021	987	3
-	186	London, BL, Or. 7028 A (bindings)*	988–989	3
		London, BL, Or. 7028 B (bindings)*		
		London, BL, Or. 7028.1-24		
		London, BL, Or. 6780.1-8		
		Washington, Smithsonian Institute, Freer F1908.33 (Coptic Ms. No. 2)		
		London, BL, Or. 6780.9-17		
-	189	London, BL, Or. 7029	992	
		London, BL, Or. 7029 (bindings)*		
-	179	London, BL, Or. 7030	994–995	4
-	250	New York (NY), The Morgan Library and Museum, M608	996	4
-	1450	London, BL, Or. 12689	999–1000	
	40-	London, BL, Or. 12689 (bindings& fragments)*	600	_
-	190	London, BL, Or. 7023.1-7	999	3
		London, BL, Or. 6806A.1-2		
		London, BL, Or. 6806A.3-4		
		London, BL, Or. 7023.24-31		
		London, BL, Or. 7023.8-23		
		London, BL, Or. 7023.32-37		
		London, BL, Or. 7023 A (bindings)*		
		London, BL, Or. 7023 B (bindings)*		

-	195	London, BL, 6783	1003-1100	3
-	181	London, BL, Or. 7027	1004	
		London, BL, Or. 7027 (bindings)*		
-	197	London, BL, Or. 6800	1031	3
_	183	London, BL, Or. 6799.1-40	1053	

3.2.2.3. Typology 2C: Late Coptic bindings

Type 2C bindings are associated with the manuscripts dated from the latter half of the eleventh century through the thirteenth century. After this period, the tradition of Coptic binding begins to wane, gradually merging and overlapping with Islamic bookbinding techniques. This evolution results in a fusion of the two traditions, while still retaining certain distinctive characteristics unique to the Egyptian region.

Typology 2C already exhibits characteristics that will develop and stabilize in later centuries. The manuscripts surveyed with this binding Typology are listed in Table 13 in chronological order. These manuscripts are written on paper, the prevalent writing medium in Arabic culture, which may have a characteristic glossy finish as in the case of Paris, BnF, Copte 28 (CLM 3011). They include Coptic Arabic texts, where Arabic text appears alongside Coptic text.

These bindings predominantly feature Islamic components and display all-along simple chainstitch sewing with continuous fold pattern, leather covers over laminate boards, where papyrus laminates are replaced with paper. The cover can extend with a flap from the back board, wrapping over the fore-edge of the book block and closing over the upper board, named rabat. A toggle with elaborate designs, such as those found in The Naqlun John (CLM 6474) shown in Figure 66, can be tied to its tip, while other bindings do not involve fastenings.



Figure 66. Loops and toggle fastening system on the Naqlun John (CLM 6474). a) The wear line on the cover indicates the position where the flap (rabat) is located. Source: PAThs. b) The rabat in position. Source: Godlewski 2003, Fig. 6.

Table 13 lists late Coptic bindings attributed to binding Typology 2C, characterized by linking sewing through the fold, a simple all-along chainstitch. For each codex are provided the TM and the CLM identification numbers, the shelfmark, and the date—based on the data in PAThs.

Table 13. List of shelfmarks associated with binding Typology 2C.

CLM	Shelfmark	Date
6474	Polish expedition to Neklone, Nd. 02.239 (The Naqlun John)	1099-1100
6687	Wadi Natrun, Monastery of the Syrians, DS Coptic Biblical 2a (MS 11)	1255
6688	Wadi Natrun, Monastery of the Syrians, DS Coptic Biblical 3 (MS 12)	1276
6689	Wadi Natrun, Monastery of the Syrians, DS Coptic Biblical 4 (MS 21)	1220
3011	Paris, BnF, Copte 28	1301-1400
3070	Città del Vaticano, BAV, Barb.or. 17	1396

3.3. Non-linking sewing techniques

The typological classification of Coptic bookbinding proceeds considering binding methods that do not involve linking one quire to another but are instead utilised to hold stacks of single leaves or double leaves of a quire together, eventually attaching them to the cover. All these techniques have been grouped under the term 'non-linking sewing techniques.'

These techniques become necessary when a book comprises stacks of single leaves or a single quire. But even if the book consists of multiple quires, non-linking techniques may still be deliberately chosen, with each quire individually attached directly to the cover, as it is the case of NHC I (CLM 662) consisting of three quires, two of which were certainly individually attached to the cover.

Within non-linking techniques, a distinction can be made between sewing methods in which the thread passes through the margin of the leaves (3.3.1), known as stitching, or through the fold of the quires (3.3.2), known as tacketing.

3.3.1. Typology 3: Stitching through the margin

Typology 3³⁶⁹ gathers the binding structures held together by means of the simplest techniques, due to their speed and cost-effectiveness. These methods, known as stitching techniques, ³⁷⁰ or side-hefting, consist of passing a stringy material through the inner margin of a block of leaves at a certain distance from the edge to hold them together. They include specific types of stitches, such as the whip stitch and the running stitch.

The block of leaves through which the stringy material passes can be formed from single leaves, groups of double leaves, and quires. The stitches may be vertical, horizontal, or a combination of both (Figure 67). Since stitching does not follow precise formal steps, various methods or combinations achieve the result. Therefore, while effective, the final appearance of the binding can be untidy.

³⁶⁹ Typology 1 corresponds to Petersen typology A 'stabbed sewing – piercing the full thickness of the book close to its left edge'. See Petersen 2021, 7–15.

³⁷⁰ LoB defines *stitching* as 'the process of holding bookblocks together by stabbing a material such as thread, textile tape, parchment or tanned or tawed skin thongs through the inner margin of an entire bookblock'. See LoB, http://w3id.org/lob/concept/1648.

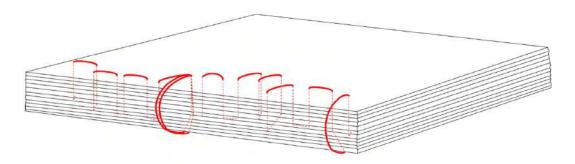


Figure 67. Combination of various types of stitches. Drawing mine.

One specific type of stitches is the whip stitch. Whipping is a technique which involves passing the thread through the entire thickness of the textblock, wrapping it around the spine (Figure 68). Regarding this binding method LoB thesaurus affirms:

The most often used technique is a form of elliptical stitching in which groups of leaves are whipped together along their spine edges.³⁷¹

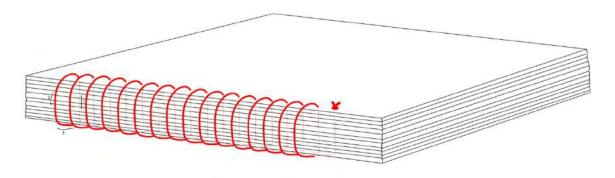


Figure 68. Booklet bound with whipping technique. Drawing mine.

Another type of stitch is the running stitch. This basic stitch is created by passing the stringy material up and down through the leaves, so that the stitches appear alternately on the front and underside of the booklet (Figure 69).

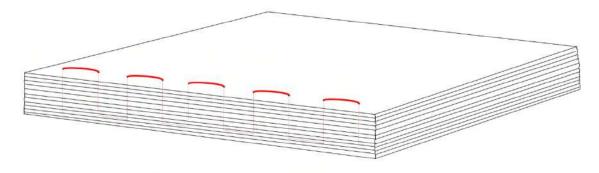


Figure 69. Booklet bound with running stitches. Drawing mine.

³⁷¹ See LoB, http://w3id.org/lob/concept/1471.

Dating

Stitching technique has been continuously used since its origins due to its speed and cost-effectiveness.

Context of production and use

Stitching, considered a simple technique, is often viewed as 'a cheap and inferior alternative to sewing'. Consequently, bindings of Typology 3 serve practical needs rather than aiming for refinement. Two primary functions have been identified: stitching as the principal binding method and stitching for repairs.

3) Stitching used as principal binding method

These stitching techniques have been employed to create modest booklets intended for practical use and quick reference rather than as refined objects, indicating a lack of interest in showcasing them. For example, bindings of Typology 3 are found in texts such as school exercises, psalms, *sancta sanctorum*, and acrostic hymns. These bindings are characterized by their inexpensive and unrefined nature, serving the practical purpose of keeping the leaves together. Another characteristic is their light weight which made them suitable to be carried around.

The following paragraphs offer examples of this binding typology.

Examples

No remnants of thread or traces of the cover of the third or fourth century papyrus schoolbook Dublin, CBL, Pap. 1008 (TM 64288) are preserved, but holes pierced through the margins of the leaves indicate the former presence of binding stitches. Figure 70 shows two fragments (on the right) belonging to a double leaf and a single folio (on the left). Two holes were pierced at close intervals through the inner margin in a centred position. The alignment of the holes in all the leaves indicates that they were pierced while the single leaf and the closed double leaf were superimposed on each other.

³⁷² See LoB, http://w3id.org/lob/concept/1648.



Figure 70. Sewing holes of the binding of Dublin, CBL, Pap 1008 (TM 64288). Open access, https://viewer.cbl.ie/viewer/image/Pap_1008/1/

Paris, Sorbonne – Institut de Papyrologie, Inv.Sorb. 826 (TM 61595)³⁷³ (Figure 71) is a miniature booklet dating to the fifth or sixth century which contains school exercises. Petersen noted the hole present in the lower internal corner of all the leaves, and drew the hypothetical reconstruction of the stitching, but he did not record the presence of other holes through the inner margin.



Figure 71. Paris, Sorbonne – Institut de Papyrologie, Inv.Sorb. 826 (TM 61595) f. 2r. a) Photographic reproduction. Source: https://na-kala.fr/(...)f4209860ef82acb11b). b) Petersen's line drawing. Source: Petersen 2021, Fig. 6a.

The disordered appearance that bindings of Typology 3 is well represented by the bindings of two booklets: the seventh-eighth century papyrus codex Ann Arbor (MI), University of Michigan Library, P. 4286 (CLM 2784)³⁷⁴ containing the psalms (Figure 72a) and the seventh-eighth

³⁷³ Full digitisation available at https://nakala.fr/(...)209860ef82acb11.

³⁷⁴ For an introduction to the manuscript history, see Husselman 1942, 321. A digitisation is available at https://quod.lib.umich.edu/a/apis(...).

century papyrus codex al-Ašmūnayn, Storehouse inv. 596 (CLM 1190) (Figure 72b) also containing the psalms. Both bindings lack a cover, giving the impression that the stitching was executed hastily and quickly. They were possibly repaired over time with the primary aim of keeping the leaves together.





В

Figure 72. Binding Typology 3 – disordered appearance. a) Ann Arbor (MI), University of Michigan Library, P. 4286 (CLM 2784). Source: https://quod.lib.umich.edu/ © University of Michigan Library. b) al-Ašmūnayn, Storehouse, inv. 596 (CLM 1190). Source: Delattre 2008, plate III.

The same disordered and modest appearance is found in two booklets whose binding, belonging to Typology 3, has been executed with whipping technique. They are: Cairo, Coptic Museum, JdE 44689 (CLM 1153) (Figure 73a), a papyrus codex of acrostic hymns dated to the first half of seventh century, discovered in a pit hole in the cell of the monk Epiphanius in the monastery of Epiphanius;³⁷⁵ and Barcelona, Arxiu Històric de la Companya de Jesús a Catalunya, Palau-Ribes Inv. 410 (Figure 73b), a fifth century papyrus codex containing school exercises. Both codices lack covers. They differ in that the stitching on Inv. 410 is done on the written area, indicating it was perhaps a method to keep together leaves that were not originally meant to be together. In contrast, CLM 1153 was stitched in the blank margin, showing more care in the binding process.

³⁷⁵ For an introduction to the manuscript, see Crum and Evelyn-White 1926, n. 592. For the archaeological finding context, see Winlock and Crum 1926.





Figure 73. Binding Typology 3 – whipping technique. a) Cairo, Coptic Museum, JdE 44689 (CLM 1153). Source: White-Crum 1926, plate I. b) A detail of Barcelona, Arxiu Històric de la Companya de Jesús a Catalunya, Palau-Ribes Inv. 410 Source: photograph mine. ©Arxiu Històric de la Companya de Jesús a Catalunya.

Table 14 presents the codices cited in the preceding pages, which exhibit a Typology 3 characterized by non-linking sewing through the margin functioning as primary binding. The codices are arranged in chronological order. For each codex, the table provides the TM and CLM identification numbers, the date—based on the data in Trismegistos or PAThs—and the textual content.

Table 14 List of codices with binding belonging to Typology 3, used as primary binding method.

TM	CLM	Shelfmark	Date	Content
64288	-	Dublin, CBL, Pap. 1008	201-400	School exercises
-	-	Barcelona, Arxiu Històric de la Companya de Jesús a Catalunya, Palau Ribes Inv. 410	401–500	School exercises
108813	1061	Ann Arbor (MI), University of Michigan Library, P. 593 α	401–600	Alchemy; Medi- cine
108812	1062	Ann Arbor (MI), University of Michigan Library, P. 593 β	401–600	Alchemy; Medi- cine
61595	-	Paris, Sorbonne – Institut de Papyrologie, Inv. Sorb. 826	451-600	School text
65174	1153	Cairo, Coptic Museum, JdE 44689	601-650	Acrostic hymns
113255	1190	al-Ašmūnayn, Storehouse, inv. 596	601-800	Psalms
100014	6387	Città del Vaticano, BAV, Pap.Vat.copt. 1	601-800	Sortes Sanctorum
112660	2784	Ann Arbor (MI), University of Michigan Library, P. 4286	601-800	Psalms
112405	-	London, British Library, Or. 3669	901-1000	Alchemy

4) Stitching used as repair

A second significant use of stitching techniques of Typology 3 is observed in their employment as a method of repair to keep the leaves together when the primary binding has failed. This use as a repair mechanism can be identified by the presence of additional holes for stitching, along-side the holes associated with the primary binding method. To definitively ascertain the function of the stitching, it would be essential to have a leaf/double leaf preserved in its entirety. However, this is often not the case. Consequently, the bindings are categorised within this group with a varying degree of uncertainty. Nevertheless, it is deemed useful to provide some examples with a higher certainty of identification, which can document this use.

The general observation that emerges is that repair stitches passing through the margins of the leaves of the codices are also found on literary texts which presumably possessed a more sophisticated binding design compared to those classified under Typology 3.

Examples

The manuscript Dublin, CBL, BP III (TM 61628) is part of the so-called 'Chester Beatty Biblical Papyri,' has been digitised, and is freely available in the Chester Beatty Digital Collection webpage.³⁷⁶ It contains the central portion of the Book of Revelation on ten papyrus leaves. According to Kenyon's reconstruction, the codex might have originally contained the entire Book of Revelation. Therefore, it could have been formed either by a single large quire of thirty to thirty-two leaves or by three quires. In this case, the preceding part of the book might have been written on a quire of twelve or ten leaves, with the final part of the text on a quire of ten leaves, possibly ending with a blank section.³⁷⁷ According to Peter Malik, in the published revised version of his PhD thesis at the Faculty of Divinity, University of Cambridge, in 2016, the latter hypothesis would be preferable in terms of better conservation of the leaves. However, the recurrence of several single-quire papyri from the same period leads him to favour a single-quire arrangement.³⁷⁸

The single-quire arrangement may involve sewing through the central fold of the double leaves. However, no double leaf is extant in its entirety, therefore, the holes in the fold are only vaguely discernible. On the contrary, the presence of two holes passing through the inner margin of the leaves is much clearer. The elaboration of the images via Affinity photo® tool allows for the reconstruction of a double leaf. Figure 74a shows the reconstruction of the second double leaf through the elaboration of the images of the f. 2v and f. 9r. The line drawing highlight the presence of two holes along the inner margin of folio 9 that are consistent through the second half of the quire, indicating the presence of a binding belonging to the Typology 3 (Figure 74b). What leads to consider it a reparation is the general quality of the codex and its textual content, which place the codex among the refined codices with Typology 2B bindings.



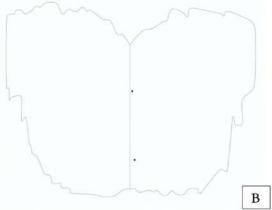


Figure 74. Dublin, CBL, BP III (TM 61628). a) Elaboration of the images of f. 2v and f. 9r with Affinity photo® to reconstruct the second double leaf. Source: BodmerLab, elaboration mine. b) Line drawing of the reconstructed double leaf (f. 2 – f. 9) highlighting the two sewing holes on f. 9. Source: Drawing mine.

³⁷⁶ CBL Digital Collections, https://viewer.cbl.ie/viewer/search/random_1633948925/-/.

³⁷⁷ Kenyon 1934, xi.

³⁷⁸ Malik 2017, 24–31.

TM 61594 is part of the Bodmer Papyri collection and provides an example of a binding belonging to Typology 3 with the function of repair. It is a papyrus codex dated to the second half of the fourth century, containing three comedies by Menander (Samia, Dyskolos, and Aspis) in Greek.³⁷⁹ According to Victor Martin's reconstruction,³⁸⁰ the codex was formed by a single large quire, measuring 275 mm in height and 170 mm in width. The portion of the codex relevant for examining its binding is housed in the Fondation Bodmer in Cologny-Geneve, with the shelfmark P.Bodmer M (TM 61594).³⁸¹

Although the cover and any traces of thread have not been preserved, the holes remaining in the leaves indicate the previous presence of sewing threads. Upon examining the codex for the text edition, Rudolphe Kasser noted that the leaves exhibit evidence of three subsequent bindings: a principal binding executed through the fold, typical of single-quire codices, and two subsequent repairs. Even though the leaves are now separated, it is possible to observe three sets of holes, particularly evident in the reconstruction of the central double leaf done with the Affinity Photo® software (Figure 75).

The first set of holes represents the original sewing along the central fold. The second set, located 10 mm from the fold, indicates a repair sewing along the margin. The third and most evident set consists of three pairs of holes positioned at the head and tail of the quire, suggesting additional repair.

Thus, the sewing through the margin, classified as Typology 3, was intended as a repair and does not indicate an archaic binding technique, contrary to previous suggestions by Victor Martin, who affirmed:

On a déjà cherché dans les tablettes de bois réunies par des anneaux métalliques ou des liens de cuir l'origine du codex. Le papyrus de Ménandre nous fournit, si l'explication proposée est correcte un spécimen de cette forme primitive de livre constitué par une liasse de feuillets isolés maintenus ensemble par des fils noués passant par les trous percés dans les marges.³⁸³

Martin supported the hypothesis that the pairs of holes were the traces left by the original binding by asserting that they were pierced in the blank margins of the leaves before the codex was written. However, this assertion does not hold universally. For instance, the holes in the upper part of f. 5 were pierced through the text, indicating that they were made after the codex had been written. Kasser noted the inconsistencies and provided a new interpretation of the sewing that is reliable. However, he hypothesized that the sewing between the pairs of holes was continuous, but according to the typological classification the fold pattern in early codices is periodic.

³⁷⁹ The texts have been edited by Kasser 1969a, 1969b; Martin 1958.

³⁸⁰ We have already searched in the wooden tablets bound together by metal rings or leather ties for the origin of the codex. The papyrus of Menander provides us, if the proposed explanation is correct, with a specimen of this primitive form of book consisting of a bundle of isolated sheets held together by knotted threads passing through holes pierced in the margins (Martin 1960, 4; translation mine)

³⁸¹ A digitisation is available at https://bodmerlab.unige.ch/fr/constellations/papyri/barcode/1072205365.

³⁸² Kasser published his findings in Kasser 1971.

³⁸³ See Martin 1960, 5.

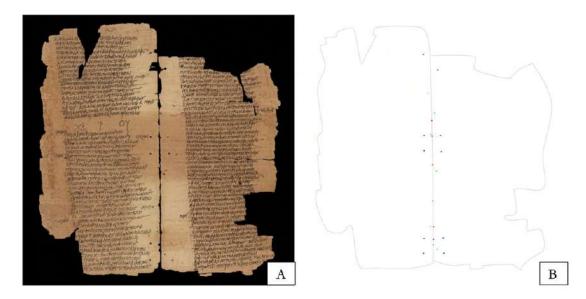


Figure 75. Three sets of holes indicating subsequent bindings in Geneve, Fondation Bodmer, P.Bodmer M (TM 61594). a) Reconstruction in Affinity photo® of the central double leaf. Source: BodmerLab, elaboration mine b) Line drawing in Affinity photo® highlighting the presence of three subsequent sets of sewing holes, the first through the fold in red, the second through the margin in green, and the third through the margin in black. Source: Drawing mine.

Kasser further hypothesized that the codex originally had a binding similar to other single-quire codices, with papyrus-laminate boards and a leather cover, which were likely lost by the time the repairs were made.³⁸⁴ Kasser's hypothesis remains impossible to prove definitively, but there is evidence supporting it. The codex has wide margins, is large in format, and contains literary content, suggesting it was a text of considerable importance that might have received a more elaborate binding, similar to that found on other single-quire codices.

TM 61420 known as Bodmer 'Composite' or 'Miscellaneous' codex is a multi-quire papyrus codex containing the Nativity of Mary, the Correspondence of Paul and the Corinthians, the eleventh Ode of Solomon, Jude, the paschal sermon of Melito, a hymn, and 1-2 Peter in Greek. As it is visible in the digitisation of the portion of the codex housed in the Fondation Bodmer in Cologny-Geneve with the shelfmark P.Bodmer C (TM 61420), the codex had subsequent bindings. The principal binding was executed on four sewing stations, grouped in two pairs, presumably with independent threads with chainstitch technique (see Typology 2) of which a loop is still visible on the spine of the codex (Figure 76).

³⁸⁴ Kasser 1969a, 1969b; Martin 1958.

³⁸⁵ The digitization of the codex is available at BodmerLab, https://bodmerlab.unige.ch/constellations/papyri/barcode/1072205366.



Figure 76. Chainstitch loop on the spine of P.Bodmer C (TM 61420). ©Fondation Martin Bodmer.

However, how it is possible to see from Figure 77 three additional holes are pierced through the margins of the leaves. These holes penetrate the entire book block, and it is evident that they were created after the primary sewing through the fold. This conclusion is supported by the fact that the holes also pass through the parchment sewing guards, which were installed to protect the fold from tearing and through which the primary sewing thread passes. Therefore, these holes must have been made when the main sewing was on the verge of breaking or had already broken (Figure 78). This reconstruction aligns with Brent Nongbri's analysis of the structure of the Pap.Bodmer VIII (TM 61420) in the Vatican Library, in the Vatican City State. Nongbri asserts that the codex likely had a primary chainstitch sewing on four sewing stations and that the perpendicular holes correspond to a repair (Figure 79). Prior to being incorporated into the 'Miscellaneous' or 'Composite' codex, the manuscript was a part of another codex. However, traces of sewing holes, distinct from those found elsewhere in the codex, have been lost due to invasive interventions, which included the infilling of losses in the central fold with Japanese paper.

³⁸⁶ Nongbri 2015, 2016.

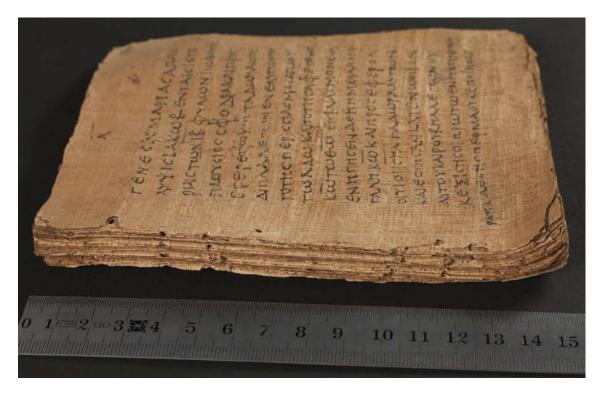


Figure 77. Spine view of the two different sets of holes in Cologny-Geneve, Fondation Martin Bodmer, P.Bodmer C (TM 61420). Source: BodmerLab © Fondation Martin Bodmer.



Figure 78. Stitching holes passing through the parchment sewing guards on Cologny-Geneve, Fondation Martin Bodmer, P.Bodmer C (TM 61420)). Source: BodmerLab. © Fondation Martin Bodmer.



Figure 79. Stitching holes passing through the parchment sewing guards of Città del Vaticano, BAV, Pap.Bodmer VIII (TM 61420). Source: VatLib.

Proof of an additional example of stitching through the margin as repair derive from an early photo taken in Cairo in 1916 which shows three stitches pierced through the margin of the fifth quire of New York (NY), The Morgan Library and Museum, M636 (formerly C31) (CLM 4722), also known as Morgan papyrus codex.³⁸⁷ The manuscript is part of a lot purchased in 1916 by F.W. Kelsey (1858-1927) on behalf of J.P. Morgan, Jr. through the agency of D.L. Askren, a medical missionary residing in Medinat al Fayum, who reported that he had acquired these manuscripts in the Fayyum (PAThs ID 323). Kelsey brought the lot to Rome in the beginning of 1920, then it was sent to the British Museum in 1925, and there it was restored by Charles T. Lamacraft (1879-1945).³⁸⁸

This papyrus codex of the liturgy is dated on prosopographic grounds by an Arabic protocol to 795 CE and measures 239 mm in height and 170 mm in width. The codex displays a sewing through the fold of the quires and a repair through the inner margin of the leaves of the fifth quire of the codex, which originally consisted of eighteen leaves. The quire collapsed after the last seven blank leaves were cut.³⁸⁹ Petersen described the stitching as follows:

Three papyrus ribbons pierced the inner margin of the quire, about eight to ten millimeters away from the spine, and clasped the hinging edges of the remaining leaves (together with the stub remnants of the severed leaves) so as to tie them together effectively.³⁹⁰

And made a drawing of the repaired codex as it appeared in the photograph taken in Cairo (Figure 80).

³⁸⁷ Petersen 2021, Fig 7.1.

³⁸⁸ See Depuydt 1993, LXXIV-LXXV and PAThs Atlas, https://atlas.paths-erc.eu/manuscripts/4722.

³⁸⁹ Petersen 2021, 13.

³⁹⁰ Petersen 2021, 13.



Figure 80. Line drawing by Petersen of the stitching on New York (NY), The Morgan Library and Museum, M636 (formerly C31) (CLM 4722) after the photograph taken in Cairo. Source: Petersen 2021, Fig. 7.

Petersen stated that the new stitching was used as a 'makeshift expedient' rather than a regular repair, as no attempt was made to link the first part of the codex to the second part after the seven blank leaves were cut. This reconstruction might be plausible if the manuscript was intended to be divided into two codices, suggesting it is an unfinished product. However, the manuscript has since been disbound and the written leaves mounted between glass plates, making it impossible to verify this hypothesis.³⁹¹

Stitching through the margin as repair is present also in Ann Arbor (MI), University of Michigan Library, P. 607 1-2 (CLM 2858),³⁹² a papyrus codex measuring 207 mm in height and 142 in width, dated to the second half of the ninth century, and containing the four books of Kingdoms. Only two leaves of the codex are preserved, displaying holes along the inner margin in a rather clumsy arrangement, which allows this binding to be classified as Typology 3. However, on the second leaf, a length of Z-plied thread is retained in the lower spine-edge portion, near what might have been the fold of a double leaf. Even though there is no clear evidence of holes pierced for the passage of the thread,³⁹³ the presence of these two sets of stitches indicates that the manuscript was rebound, and the set of stitches through the inner margin may relate to a reparation of the codex to maintain the integrity of the manuscript.

Table 15 lists the manuscripts attributed to binding Typology 3, characterized by non-linking sewing through the margin with the function of repair. For each codex are provided the TM and the CLM identification numbers, the shelfmark, the date–based on the data in Trismegistos or PAThs–and the textual content.

Table 15 List of codices with binding belonging to Typology 3, with the function of repair.

TM	CLM	Shelfmark	Date	Content
61628	-	Dublin, CBL, BP III 201–300		Bible
61420	-	Città del Vaticano, BAV, Pap.Bodmer.VIII	V, Pap.Bodmer.VIII 310–350 Miscellaneous	
		Cologny-Geneve, Fondation Martin Bodmer, P.Bodmer C		
61594	-	Cologne, Papyrussammlung, P. 904	350-400	Menander
		Cologny-Geneve, Fondation Martin Bodmer, P.Bodmer M		
		Durham (NC), Duke University, P. 775		
107877	716	Ann Arbor (MI), University of Michigan Library, P. 1289	401-600	Hagiography
828623	4722	New York (NY), The Morgan Library and Museum, M636	795	Liturgy
-	2858	Ann Arbor (MI), University of Michigan Library, P. 607.1-2	850-900	Bible

³⁹¹ Petersen 2021, 13 n. 38.

³⁹² A digitisation of the leaves is available at https://quod.lib.umich.edu/a/apis(...)607. For an introduction to the codex, see Browne 1978.

³⁹³ For the description of the binding of the codex, see Miller 2015, 206–207.

Binding features

Bindings executed with the stitching technique belonging to Typology 3, do not require the presence of other elements such as cover, boards, endbands, fastenings, and spine lining, which may nevertheless be incidentally present.

An example is offered by Ann Arbor (MI), University of Michigan Library, P. 593 α (CLM 1061) (244 mm x 180 mm), and P. 593 β (CLM 1062) (195 mm x 288 mm), two codicological units bound together to form a papyrus codex, dated between the 401 CE and 700 CE, part of what have been called the 'Coptic wizard's hoard', that is, a 'humble literary stock of a Coptic magician'. This identification was based on the textual content of the manuscripts, which pertained to alchemy and medicine.

According to an early description by William Worrell who took care of the edition of the text, ³⁹⁵ when found the papyrus leaves were wrapped in a ribbon, ³⁹⁶ which served as fastening (Figure 81a). The stitching is not preserved but a reconstruction has been proposed by Julia Miller who realised a model of the codex based on the description of the manuscript when it was found and the material evidence, such as sewing holes, which remain today on the papyrus (Figure 81b).³⁹⁷

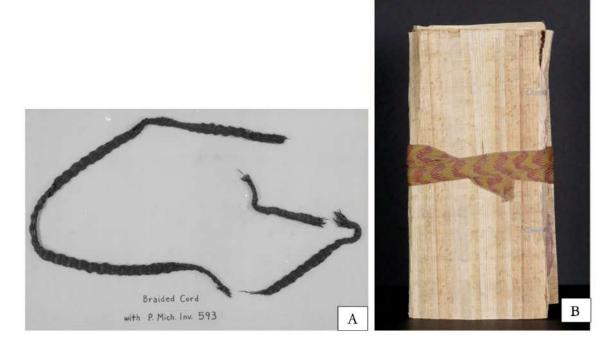


Figure 81. Ann Arbor (MI), University of Michigan Library, P. 593 (CLM 1061 and CLM 1062). a) Ribbon found with the codex which probably served as fastening. Source: University of Michigan Library Digital Collections, https://quod.lib.umich.edu/apis/(...)593. b) Model of the codex by Julia Miller, University of Michigan Library, Online Exhibits, Puzzle me this. Source: https://apps.lib.umich.edu/online-exhibits/puzzle-me-this.

Another example is offered by the papyrus manuscript Città del Vaticano, BAV, Pap.Vat.copt. 1 (CLM 6387),³⁹⁸ dated to the seventh–eighth centuries, containing a collection of *sortes*

³⁹⁴ Worrell 1930, 239.

³⁹⁵ Worrell 1930 and Worrell 1935, 187–194.

³⁹⁶ A full digitisation of the manuscripts is available at https://quod.lib.umich.edu/P.Mich.inv.593.

³⁹⁷ Miller 2015, 210–213.

³⁹⁸ A full digitisation of the manuscript is available at https://digi.vatlib.it/view/MSS_Pap.Vat.copt.1.

sanctorum.³⁹⁹ The leaves are fragmentary, but the best-preserved one measures 155 mm in height and 115 mm in width. These leaves feature a set of holes, each 1 mm in diameter, pierced through their inner margin, allowing the binding to be classified within the Typology 3. The codex does not survive in its pristine state, but its leaves are housed individually between glass panes. However, within a frame, lying between three layers of blotting paper, suitably shaped to accommodate it, there is preserved what might have been its coarse leather cover (Figure 82).



Figure 82. Leather object tentatively identified as the cover of Città del Vaticano, BAV, Pap.Vat.copt. 1 (CLM 6387) a) Recto. b) Verso. © Biblioteca Apostolica Vaticana, Source: VatLib, https://digi.vatlib.it/view/MSS_Pap.Vat.copt.1. c) Line drawing of the cover. The dotted lines correspond to the verso side. Source: Drawing mine.

³⁹⁹ Lot-oracles for divination.

Several pieces of evidence support the identification of the leather object as the manuscript's cover. First, the height of the leather object (162 mm) matches that of the best-preserved manuscript leaf. Additionally, a crease in the middle of the leather object suggests the position of the booklet's spine. Finally, the presence of adhesive residues and papyrus fragments on the verso indicates its close contact with the manuscript leaves.

The leather object, identified as the manuscript cover, consists of four fragmentary rectangular pieces of leather (identified with the letters A, B, C, D) juxtaposed and held together by pasting their flesh side to a vertical spine strip of leather. The flesh side of a fifth rectangular piece of leather (identified with the letter E) is pasted to the opposite side of the strip in correspondence with 'B'.

At the head and the tail of the spine strip are the fragments of an additional layer of leather. The head fragment is fixed to the spine strip by a running stitch of leather lacing which passes through slits cut horizontally at 5 mm from each other. The lacing only passes through the spine strip and is thus hidden from the view from the recto side.

A leather string, 3 mm in diameter, passes through holes in the right half of three leather pieces. It threads through three holes simultaneously pierced in pieces 'B' and 'E', and then through two holes in piece 'C'. While additional holes are present on the leather fragments, they are not utilized by the string. Two holes are pierced in piece 'B' but not in piece 'E', and a hole in piece 'D' is obscured by the spine strip adhered on its back.

Papyrus fragments adhered to the flesh side of the pieces of leather and the spine strip indicates that the cover had possibly papyrus boards. The presence of papyrus fibres on the flesh side of 'E' suggests that enclosed the papyrus boards were enclosed by two layers of leather in a sandwich structure. However, the absence of a crease on piece 'E' at the spine, raises questions about the appearance of the leather cover.

The different colours of the leather pieces and their irregular shapes suggest that they were scraps from the production of other objects. These scraps were likely chosen due to their lower cost compared to a whole skin. The materials and the absence of decoration indicate that the codex was not intended as a valuable object for display. Therefore, it is probable that the binding's primary function was to hold the sheets together and provide protection from external agents and wear.

3.3.2. Typology 4: Tacketing through the fold

Typology 4⁴⁰⁰ bindings involve sewing techniques that do not connect one quire to another but instead use a tacket, a loop of stringy material that goes through the fold of double leaves to hold them together and eventually attach them to a covering material.⁴⁰¹ This sewing method, is known as tacketing.

This typology includes bindings for single-quire codices and multi-quire codices, where each quire is individually bound to the cover. Within this macro-type, there are three subtypes of

⁴⁰⁰ Typology 4 includes Petersen's 'B – Lengthwise sewing through the fold of single-quire books' (see Petersen 2021, 13–21) but broadens its scope.

⁴⁰¹ LoB defines a *tacket* as 'a short length of flexible material used to attach one component to another by lacing it through one to four matching holes made through both components. (...) The simplest form uses a loop of the tacketing material laced through two holes, the loose ends being twisted and/or knotted together, on the inside or outside of a cover (...)'. See LoB, http://w3id.org/lob/concept/1657.

bindings, each with slightly different binding features and context of production and use: Typology 4A, Typology 4B, and Typology 4C.

3.3.2.1. Typology 4A

Typology 4A encompasses the bindings of single-quire codices, which contain literary content. The examples listed are written on papyrus leaves that, when folded, formed a bulky single quire attached to the cover using tackets passed through a parchment or leather stay—a protective strip of parchment or leather used to guard the central fold of the quires against tearing.

The most renown bindings belonging to this typology are those of the Nag Hammadi codices.

Dating

This typology disappeared in the sixth century when single-quire codices fell out of use and naturally merged with the already existing Typology 2A.

Context of production and use

Typology 4A bindings encompass refined literary texts, crafted with significant attention to detail. The presence of stays in these bindings indicates the meticulous care taken in their execution, even in the absence or minimal use of cover decoration, which is typically the most apparent marker of a binding's sophistication.

As regards the context of production and use of the Nag Hammadi codices, it has been a subject of debate since their discovery in 1945. Although it is clear from the homogeneity of their content, binding technique, and the style of their covers that the codices were produced in the same milieu, their exact origin remains unknown. The codices were not indeed found in their context of use but rather inside a buried jar approximately 10 kilometres northeast of the modern city of Nag Hammadi. 402

The proximity of the presumed discovery site to the ruins of a basilica dedicated to Saint Pachomius, along with the textual and material aspects of the codices—particularly the content of documents such as a collection of sixteen letters written to or by monks found in the covers of the codices—supports the theory of the 'Pachomian connection.' According to this theory, the codices were produced within the monastic environment and were read by the monks until they were declared heretical in Athanasius' 39th festal letter in 367 CE and subsequently dismissed and buried in the jar.

However, this theory faces criticism from other scholars, such as Ewa Wipszycka, who decisively argues against the hypothesis of a monastic origin. She contends that the presence of

⁴⁰² The events from the discovery to the publication of the Nag Hammadi codices are presented in the introduction to their facsimile edition, see Robinson 1984, 1–14. The story is told in greater detail in Robinson 2014. In the introduction to the facsimile edition, Robinson reveals the scepticism of Rodolphe Kasser and Martin Krause regarding the details of the discovery's history beyond the general identification of the location and date of the find. They believed that the additional information surrounding the discovery had 'the value of stories and fables that one can collect in popular Egyptian circles thirty years after an event' (Robinson 1984, 1 n. 1).

⁴⁰³ For details regarding the content of the texts extracted from the covers, see Barns et al. 1981. The theory of the monastic origin of the Nag Hammadi codices is supported and elaborated upon in Lundhaug and Jenott 2015.

the dossier of papyri from the covers of the Nag Hammadi codices is not conclusive evidence, pointing out that such materials were commonly resold by wastepaper dealers.⁴⁰⁴

Binding features

Typology 4A bindings are found on single-quire codices of literary content, all of which are made from papyrus. Although some bindings of single-quire codices have been preserved, they often lack many of their features due to deterioration over time or invasive preservation interventions. For this reason, the characteristics of this typology will be often presented through the bindings of the Nag Hammadi codices.

The bindings of the Nag Hammadi codices also underwent invasive interventions. Papyrus laminate boards were removed from all the codices to uncover the texts. This procedure was deemed entirely legitimate, as evidenced by a photograph showing the restorer Anton Fackelmann demonstrating to scholars the proper method for extracting the sheets that form the boards from the bindings (Figure 83). Nonetheless, there is well-documented evidence of their characteristics, largely due to the photographic documentation conducted before and during the disassembly of the codices.



Figure 83. Anton Fackelmann demonstrates the removal of laminate boards from the leather covers of Nag Hammadi codices to (from right to left) James M. Robinson, Bentley Layton, Charles W. Hedrick, and Søren Giversen in the library of the Coptic Museum. Source: The Claremont Colleges Digital Library, Nag Hammadi archive, https://ccdl.claremont.edu/digital/collection/nha/id/1408/rec/3.

All manuscripts were separated from their covers, the double leaves cut along the folds, to place them between glass. At the end of the process, on the inner surface of the cover only a few papyrus fragments remained (Figure 84). Already by 1947, the double leaves of NHC III (CLM 664) were between glass, separated along the folds. In 1956, the leaves of NHC I (CLM 662) and NHC II (CLM 663) were encased in plexiglass by Pahor Labib and Victor Girgis, curators of the Coptic Museum. From 1959 to 1962, efforts continued to protect the leaves with plexiglass. At this point were photographs taken for the facsimile edition.

⁴⁰⁴ See Wipszycka 2000. After Lundhaug and Jennott's publication, Wipszycka and Piwowarczyk responded with an article that summarized the different viewpoints on the theory, see Wipszycka and Piwowarczyk 2017.

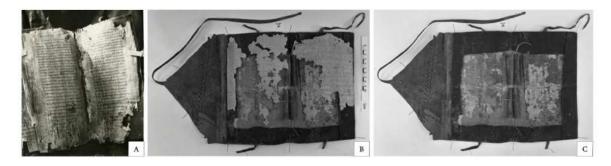


Figure 84. The progressive dismemberment of NHC V (CLM 666). Source: The Claremont Colleges Digital Library, Nag Hammadi archive, https://ccdl.claremont.edu/digital/collection/nha/search/searchterm/nag hammadi codices. v(...).

Finally, it should be specified that although the Nag Hammadi codices represent a homogeneous and distinctive binding group, they are not considered to constitute a separate typology. Their structural characteristics, such as the sewing of the bookblock to the leather cover stretched over and folded onto papyrus laminate boards—an operation that can be facilitated by cutting notches in the leather—and closure with paired ties, are shared with other codex bindings. However, their distinctive design, which includes a fore-edge flap⁴⁰⁵ and an edging strip to cover the board edge where the turn-in is absent, enables straightforward grouping and recognition within Typology 4B. Figure 85 present a line drawing of a binding of a Nag Hammadi codex, with indication of its elements.

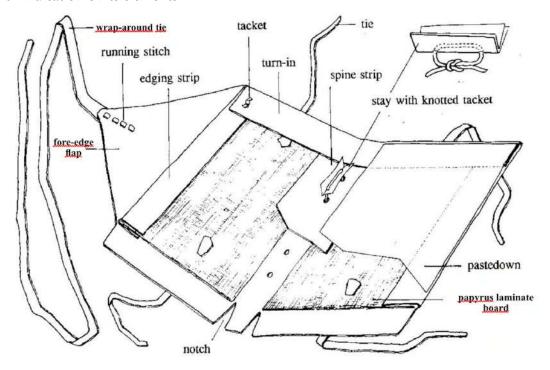


Figure 85. Szirmai's line drawing of the structural elements of a Nag Hammadi binding. The terms 'fore-edge flap', 'wrap-around tie', and 'papyrus laminate board' have been substituted by the author for the original terms 'flap', 'wrapping band', and 'papyrus lining'. Source: Szirmai 1999, 8 Fig. 1.2.

⁴⁰⁵ A fore-edge flap is an extension of the leather cover. In the case of the Nag Hammadi bindings, it extends from the fore-edge of the upper cover, goes over the fore-edge of the bookblock, and reaches halfway across the lower cover. Typically, a long leather tie, a wrap-around tie, is attached to the middle portion of the flap, allowing the codex to be securely fastened.

Sewing

Bindings categorised in Typology 4B feature a leather or parchment stay designed to protect the fold of the quire from tearing. The thread pierces the stay at two points, and its ends are knotted on either side of the quire. The number of sewing stations can theoretically vary, in even numbers based on the manuscript's dimensions, but in recorded specimens, there are always four sewing stations grouped in two pairs. One thread sews one pair, while another thread sews the other pair. This creates a periodic fold pattern where there is one length of thread between each pair of sewing stations.

Two techniques are commonly observed for attaching the book block to the cover. The first technique (Figure 86a) involves passing the tacket through the stay, the bookblock, and the cover. Therefore, its use can be identified by the presence of holes in the cover. The tacket can be tied either inside or outside the text block, as seen in NHC I and NHC XI.

The second technique (Figure 86b) involves adding an additional leather strip along the spine, which can be either pasted or pasted and knotted to the cover. The latter method involves threading a leather thong through the additional spine strip and the cover, then tucking the ends of the thread under the turn-ins. In this approach, the tacket does not pass through the cover but instead pierces the spine strip, the quire, and the leather stay, and it is tied inside the cover, as observed in NHC III, NHC IV, NHC V, and NHC VIII. In this construction, the tacket is first attached to the leather spine strip, then to the quire, and the stay, and lastly, the structure is pasted to the cover. 406

However, the bindings of NHC VI, NHC IX, and NHC X feature a leather spine strip, but the tacket passes through the cover and is knotted outside.

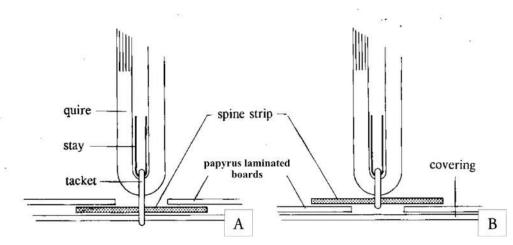


Figure 86. Source: Szirmai 1999, 10 Fig. 1.3. The term 'papyrus laminate boards' has been substituted by the author for the original term 'papyrus lining'.

The tacket is typically made with a leather thong, as evidenced in most of the Nag Hammadi Codices (NHC I, NHC III, NHC IV, NHC V, NHC VI, NHC VII, NHC VIII, NHC IX, NHC X). An exception is found in NHC II, which was sewn on four sewing stations (two pairs)

⁴⁰⁶ For a detailed study of the construction of Nag Hammadi bindings, supported by the realization of models, see Miller 2018.

⁴⁰⁷ The leather stays are not preserved in the original position but the Coptic museum preserves a loose leather stay whose distance between sewing holes is correspondent with holes in the leaves, see *Facsimile NHC VII* 1972.

using two strings that form loops around the quire without employing any stays.⁴⁰⁸ This method does not involve holes in the cover or a leather spine strip, leading to the hypothesis that the codex was not attached to the cover.⁴⁰⁹ However, this hypothesis was disproved when it was observed that the last leaf of the quire adhered to the verso of the lower cover as a pastedown before the codex was dismantled.⁴¹⁰

A twisted thread is also found in the box containing the materials removed during restoration from Berlin, Staatsbibliothek zu Berlin – Preußischer Kulturbesitz, Ms. or. oct. 987 (CLM 24), alongside a parchment stay. 411 The fragments provide significant insights into the binding technique, enabling its classification as Typology 4B (Figure 87).



Figure 87. A parchment stay, an unidentified leather fragment and the remnant of a tacket from Berlin, Staatsbibliothek zu Berlin – Preußischer Kulturbesitz, Ms. or. oct. 987 (CLM 24). Source: Buzi 2014b, plate 5a.

A further codex whose binding can be classified as a Typology 4B is Dublin, CBL, BP II (TM 61855). The codex has been repaired over time and traces of subsequent sewing are visible in the form of sewing holes in the leaves. It does not preserve any remnants of the binding, but the stains left on a double leaf together with sewing holes, help identify the former binding typology as belonging to the Typology 4B.⁴¹²

In occasion of the study of the construction and contents of BP II (TM 61855),⁴¹³ Brent Nongbri realised a model of the structure proposing a possible binding of the codex, involving two tackets sewn to a single leather spine strip, with knots tied on the outside (Figure 88). As Nongbri acknowledges, this is a hypothetical reconstruction as the material evidence are scarce.

⁴⁰⁸ Facsimile NHC II 1974, Pl. V.

⁴⁰⁹ Facsimile NHC II 1974, xiii.

⁴¹⁰ Facsimile NHC II 1974, xiii.

⁴¹¹ Buzi 2014b, 215.

⁴¹² See CBL digital collection, https://viewer.cbl.ie/viewer/image/BP_II_ff_14_91/1/LOG_0000/.

⁴¹³ The result of which are presented in Nongbri 2022.



Figure 88. Model of a possible binding of Dublin, CBL, BP II (TM 61855) realised by Brent Nongbri. Source: https://earlyhistoryoftheco-dex.com/author/bnongbri/.

Another example of this technique can be observed in the Crosby-Schøyen Codex (CLM 42) which is the earliest known complete text of Jonah and 1 Peter. This papyrus codex, dated to the first half of the fourth century, is slightly wider than it is tall, measuring 147 mm in height and 159 mm in width. The papyrus leaves exhibit multiple sets of sewing holes, indicating that the codex underwent repairs over time.⁴¹⁴

Currently, the leaves are separated and housed individually. However, an early photograph is particularly noteworthy as it depicts the codex in its pristine condition before it was disassembled (Figure 89). According to William H. Willis's description of the codex, the initial, now lost, and final six leaves were stubbed singletons and blank. The single quire was sewn to the stubs and a leather spine strip with a thick cord 'with a single vertical loop'. Inside the quire, the leaves were protected from pulling over by a parchment stay, and the cover likely was not provided.

Yet, in the photograph, the single-quire codex appears to be tacketed at four sewing stations, a detail confirmed by the arrangement of holes in the leaves. The photograph also suggests that there were two leather stays and since the knots of the tackets' threads were not visible on the spine, they must have been knotted inside. The codex would have shown a binding structure of the type presented in Figure 86b.

It is possible to make a further consideration. The absence of a cover suggests that this might have been an intermediate step before adding a cover, possibly by mounting it over boards created by pasting together the first and last blank leaves, as was done with the codex in Berlin, Staatsbibliothek zu Berlin – Preußischer Kulturbesitz, Ms. or. oct. 987 (CLM 24).

⁴¹⁴ See the digitised leaf at https://www.schoyencollection.com/(...)/crosby-schoyen-codex-ms-193.

⁴¹⁵ Willis 1961, 387.

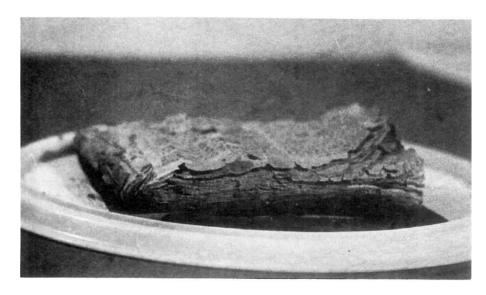


Figure 89. Early photograph of Crosby-Schøyen Codex (CLM 42) before dismembering. Source: Willis 1961, Fig. 1.

Boards

The boards are composed of blank papyrus sheets, but as mentioned several times, they also incorporate reused sheets from discarded manuscripts.⁴¹⁶ These boards are thus defined as papyrus laminate boards.

To date, three methods have been identified for the construction of boards in Coptic binding of Typology 4B. The first technique involves preparing the pieces for the upper and lower boards separately. These pieces are then covered with leather, resulting in a binding with rigid upper and lower covers but a flexible spine. The solution is found in NHC I, NHC VI, and NHC VII.

NHC IX had a slightly different construction method, according to the description given in its facsimile edition. The upper and lower boards were prepared separately, but after the first layer of papyrus laminates, the extensions of the leather spine strip were pasted over them. The final laminate layers of the boards were then added, and the completed board was finally covered with leather. The second method involves forming a continuous layer of laminate papyri, which is then wrapped around the quire while still damp, allowing it to take shape. Once formed, it is covered, resulting in a more rigid structure at the spine with some degree of stiffness. This method has been observed in NHC III and NHC V. A third method appears to have been used with Berlin, Staatsbibliothek zu Berlin – Preußischer Kulturbesitz, Ms. or. oct. 987 (CLM 24). Hugo Ibscher, who took care of the conservation of the codex, affirmed:

Der koptische Papyruskodex der Berliner Staatsbibliothek, der noch im Einband saß, als ich ihn zur Konservierung erhielt, umfaßt 40 Doppelblätter und einige Einzelblätter, während die äußeren 6 Doppelblätter zusammengeklebt den Buchdeckel ergaben.⁴¹⁷

⁴¹⁶ See this dissertation, 1.2.1 and 2.3.3 for details on the process.

⁴¹⁷ The Coptic papyrus codex of the Berlin State Library, which was still in its binding when I received it for conservation, comprises 40 double sheets and some single sheets, while the outer 6 double sheets, glued together, formed the book cover (Ibscher 1940; translation mine).

This note illustrates how the first six and last six leaves of the single quire—which were blank—were bound together and glued to form the papyrus laminate boards, which was subsequently covered with leather. 418

Cover

The preserved covers are too few to allow for a comprehensive discussion. Therefore, it is only possible to offer a representation of the specific cases reflected in the bindings of Nag Hammadi.

The laminated papyrus boards are covered with a layer of leather, which is glued onto them. 419 Once stretched, the leather is turned over the edges of the boards, forming the turn-ins. The overlapping of the turn-ins at the corners creates the mitres.

In certain Nag Hammadi codices, there is an extension of the cover from the upper board. In this instance, the cover extends into a flap that does not form a turn-in. Therefore, to cover the exposed edge of the board, an edging strip is added. This strip is glued to the board on the inside of the cover, folded, and then adhered to the inner surface of the board. The flap can have a pointed (NHC II, NHC VII) or a rectangular (NHC VI; NHC VIII) shape.

The turn ins are usually regularly and neatly cut but in one instance NHC XI is particularly evident their irregular shape. Likely an untrimmed piece of leather was used for the purpose. The turn-ins are fixed to the board simply glued or knotted (NHC II, NHC IX, NHC X). When making turn ins, notches, that is V-shaped cuts in the leather covering, can be made to ease the fold of the leather cover (NHC III, NHC VI, NHC VII) which result in a less bulky structure.

As regards decoration, if present, it is minimal. The manuscript Città del Vaticano, BAV, Hanna papyrus 1 (TM 61743)⁴²⁰ is a single-quire papyrus codex dated between the late third and the early fourth centuries, containing the gospels of Luke and John in Greek. While it has been dismembered and the leaves are housed individually, a fragment of the leather cover over the papyrus boards has been preserved. The fragment does not contain any features and it seems it bore no decoration on its surface. The absence of decoration is shared also be some of the Nag Hammadi codices.

Other cover present, despite modest, a decoration in tooled intersecting lines. It is the case, for example, of Berlin, Staatsbibliothek zu Berlin – Preußischer Kulturbesitz, Ms. or. oct. 987 (CLM 24).

The far more refined blind tooled decoration is that of Berlin, Staatliche Museen, P. 8502 (CLM 731) consisting in blind-tooled lines crossing vertically, horizontally and diagonally. The space is filled in with impressions of three different single tools. 421 On the upper cover, at the bottom right was found the following owner's note in Coptic: ZAXAPIAC APN ABBA, 'Zacharias, Archipresbyter (or Archimandrites), Abbot. 422 However, this decoration was not meant specifically for the codex it binds since the cover has been reused, cut and adapted to the size of a smaller single-quire papyrus manuscript compared to the original. The slits cut through the

⁴¹⁸ For a discussion of the note see Varian Readings, https://brentnongbri.com/(...).

⁴¹⁹ Concerning the Nag Hammadi codices, the covers are often said to be made of goatskin but are actually made of sheepskin. See Robinson 1975, 172.

⁴²⁰ A complete digitisation is available in DigiVat, https://digi.vatlib.it/view/MSS_Pap.Hanna.1(Mater.Verbi).

⁴²¹ Krutzsch and Poethke 1984, 38, Abb. 2.

⁴²² Such note, however, is now hardly readable, even by means of infrared images (personal communication of Przemysław Piwowarczyk to Paola Buzi, 31.01.2020).

cover testify to the previous fastening, belonging to the 'paired ties' type, of the previous larger codex. 423

Fastening

Only two specimens other than the Nag Hammadi codices have been preserved bearing information regarding their fastening system.

Berlin, Staatsbibliothek zu Berlin – Preußischer Kulturbesitz, Ms. or. oct. 987 (CLM 24)does not preserve the fastening but four holes found symmetrically on the upper and lower covers provide evidence of the former presence of leather fastenings. As shown in early photographs, the leather fastenings, pierced through the boards, were held in position by pasting patches of papyrus scraps onto their extensions. The lower cover still retains a fragment of the bottom external leather fastening. Werner Kiessig created a modern leather cover based on the model of the original one, reproducing the fastening as 'paired ties' type.

The Nag Hammadi codices also present a fastening system of the 'paired ties' type, fixed to the boards with various methods. Some ties are passed simply through slits in the boards, and to prevent them from slipping out when pulled, they are made larger at the end inserted through the board. These ends are positioned just below the turn-ins and pasted on the inner side of the board (NHC I, NHC IV). Other ties feature a small piece of material inserted into them. Some others are knotted through the turn-ins (NHC III, NHC VI, NHC IX, NHC X).

The Nag Hammadi codices also include an interesting feature: the flap is equipped with a tie sewn or pasted to its tip, which wraps around the codex to hold it closed (NHC IV, NHC VI).

Notes

Endbands, spine lining, and other ties are absent.

Table 16 presents a list of codices that either currently exhibit or are presumed to have exhibited binding of Typology 4A, inferred from the pattern of sewing holes and other material evidence, such as remnants of the boards, cover, and glue. The binding is characterized by non-linking sewing through the fold, a tacket, through single quires bearing a literary text. The manuscripts are listed in chronological order. For each codex are provided the TM and the CLM identification numbers, the shelfmark, the date—based on the data in Trismegistos or PAThs—and the textual content.

⁴²³ For a detailed description of the cover see, Krutzsch and Poethke 1984.

Table 16. List of codices with binding of the Typology 4A.

TM	CLM	Shelfmark	Date	Content			
61855	-	Dublin, CBL, BP II		Bible			
61743	-	Città del Vaticano, BAV, Hanna papyrus 1	Vaticano, BAV, Hanna papyrus 1 275–325 Gospels of Luke a John				
107771	42	Oslo, The Schøyen Collection, MS 193 1–136	301-350	Bible and patristic			
		(Crosby-Schøyen Codex)		works			
		Dublin, CBL, Cpt. 2026 127-128 (Crosby-Schøyen Codex)					
61594	-	Cologne, Papyrussammlung, P. 904	350-400	Menander			
		Cologny-Geneve, Fondation Martin Bodmer, P.Bodmer M					
		Durham (NC), Duke University, P. 775					
107741	662	Cairo, Coptic Museum, NH 10554 (NHC I)	301-400	'Gnostic' works			
		Cairo, Coptic Museum, NH 10589-10590 (NHC I)					
		Cairo, Coptic Museum, NH 11597 (NHC I)					
		Cairo, Coptic Museum, NH 11640 (NHC I)					
107742	663	Cairo, Coptic Museum, NH 10544 (NHC II)	301-400	'Gnostic' works			
107743	664	Cairo, Coptic Museum, NH 4851 (NHC III)	301-400	'Gnostic' works			
	New Haven (CT), Beinecke Rare Book & Manuscript Library,						
		P.CtYBR inv. 1784424 (NHC III)					
107744	665	Cairo, Coptic Museum, NH 10552 (NHC IV)	301-400	'Gnostic' works			
107745	666	Cairo, Coptic Museum, NH 10548 (NHC V)	301-400	'Gnostic' works			
107746	667	Cairo, Coptic Museum, NH 10549 (NHC VI)	301-400	'Gnostic' works			
107747	668	Cairo, Coptic Museum, NH 10546 (NHC VII)	301–400 'Gnostic' works				
10748	669	Cairo, Coptic Museum, NH 10550 (NHC VIII)	0 (NHC VIII) 301–400 'Gnostic' works				
107749	670	Cairo, Coptic Museum, NH 10553 (NHC IX)	301–400 'Gnostic' works				
107750	671	Cairo, Coptic Museum, NH 10551 (NHC X)	301-400	'Gnostic' works			
107751	672	Cairo, Coptic Museum, NH 10547 (NHC XI)	301-400	'Gnostic' works			
107765	731	Berlin, Staatliche Museen, P. 8502	401-500	Apocrypha			
107968	24	Berlin, Staatsbibliothek zu Berlin – Preußischer Kulturbesitz, Ms. or.	401-500	Bible			
		oct. 987					

3.3.2.2. Typology 4B

Typology 4 refers to modest booklets of non-literary content composed of a single quire, made from either double leaves or stubbed singletons. These are single leaves with a stub, that is an extension of the inner margin, forming a ply that is pierced for binding. The leaves are held together by simple tackets made from cheap materials. A list of codices with bindings of Typology 4B is provided in Table 17. The list is not exhaustive, there are likely many more codices with this kind of binding, but they have gone unnoticed due to their lack of exceptional features, such as decorative covers, or sometimes even covers at all.

Dating

Although census specimens are too few to create a solid statistical figure on which to base any claim, it is plausible to think that this type of binding has persisted over the centuries as Typology 3 because of its simplicity of execution and its cost-effectiveness.

Context of production and use

This typology of binding is typically found on texts intended for practical use, meant to be consulted and used for work, study, or personal devotion rather than for display. The identified specimens fall into this category, as they were clearly designed for practical application rather than as items for public exhibition.

⁴²⁴ A digitization of the leaf is available at https://collections.library.yale.edu/catalog/33164560.

Binding features

Typology 4B comprises bindings made with simple and fast methods using low-cost materials. For example, the parchment booklet Heidelberg, Heidelberg Library, P. Heid. Inv. Kopt. 686 (TM 100022) (211 x 135 mm) dated by its colophon to 965 CE, and containing magical formularies in Coptic, 425 was written on a reused writing support: it is a parchment palimpsest where the underlying text is clearly visible and has been rotated 90 degrees to the right (Figure 90). The booklet is formed by stubbed singletons and double leaves, whose size correspond to the size of half of the original double leaf. 426

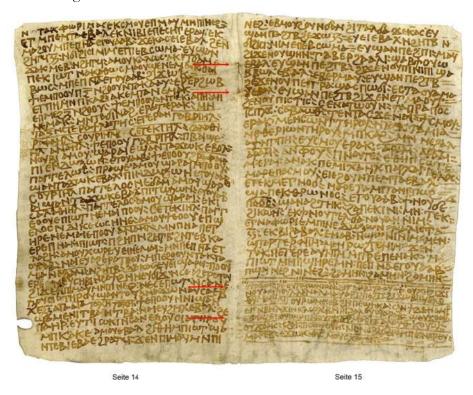


Figure 90. Position of sewing stations and remnant of a leather/alum tawed skin tacket on the parchment palimpsest Heidelberg, Heidelberg Library, P. Heid. Inv. Kopt. 686 (TM 100022) Source: Institut für Papyrologie, Universität Heidelberg, https://digi.ub.uni-heidelberg.de/diglit/p_kopt_686//0014.

Sewing

The tackets are realized by piercing holes at a close distance in the fold of the quire, from the inner side to the outside, and knotting the end of the thread on the spine fold of the quire.

The material of the sewing thread can vary. For instance, Heidelberg, Heidelberg Library, P. Heid. Inv. Kopt. 686 (TM 100022) uses a strip that appears to be leather, or alum tawed skin (Figure 90). Ann Arbor (MI), University of Michigan Library, P. 926 (CLM 1747)⁴²⁷ is a papyrus

⁴²⁵ For further information on the text, see Kyprianos M166. Kyprianos is a database of ancient ritual texts (https://www.coptic-magic.phil.uni-wuerzburg.de) by the project The Coptic Magical Papyri: Vernacular Religion in Late Roman and Early Islamic Egypt (Excellent Ideas programme, research group leader Korshi Dosoo).

⁴²⁶ The manuscript is fully digitized and available at Universitätsbibliothek Heidelberg, digitale Bibliothek,

https://digi.ub.uni-heidelberg.de/diglit/p_kopt_686/.

⁴²⁷ The digitisation of a folio is available at University of Michigan library digital collections, https://quod.lib.umich.edu/a/apis/P.Mich.inv.%2520926 and a double leaf with the strand cord at the University of Michigan Library online exhibition 'Puzzle Me This', https://apps.lib.umich.edu/online-exhibits/exhibits/show/puzzle-me-this-(...).

school exercise book in Coptic measuring 270 mm in height and 175 mm in width, dated to the fourth century. Despite Julia Miller informs that the double leaf she examined is too damaged to see 'a pattern of pierced sewing or tacketing holes', Elinor Husselmann affirmed that, in 1922, when the manuscript was acquired, it was a well preserved a single quire of eight folios and four of them were:

sewed in the middle line with a single loop of light brown two-strand cord, 4,5 cm long and 9 cm from the bottom of the page, tied at the back with a rather elaborate knot.⁴³⁰

Another instance representing a sewing with a different material is Ann Arbor (MI), University of Michigan Library, Ms. 136 (CLM 4574), a single-quire codex formed of four parchment double leaves measuring 124 mm in height by 105 mm in width. The manuscript is dated to the fourth century CE and contains magical formulary and medical recipes in Coptic and Greek.⁴³¹ The manuscript still preserves two loops of S-ply thread, binding the leaves together. The holes and tears on the leaves show that the manuscript was sewn with two tackets in the centre of the leaves and two tackets pierced the quire at the head and tail (Figure 91).

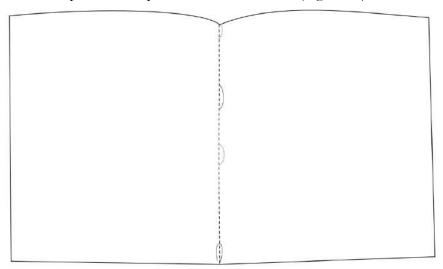


Figure 91. Line drawing reconstructing the sewing structure of Ann Arbor (MI), University of Michigan Library, Ms. 136 (CLM 4574). The tackets that have not been preserved have been reconstructed with dotted lines. Drawing mine.

Although incomplete, it can be hypothesized that manuscript Dublin, CBL, BP XIII (TM 61999) had a binding similar to the one just described. Four double leaves have been preserved (217 mm x 370 mm), containing the Psalms in Greek. The manuscript is densely written without leaving margins, occupying the entire available writing surface. Furthermore, the script is 'very legible but not particularly elegant.' In the upper portion of the leaves, two sewing holes are visible, while the lower portion has not been preserved, but it is likely that another pair of holes was present. On the double leaf BP XIII.4, the thick S-ply thread still pass through the holes and its ends are knotted on the opposite side of the leaf (Figure 92).

⁴²⁸ For early information of the manuscript, see Husselman 1942, 8, 12, 20 and Husselman 1947.

⁴²⁹ Miller 2015, 208.

⁴³⁰ Husselman 1947, 129–130.

⁴³¹ See Kyprianos M128. For a detailed study of the codex see Zellmann-Rohrer and Love 2022.

⁴³² The digitised leaves are available in CBL digital collection, https://viewer.cbl.ie/viewer/search/-(...)/random_813098627/-/.

⁴³³ Pietersma 1978, 2.



Figure 92. Tacket with knot on Dublin, CBL, BP XIII (TM 61999).

London, BL, Or. 6034 (TM 86376) is a papyrus account book, dated to 546–547 CE. This codex is composed of a single quire containing twenty-seven leaves, some of which are double leaves, while many others are stubbed singletons. Measuring 298 mm in height and 250 mm in width, it was described early on by Walter E. Crum as being sewn with two small leather thongs that pierced the quire at the head and the tail. However, the manuscript has not been directly examined or digitized, so further information is limited to Crum's early description.

Cover

Typology 4B bindings typically involve only tacketing and lack other elements, like a hard cover. For example, the editors of the text of Ann Arbor (MI), University of Michigan Library, Ms. 136 (CLM 45749 hypothesize that, the first and last blank leaves could have served as upper and lower covers. The presence of a vertical and horizontal crease on the leaves testifies to the fact that the quire was folded into four, making the presence of a hard cover unlikely.

However, this is not always the case. For example, Stockholm, Royal Library, P. Holm Royal Dep. 45 (TM 64429) is a single-quire papyrus codex (297 mm x 169 mm) containing magical formulae and alchemical recipes. The manuscript, written in Greek and dated to the fourth century, was edited by Otto Lagercrantz, who noted its textual similarity to AMS 66 (TM 61300). Unfortunately their binding cannot be compared since the leaves of both manuscripts are individually housed between glass panes and only blank leaves can be associated as covers of AMS 66.

 $^{^{434}}$ For a description of the manuscript and its content, see Crum 1905, 445–450 (= n° 1075).

⁴³⁵ Zellmann-Rohrer and Love 2022, 5. The text contains also the facsimile of the codex.

⁴³⁶ See Kyprianos M159 for full list of texts in the manuscript.

⁴³⁷ See Lagercrantz 1913, 42.

The digitization of Stockholm, Royal Library, P. Holm Royal Dep. 45 (TM 64429) reveals a cloth wrapper with visible turn-ins, which can be associated with its cover (Figure 93). This cover likely wrapped around the blank papyrus board also present in the digitization.



Figure 93. Cloth cover of Stockholm, Royal Library, P. Holm Royal Dep. 45 (TM 64429). a) Verso. b) Recto.

Cairo, Egyptian Museum, CG 10758 (TM 64999) is a single-quire papyrus codex consisting of seven leaves, measuring 315 mm in height and 275 mm in width, dated to the sixth century. The manuscript was discovered in the necropolis of Achmim, ancient Panopolis (PAThs ID 24), in northern Upper Egypt. It contains mathematical tables that attest to the teaching of arithmetic calculus among the Greeks, written recto-verso on six leaves, while the rest of the quire was left blank.

Information about the binding comes from Urbain Bouriant, who edited the text and noted that 'la couverture etait de cuir dur' (the cover was made of hard leather) and adhered completely to the leaves. Additionally, the catalogue of Greek papyri in the Cairo Museum indicates that the leather cover was stiffened with papyrus boards. 440

Due to the dismembering of the codex, the typology of its binding cannot be determined with certainty, but the absence of visible holes along the inner margin of the leaves suggests that the codex likely had sewing passing through the central fold. As a single quire, it probably had a binding of Typology 4. Given the lack of visible traces of glue on the leaves, which would indicate the former presence of stays, and considering the non-literary content of the manuscript, it has been assigned to Typology 4B.

Perhaps the most notable example of a Typology 4B binding is London, BL, Papyrus 1442 (TM 19869). As noted by Bell, the leaves were folded inside the cover, forming one large quire. The manuscript was found in modern Kom Ishgau, ancient Aphrodito (TM Geo 237), in Upper

⁴³⁸ A full digitisation of the codex is available at https://www.loc.gov/item/2021668051.

⁴³⁹ Bouriant 1892, 3.

⁴⁴⁰ Grenfell and Hunt 1903, 97 (= n° 10758).

Egypt. Remarkably, the decorated cover has been preserved. Theodore C. Petersen describes this ink-decorated cover as being made of red-dyed calfskin, featuring a central medallion with a five-petaled lanceolate flower inscribed in a circle.⁴⁴¹

The cover is stored separately in the Department of Western Antiquities and can only be accessed with the permission of the department's curator. Although the cover is detached from the manuscript, it is well-preserved; papyrus fibres are visible on its verso, suggesting that the cover was laid on papyrus boards. The spine is also preserved, revealing several holes running through it, indicating multiple successive sets of holes. There is no trace of glue on the leaves, and given the non-literary nature of the text, it has been assigned to Typology 4B, as in the previous case.

Table 16 lists the codices attributed to binding Typology 4B, characterized by non-linking sewing through the fold, a tacket on a single quire bearing a text for easy and quick reference. The manuscripts are listed in chronological order. For each codex are provided the TM and the CLM identification numbers, the shelfmark, the date—based on the data in Trismegistos or PAThs—and the textual content.

TM	CLM	Shelfmark	Date	Content
61999	-	Dublin, CBL, BP XIII	301-400	Psalms
64429	-	Stockholm, Royal Library, P. Holm Royal Dep. 45	301-400	Magical formulary; Alchemy
92874	4574	Ann Arbor (MI), University of Michigan Library, Ms. 136	301-400	Alchemy; Medicine
107875	1747	Ann Arbor (MI), University of Michigan Library, P. 926	301-400	School exercises
86376	-	London, BL, Or. 6046	546-547	Account
64999	-	Cairo, Egyptian Museum, CG 10758	501-600	Mathematics
19869	-	London, BL, Papyrus 1442	716–717	Tax register
100022	-	Heidelberg, Heidelberg Library P. Heid. Inv. Kopt. 686	951-1000	Magical formulary

3.3.2.2. Typology 4C

Typology 4C encompasses a small group of three manuscripts in the Morgan collection which according to Theodore C. Petersen showed a sewing through the fold as preliminary sewing.

Dating

The three manuscripts belong to the collection of manuscripts found in Hamuli (PAThs ID 99), the most numerous collection of Coptic bindings. In the absence of further data in the manuscript the manuscripts are dated 'based on the earliest and the latest dated colophons from Phantoou (PAThs ID 99) (cf. CLM 237 [822/823 CE] and 233 [913/914 CE])'. One manuscript in this group is dated by its colophon to the year 855 CE.

Context of production and use

The sewing passing through the fold has the function to keep together the leaves before the definitive chainstitch sewing. It likely was not a sewing meant to link one quire to the other but just a preliminary sewing to be substitute with the definitive binding of Typology 4B.

⁴⁴¹ Petersen 1954, 56 and fig. 24.

⁴⁴² See PAThs Atlas, the section 'dating' of CLM 232 compiled by Francesco Valerio, https://atlas.paths-erc.eu/manuscripts/232.

Binding features

According to Theodore C. Petersen, a few manuscripts from Hamuli had, beside the set of holes used for the principal sewing, an unused set of two holes along the inner margin. He suggested that these holes might have been traces of preliminary sewing through the fold, aimed to keep the leaves of a quire together, before they were bound in the final sewing.

However, in the available digitisations, any hole along the margin that might have been visible in Petersen's time is no longer present. Therefore, this hypothesis remains speculative.

Table 18 lists manuscripts whose binding typology can be attributed to the Typology 4C, a non-linking sewing through the fold, a tacket, with the function of preliminary sewing. Manuscripts are listed in chronological order, providing for each TM and CLM identification numbers, shelfmarks, date—based on the data in Trismegistos or PAThs— and textual content.

Table 18. List of manuscripts belonging to binding Typology 4C.

TM	CLM	Shelfmark	Date	Content
-	232	New York (NY), The Morgan Library and Museum, M581	801-925	Hagiography
-	243	New York (NY), The Morgan Library and Museum, M595	855	Hagiography and homilies
	254	New York (NY), The Morgan Library and Museum, M604	801-925	Shenoute

3.4. Codices with uncertain binding typology

The paucity of preserved Coptic bindings is associated with the absence of a preserved cover. However, this thesis argues that covers were not always present in Coptic bindings, and that the sewing, rather than the cover, is the fundamental element in defining the binding. Moreover, if a cover was present and has not been preserved, the codex might still bear traces of the binding in the form of sewing holes, stains left by leather stays or tackets, and glue. In most cases, evidence of the previous binding has been lost due to invasive operations aimed at safely housing the leaves and facilitating the handling and reading of the text. An example is Paris, BnF, Supplément grec 574 (TM 64343) a papyrus codex dated to the first half of the fourth century, known as 'the great magical papyrus of Paris', containing magical formularies in Greek and Old Coptic. The codex comprises thirty-six papyrus leaves, measuring 300 mm in height and 130 mm in width, once eighteen double leaves arranged in a single quire. Based on the nature of the text, and the book format, its binding might have belonged to Typology 4B but as Figure 94 shows, the leaves have been trimmed to a regular size, possibly excluding the non-written margins. Consequently, it is impossible to detect signs of the holes left by the thread.

⁴⁴³ See Kyprianos, M3.

⁴⁴⁴ A full digitisation is available in Gallica, https://gallica.bnf.fr/ark:/12148/btv1b525030475.



Figure 94. Trimmed leaf to a regular size. Paris, BnF, Supplément grec 574 (TM 64343), f. 26v. Source: https://gallica.bnf.fr/(...)/f53.item .

There are further examples of leaves from codices that are impossible to categorize into a binding typology due to invasive operations. The following paragraphs describe some of these examples, which are just a few among many, but are still useful in demonstrating the methodology applied to tentatively classify these bindings into a specific binding typology.

Giessen, Universitätsbibliothek, P. Giss. Bibl. 30 (TM 64055) is a third century papyrus leaf containing an allegorical interpretation of the Genesis. 445 The leaf exhibits a series of holes along the inner margin, indicative of stitching through the margin, and therefore of a binding Typology 3. Upon examining the margin of the single folio, it appears possible that there were holes along the fold. Based on the early date of the manuscript and the literary content it could be classified in Typology 2A if the double leaf belonged to a multi-quire codex or to Typology 4A if single-quire codex. However, since no double leaves are preserved, it is not possible to make a definitive assessment.

The classification is elusive also for three papyrus codices from the Luxor complex in Eastern Thebes (PAThs ID 19) dated to the third and fourth centuries, containing magical and alchemical formularies in Greek. Leiden, RMO, AMS 66 (TM 61300)⁴⁴⁶ is a papyrus codex from the third or fourth century (300 mm x 170 mm). This codex contains a treatise on alchemy, including sections of Materia Medica, written in Greek. It consists of ten double leaves which,

⁴⁴⁵ For digitised images of the recto side, see http://bibd.uni-giessen.de/papyri/images/pbug-inv030recto.jpg and of the verso side, see http://bibd.uni-giessen.de/papyri/images/pbug-inv030verso.jpg.

⁴⁴⁶ The full digitisation is available at RMO, https://www.rmo.nl/collectie/collectiezoeker/(...)AMS+66.

according to the initial description by editor Conrad Leemans, were originally held together by 'tribus funiculis papyraceis' (three papyrus cords). Currently, the leaves are housed separately between glass panes. They show evidence of holes pierced through the margins and signs of sewing along the fold. This evidence makes it difficult to definitively determine the original binding typology of the codex. However, based on the nature of the text, it is plausible to hypothesize that the codex might have had a binding of Typology 3 or Typology 4B. Additionally, the codex includes blank leaves, which might have served as protective covers for the text as found in other bindings of Typology 4B.

Leiden, RMO, AMS 76 (TM 64446) is a fourth-century papyrus codex, containing a Greek magical formulary. The codex measures 270 mm in height and 160 mm in width. Currently, the leaves are housed separately between glass plates. According to an early description by the editor Conrad Leemans, the codex originally consisted of a single quire of seven double leaves and one leaf with a stub, all bound together by two papyrus strings at the upper and lower margins: Papyrus constat septem folii integris, (...) et uno dimidiato, quae omnia in libri forma compacta, duobus funiculis papyraceis superne et inferne colligata fuerunt. Due to the present state of conservation and the invasive interventions it underwent, it is challenging to determine the exact binding typology of the codex. The absence of holes along the inner margin and the nature of the textual content suggests a Typology 4B binding, which involves sewing through the fold a single quire. Leemans noted that the first blank leaf likely served as a cover, a feature commonly found in bindings of Typology 4B.

London, BL, P. Lond. 46 (64368) is a fourth century handbook of magic, written in Greek, and measuring 284 mm in height and 123 mm in width. It was a single-quire codex of eight double leaves with '2 presumably blank pages lost at the end'. 450 The sewing has not been preserved and the leaves have been mounted separately between glass panes, making it difficult to determine the typology of the binding. However, the absence of sewing holes through the margin and the nature of the text lead to the classification of the binding as belonging to Typology 4B.

A further example to understand the methodology of attribution to a binding Typology of uncertain classification is the Coptic Apocalypse of Eljah, Dublin, CBL, Cpt 2018 (CLM 1022), also known as Chester Beatty Library, Ac 1443 or Ac 1493 which consists of ten papyrus leaves which probably formed a single quire. Although the text ends abruptly, it is not known if the codex originally contained additional leaves. No double leaves are preserved, and there are no traces of holes along the inner margin, which suggests the codex likely had sewing through the fold. However, in the absence of a complete text, it is impossible to exclude the possibility that the missing text occupied different quires, indicating a multi-quire structure. Since emphasis was placed on the text, no information regarding the presence of a binding was noted by Arthur F. Shore's summary of the Apocalypse of Elijah papyrus leaves in 1958 or in Albert Pietersma's 1981 edition of the text. The identification of leather fragments belonging to a binding was made possible by a handwritten note from Shore, which accompanied the fragments preserved

⁴⁴⁷ Leemans 1885, 199.

⁴⁴⁸ For further information see, Kyprianos M161.

⁴⁴⁹ Leemans 1885, 77.

⁴⁵⁰ See Kyprianos, M151.

⁴⁵¹ See Pietersma 1978, the edition includes also the full facsimile of the papyrus leaves.

until the 1990s in a tin box at the British Museum.⁴⁵² Based on the examination of the binding fragments, which bear the shelfmarks Pap 1991.16 and Pap 1991.58 (Figure 95) it is possible to state that if the manuscript had a multi-quire structure, its binding typology would fall into Typology 2A, characterized by chainstitch sewing with periodic fold pattern and a leather cover over papyrus boards. If the codex was of single-quire type the binding would be of Typology 4A.⁴⁵³





Figure 95. Fragments of leather cover over papyrus laminate boards of the Coptic Apocalypse of Eljah, Dublin, CBL, Cpt 2018 (CLM 1022). a) Pap 1991.16. b) Pap 1991.58. Source: photographs mine.

Table 19 lists manuscripts of uncertain binding typology which have been tentatively attributed to a binding typology based on the presence of sewing holes along the margin or the fold and the nature of the text. Manuscripts are listed in chronological order providing for each TM and CLM classification numbers, shelfmarks, date—based on the data in Trismegistos or PAThs—textual content, and the tentative attribution to a binding typology.

Table 19. List of manuscripts of uncertain binding typology.

TM	CLM	Shelfmark	Date	Content	Possible typology
64055	-	Giessen, Universitätsbibliothek,	201-300	Allegorical interpretation of the	3, 2A/4A
		P. Giss. Bibl. 30		Genesis	
61300	-	Leiden, RMO, AMS 66	201-400	Alchemy; Medicine	3/4B
64343	-	Paris, BnF, P. Bibl. Nat. Suppl. gr.	301-400	Magical formulary	4B
		no. 574			
64368	-	London, BL, P. Lond. 46	301-400	Magical formulary	4B
64446	-	Leiden, RMO, AMS 76	301-400	Magical formulary	3/4B
108402	1022	Dublin, CBL, Cpt. 2018	375-425	Apocrypha	2A/4A
		Dublin, CBL, Pap. 1991.16 and			
		1991.58			

⁴⁵² See Unkel 2022, 154.

⁴⁵³ For a description of the binding and binding fragments, see PAThs Atlas, CLM 1022.

3.5. Comparison between Coptic and Ethiopian sewing techniques

This section undertakes a typological comparison of Coptic and Ethiopian sewing techniques. This doctoral research has enabled a detailed study of Coptic bookbinding, by providing a privileged perspective and facilitating informed considerations on the comparison between Ethiopian and Coptic bindings. This topic has been explored in two published works:

Dal Sasso, Eliana 2023. 'Ethiopian and Coptic Sewing Techniques in Comparison', in Alessandro Bausi and Michael Friedrich, eds, *Tied and Bound: A Comparative View on Manuscript Binding, Studies in Manuscript Cultures*, 33 (Berlin, Boston: De Gruyter, 2023), 251–284.

Melzer, Sylvia, Hagen Peukert, Eliana Dal Sasso, Charles Li, Thomas Asselborn, and Ralf Möller 2023. 'Federated Information Retrieval in Cross-Domain Information Systems', *Proceedings of the Workshop on Humanities-Centred Artificial Intelligence* (CHAI 2023), (2023), 52–67.

And one forthcoming publication:

Dal Sasso, Eliana forthcoming. «Convergenze parallele: La tecnica di legatura copta ed etiopica a confronto», in *La legatura dei libri antichi. Storia e conservazione*, Studi di archivistica, bibliografia, paleografia, 8, Edizioni Ca' Foscari (Venice: forthcoming).

The following paragraphs summarize previous findings and introduce a significant consideration that emerged after the comprehensive typological study.

3.5.1. Motivations for comparative analysis

The necessity for the comparison between Coptic and Ethiopian sewing techniques from the widely held assumption that Ethiopian bookbinding evolved directly from Coptic bookbinding. Georgios Boudalis has clarified that the prominence of Coptic binding and its perceived influence on other traditions stem from the preservation of Coptic bindings in the favourable climate of the Egyptian desert, which has effectively conserved organic materials such as wood, leather, and papyrus over centuries. However, the notion of a significant similarity between Ethiopian and Coptic traditions persists in scholarly literature and has become ingrained in technical terminology, leading to the erroneous classification of the Ethiopian sewing technique as the Coptic sewing technique.

3.5.2. Caveats to the comparison

It is crucial to approach the comparison between Coptic and Ethiopic bookbinding traditions with caution due to the significant temporal gap between them. While Coptic binding traditions are documented until the thirteenth century, surviving specimens of Ethiopian bindings primarily date from the seventeenth century onwards. Therefore, it is imprudent to assume that these traditions remained static over time, as new techniques and features may have emerged.

The absence of preserved specimens dating back to late antiquity for Ethiopian bindings complicates direct comparisons. The closest reference would be the Abba Gärima Gospels, the

⁴⁵⁴ Boudalis 2017.

⁴⁵⁵ Dal Sasso 2023b, 251–254.

most ancient Ethiopian manuscripts known so far (sixth/seventh century),⁴⁵⁶ where the metal cover of Abba Gärima Gospel 1 is attached to a papyrus laminate board on which traces of a leather cover are visible.⁴⁵⁷ Furthermore, during the AICRAB conference *La legatura dei libri antichi. Storia e conservazione*, held at the Malatesiana library in Cesena (26th–27th October 2023), Nicholas Pickwoad informed me that old photographic reproductions of the Abba Gärima Gospels exist that may reveal fragments of thread, possibly representing the original sewing technique.

3.5.3. Comparing sewing techniques in Coptic and Ethiopian bookbinding

Both Coptic and Ethiopian bookbinding traditions employ chainstitch sewing techniques, yet in binding sewn on four sewing stations they diverge in the number of thread lengths between them. Both traditions, present a periodic fold pattern but in Ethiopian tradition, the thread is consistently double, whereas in Coptic tradition, it remains single. Historically, the Coptic chainstitch evolved from a periodic to a continuous form after the eight centuries, increasingly aligning with Islamic practices. In contrast, Ethiopian bindings show a periodic structure to the present day.

Figure 96 depicts the sewing diagram of a chainstitch on four sewing stations, sewn with independent thread lengths between two pairs of sewing stations in an Ethiopian binding. There are double-thread lengths between sewing station 1 and 2, and between sewing station 3 and 4 and none between sewing stations 3 and 4, resulting in a periodic fold pattern.

Figure 97 shows the resulting periodic fold pattern with double-thread lengths between sewing stations on an Ethiopic manuscript (Grottaferrata (RM), Biblioteca statale del monumento nazionale dell'abbazia greca di Grottaferrata, Crypt. Aet. 7).

⁴⁵⁶ For a discussion regarding the date of the manuscripts, see Bausi 2011.

⁴⁵⁷ Dal Sasso 2023b, 262–266. The papyrus board has been noted by Sean Winslow. See Winslow 2015, 249, 249, n.69.

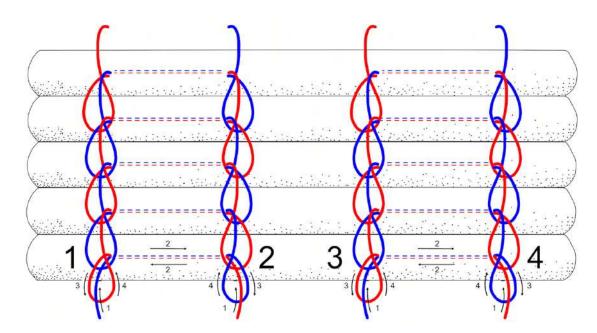


Figure 96. Sewing diagram of an Ethiopian binding on four sewing stations. Source: Drawing mine.



Figure 97. Periodic fold pattern of an Ethiopic manuscript sewn on four sewing stations. Grottaferrata (RM), biblioteca del monumento nazionale dell'abbazia greca di Grottaferrata, Crypt. Aet. 7). Source: Photograph mine.

Figure 98 depicts the sewing diagram of a chainstitch on four sewing stations, sewn with independent thread lengths between two pairs of sewing stations in a Coptic binding. There is a single-thread length between sewing station 1 and 2, and between sewing station 3 and 4 and none between sewing stations 3 and 4, resulting in a periodic fold pattern.

Figure 99 shows the resulting periodic fold pattern with a single-thread length between sewing stations on a Coptic manuscript (Barcelona, Arxiu Històric de la Companya de Jesús a Catalunya, P. Palau Ribes 181-183 = CLM 3956).

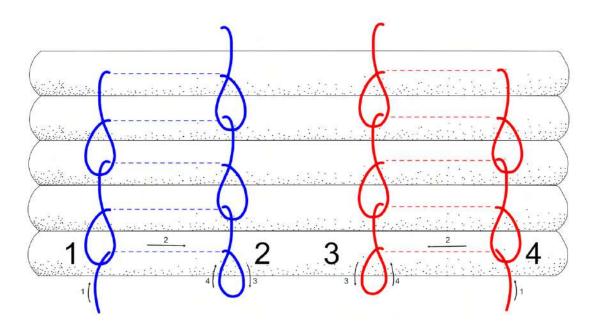


Figure 98. Sewing diagram of a Coptic binding on four sewing stations. Source: drawing mine.



Figure 99. Periodic fold pattern of a Coptic manuscript sewn on four sewing stations. Barcelona, Arxiu Històric de la Companya de Jesús a Catalunya, P. Palau Ribes 181-183 (CLM 3956). Source: Courtesy of Arxiu Històric de la Companya de Jesús a Catalunya.

However, it is notable that not all Ethiopian bindings adhere strictly to the periodic format; a small percentage exhibit a continuous structure with three sewing stations. Similarly, instances of Coptic bindings with three sewing stations using double threads have been observed, but further investigation is necessary to fully comprehend these variations and their relations.⁴⁵⁸

The comparative analysis underscores a fundamental difference between Ethiopian and Coptic bookbinding traditions, particularly in their threading structures across four sewing stations. Despite the perceived similarities, the first part of the study highlights that Ethiopian bindings typically feature double-thread lengths between sewing stations, whereas Coptic bindings utilise single-thread lengths.⁴⁵⁹

3.5.4. Evaluating cross-domain information systems

Today, research benefits from an unimaginable amount of data thanks to the proliferation of databases and the acquisition of images of manuscripts through various digitization projects. While the database on Coptic bindings created in Heurist contains just over 260 binding descriptions, the BM database includes more than 9,000 descriptions of Ethiopian bindings,

⁴⁵⁸ For the Ethiopian tradition see Dan Paterson's investigations in preparation for the conservation of Ethiopic manuscript MS 93 of the Thomas Kane Collection in the African and Middle Eastern Division of the Library of Congress (Paterson 2008).

⁴⁵⁹ Dal Sasso 2023b, 267–276.

although the level of detail varies significantly. However, there is still no efficient method to fully exploit this vast amount of data for comparative study purposes. Therefore, the idea of having an information system that allows for the comparative analysis of thousands of binding descriptions stored in different databases, possibly never directly examined by the researcher, with just a click, is undoubtedly an enticing prospect.

The study recently developed by the research group on information technologies at the University of Hamburg and presented at the third Workshop on Humanities-Centred Artificial Intelligence (CHAI 2023) has moved in this direction, achieving results with great potential for advancing the comparative study of binding techniques.

The system developed by the research group can use an algorithm to calculate the level of similarity between selected pairs of data contained in binding descriptions in different databases, such as Bm and Heurist, comparing pairs of values found in the descriptions of Ethiopian and Coptic bindings. To select data pairs, the process involves determining the correspondence between the descriptions. This process is more straightforward if the descriptions share the same terminology, are similarly structured, and describe the same characteristics.

Currently, the application of a comparative analysis between Coptic and Ethiopian bindings encounters significant difficulties. In fact, the only common elements in the descriptions of both traditions are the number of sewing stations and the page dimensions. However, this approach overlooks a fundamental aspect that only an expert in bindings could detect: the number of thread-lengths passing between the sewing stations.

This crucial information is not recorded in the data on Ethiopian bindings, but it is available in the descriptive database of Coptic bindings. Therefore, the current comparative analysis is distorted because it does not consider this key element.⁴⁶⁰

3.5.5. The contribution of the typological classification to the comparison

In conclusion, the comparative analysis highlights the fundamental differences and unique developments within the Coptic and Ethiopian bookbinding traditions. Despite some similarities, each tradition exhibits distinct characteristics reflecting their historical and cultural contexts. The highest point of similarity between the two traditions lies in the periodic book structure.

Thanks to this doctoral research, it is now possible to add further information. Although fundamentally different, both traditions share the periodic fold pattern found in Coptic bindings of Typology 2B, that is in use until the eighth century.

This suggests that Coptic and Ethiopian binding tradition shared a common technique but after the Arab conquest they did not follow the same evolutionary path. Coptic binding started a process of progressive Arabisation, mirroring changes of the society, 461 while Ethiopian Christian binding remained distinct until nowadays from the Islamic binding tradition, 462 so the culture of Christian Ethiopian society.

⁴⁶⁰ Dal Sasso forthcoming; Melzer et al. 2023.

⁴⁶¹ The idea that the binding reflects aspects of society has been presented by Mirjam M. Foot in The History of Bookbinding as a Mirror of Society (Foot 1998).

⁴⁶² For example, Ethiopian manuscripts are written on parchment, whereas Ethiopian Islamic manuscripts are written on paper. For the characteristics of Ethiopian Islamic bindings, and the intuition that the differentiation between Ethiopian Christian and Islamic boonbinding could be linked to 'issues of identities', see Regourd 2014.

4. The archival function of Coptic bindings

This chapter delves into the unique archival functions of Coptic bookbinding, going beyond its role in text preservation. It explores how the physical characteristics of Coptic bookbinding convey additional meaning, thereby enriching the text in a distinct manner.

The chapter is divided into two main sections (4.1 and 4.2). Since studies on the additional meanings conveyed expressly by Coptic bindings do not exist, section 4.1 introduces the instances from the Middle Ages, Renaissance, and subsequent periods that represent the starting point of this part of the research. The examples are grouped into three subsections, presenting in 4.1.1 how an archival logic can emerge from the examination of the binding features mentioned in book inventories, in 4.1.2 how the technique used to bind expresses information regarding the owner and in 4.1.3 how the decoration plays a crucial role in presenting the text.

Section 4.2 parallels the extensive research on later Western bindings, aiming to identify similar archival functions in the Coptic context. The section mirrors the precedent structure and is divided into three sub-sections. Subsection 4.2.1 presents the results deriving from the examination of inventories and catalogues; subsection 4.2.2 focuses on the information deriving from the binding technique, and subsection 4.2.3 is dedicated to studying the archival significance of decoration in Coptic bindings. This subsection is further divided to present how the decoration informs on the provenance (4.2.3.1) and the ownership (4.2.3.2) of a manuscript and present the result regarding the relationship between decoration and textual content (4.2.3.3).

4.1. Examples of the archival function of modern bindings

Extensive studies of bindings from libraries of the Middle Ages, Renaissance, and subsequent periods substantiate the thesis that bindings serve an archival function. These studies have enhanced our understanding of the additional messages conveyed through the materiality of bindings. However, there is a notable gap in the literature regarding similar studies on Coptic bindings.

This research, therefore, aims to investigate whether Coptic bindings exhibit similar archival functions as those identified in later bindings. The objective is to understand the role of Coptic bindings beyond the mere preservation of texts, specifically examining how they convey additional meanings and information. This exploration seeks to elucidate how the form and technique employed in the creation of Coptic bindings contribute to the enrichment of the manuscripts.

The cases presented in this section were selected for their exemplary demonstration of the archival function of bindings. They are included to illustrate the methods used to assess the archival role of Coptic bindings.

4.1.1. Inventories

For example, the materiality of bindings as instruments to define the content type of the codices is well demonstrated by how the colour of bindings, or specific parts thereof, was strategically employed to locate individual volumes or visually delineate sections of a library based on subject classification or language. The bibliophile T. Kimball Brooker scrutinized fifteenthand sixteenth-century inventories and noted that, 463 in at least some Western collections during the late Middle Ages and Renaissance, 464 there was a deliberate contemplation of this aspect, implementing a colour system to organise the book collection.

In his study, Brooker illustrated the colour coding system described in Renaissance treatises, like that written by Sebastian Brant (1490),⁴⁶⁵ and by the Italians Fulvio Pellegrino Morato (1535), Lodovico Dolce (1565) and Giovanni de' Rinaldi (1584). This method involved assigning specific colours to the covers of civil law books, thus denoting the nature of the texts they contained. For example, books forming part of the *Digesta*, a collection of law texts, were divided in three sections the *Digestum vetus*, the *Digestum infortiatum*, and the *Digestium novum*. According to the colour system, the *Digestum vetus*, the collection of most antique laws should have been bound in white leather, 'alba pelle', to signify the purity and natural simplicity. The *Digestum infortiatum* containing laws related to testaments, and hereditary matters, should be bound in 'nigra pelle', black leather. And the *Digestium novum*, dealing with criminal laws related to crimes such as homicide, should be bound in 'rubea et sanguinolenta veste', red leather.

The system of colour of bindings, as outlined in the inventories scrutinised by Brooker, was used in a range of libraries such as those within the papal palace and the Library at Avignon, libraries associated with French prelates and clerics, the private libraries of lawyers in Majorca, as well as various institutions and palaces.⁴⁶⁶

The presence of a colour code can also be discerned by directly examining the bindings of books from collections. For example, a colour code was in use in Pennerot de Granvelle's library to distinguish between book in modern and ancient languages. A similar system was adopted by Gian Battista Grimaldi in his library where the texts of ancient authors were bound in dark Morocco leather, while texts of modern authors were bound in red (Figure 100). 467

The inventories and the examples reveal a deliberate and conscious effort to manipulate the physical and material characteristics of binding, in this case using colour, to signify specific

⁴⁶³ The detailed study is published in Brooker 2006. I thank Federico Macchi for bringing this source to my attention.

⁴⁶⁴ It is important to note that this factor was not universally used, and there is no common consensus on the colour code. However, its mention is significant for the discussion.

⁴⁶⁵ The consulted edition is Brant 1508.

⁴⁶⁶ In appendix 2, Brooker reports entries describing the colour of book covers of the *Corpus Juris Civilis* in the inventories of: the Papal Palace and Library at Avignon (Pope Urban V) – 1369, Cardinal Goffredo da Alatri – 1287, Dino da Radicofani, doctor of decrees, patriarch of Grado, archbishop of Genoa, archbishop of Pisa – 1349, Donusdeo di Malavolti bishop of Siena – 1349, Philippe d'Alençon bishop of Beauvais, archbishop of Rouen, cardinal – 1367, Gaucelme de Déaux bishop of Nimes, papal treasurer, bishop of Maguelone – 1373, Franciscus Castilionis legum doctor of Perpignan – 1393, Ferran Valentí, legum doctor civis – 1476, Gaspar Çamela, notary – 1502, Vatican Library at the time of Sixtus IV – 1475, Federico da Montefeltro – 1482–1487, university of Ingolstadt, Faculty of Arts Library – 1492, Library of San Marco in Florence – 1499 or 1500. See, Brooker 2006, 83–88.

⁴⁶⁷ For further examples see Brooker 2006.

categories. This strategic approach served to enhance both the visual and organisational elements of these noteworthy collections.

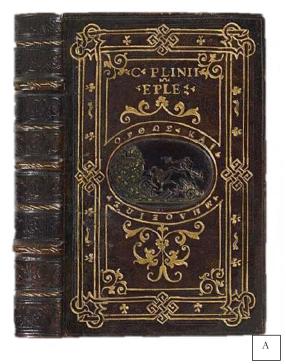




Figure 100. Binding with 'Apollo e Pegaso' medallion surrounded by the motto identifying Gian Battista Grimaldi's books. a) Book in Latin language bound in dark Morocco. Secundus, Caius Plinius, Epistolae, 1542; Oxford, Bodleian Libraries, Bodleian Library Broxb. 23.3, 1542. Source: https://digital.bodleian.ox.ac.uk/objects/8720e0f3-0cdd-4829-892e-5814814e3918/ b) Book in Italian language bound in red Morocco. Capella, Galeazzo, Commentarii delle cose fatte per la restituzione di Francesco Sforza secondo duca di Milano, 1545; London, British Library, Davis 766. Source: British Library digital images.

4.1.2. Technique

The technique employed in the execution of the binding serves as an additional characteristic that can convey messages regarding the classification of a book. This parameter becomes notably evident in examples of European Renaissance bindings.

In Renaissance Europe, the decision to equip a book with a specific binding technique was a deliberate act to convey a meaning related to the book's content and, more importantly, to its owner. Prime examples are the so-called *alla greca* bindings or Greek-style bindings. Although these bindings were crafted in Europe, they aimed to evoke distinctive characteristics of genuine Greek bindings, such as the rounded flat spine, grooved boards, and elaborate raised endbands protruding from them.

However, such features could have been obtained with expedients rather than authentic knowledge of the Greek binding technique. For example, the main difference between Western and Oriental binding traditions is that Eastern books are unsupported sewing structures. Due to a lack of knowledge or mistrust of unsupported structures, European bookbinders preferred to follow Western sewing techniques. Therefore, the smooth spine was often obtained by concealing the presence of sewing supports. Not infrequently, therefore, Greek-style bindings are hybrid structures where typical elements of Greek binding are fused with those of European

⁴⁶⁸ For a definition of unsupported sewing structures, see LoB, http://w3id.org/lob/concept/1703.

⁴⁶⁹ Gialdini 2017a, 43.

binding. A most elegant example is the binding of a copy printed on parchment of the first volume (1495) of the five-volume edition of Aristotle's selected works by Aldus Manutius. The book, once belonging to the collector, ambassador, and historian Diego Hurtado de Mendoza (1500–1558), is now part of the collection of the Monasterio de San Lorenzo de el Escorial in Madrid (Esc. 54, IV. 3. 8) (Figure 101).







Figure 101. Hybrid Greek-style binding; Madrid, Real Biblioteca del Monasterio de San Lorenzo de el Escorial, Esc. 54, IV. 3. 8. a) Spine with raised sewing supports. Raised endband. Source: Gialdini 2017b, 51. b) Greek text printed on parchment and illuminated. Source: Gialdini 2017b, 50. c) Detail of boards with grooved edges and elaborated endband. Source: Gialdini 2017b, 52.

Greek-style bindings were mostly associated with Greek texts in the collections of the humanists. However, the fact they could present hybrid features shows that the emphasis was not solely on their authenticity as Greek bindings. Instead, it mattered more that they appeared authentically Greek to a particular audience capable of decoding and comprehending them as a symbol of the book owner's alignment with both classical culture and Byzantine power. For instance, the Greek book collection in Fontainebleau of Francis I, king of France from 1515 to 1547, was adorned with Greek-style bindings which had been gathered not for personal taste or interests, rather as a result of a specific political program, which the king could discuss when hosting visiting ambassadors.

Different identification systems were also combined. For example, Johan Jakob Fugger of Augsburg used the binding technique and the colour of the binding as aids for the identification of texts. From 1548 to 1556, Fugger ordered a large number of books in Greek, Hebrew and Latin and had them bound. The Latin books were bound according to the Western technique, while the Greek and Hebrew books were both bound in Greek-style bindings, probably to emphasise the exotic component of the Hebrew texts.⁴⁷³ However, a second classification level

⁴⁷⁰ In the fifteenth century, Greek-style bindings could also be associated with non-Greek texts, but from the sixteenth century, they consistently accompanied Greek texts. See Gialdini 2017a, 221 and 75 chart 1.19.

⁴⁷¹ Gialdini 2017a, 229.

⁴⁷² Hobson 1989, 184–185.

⁴⁷³ Gialdini 2017a, 187.

based on a colour code allowed to further differentiate Greek from Hebrew texts. The formers were thus bound in red, the latter in green Morocco.⁴⁷⁴

4.1.3. Decoration

Further information about the book can be gleaned from the tools used to decorate the binding. Indeed, the tools could showcase book ownership, denote the owner's affiliation to political ideals or organisations, and even allude to the book's contents.

The symbols or combinations of them stamped on bindings were used to declare the ownership of the books. For example, coats of arms (heraldic symbols) identify the individual, family, state, organisation, school, or guild to which the book belonged. From the end of the sixteenth century, the papal emblem, consisting of a pavilion above crossed keys, was added as an attribute to the coats of arms of families, a member of which had been elevated to the papacy. This information relates directly not on the owner of the book but to the social status of the entire family. Other symbols were not directly related to the family but could become associated with an individual. For example, the fifteenth-century plate bindings depicting the ascent of Pegasus to Parnassus while Apollo drives the chariot, surrounded by the Greek motto $OP\Theta\Omega\Sigma$ KAI MH $AO\Xi I\Omega\Sigma$ (hortōs kai mē loxiōs = straight and not obliquely), indicate that they belonged to the Genoese patrician Giovan Battista Grimaldi (Figure 100).

The wide extent to which the symbolic meaning inherent in specific tools was recognised and understood is evidenced by the fact that the use of coats of arms and emblems associated with royalty, such as the *fleur de lis*, was banned in France at the end of the Ancien Régime and had to be programmatically replaced with the emblems of the revolution. Thus, the Phrygian cap, pikes and female figures symbolising the Nation, often accompanied by mottos glorifying the values or events of the revolution, are depicted on covers made during the period (Figure 102a).⁴⁷⁷ Bindings were thus recognised as instruments to declare adherence to the ideals of liberty and equality.

The declaration of affiliation to an association and its ideals was also the purpose of the decorations on the English Masonic bindings that flourished from 1720 to 1820.⁴⁷⁸ Initially, the bindings of masonic texts were unrecognisable from those of common ones. As freemasonry spread to broader social strata, the bindings reflected this change and began to differentiate themselves. Thus, among the tools used to decorate the covers appeared the symbols of Freemasonry, like compasses, the omniscient eye, stars, suns, and winged figures (Figure 102b).⁴⁷⁹

⁴⁷⁴ Brooker 2006, 71.

⁴⁷⁵ Petrucci Nardelli 1989, 65.

⁴⁷⁶ In 1859 the mathematician and bibliophile Guglielmo Libri (1803–1869) attributed the commission of these bindings to a not better known Mecenate, physician of the Pope. In 1861 the Parisian bookseller Jacques-Joseph Techener (1802–1873) argued that the bindings were prepared for Demetrio Canevari an Italian nobleman, bibliophile and physician of Pope Urban VIII. This attribution was widely accepted until Giuseppe Fumagalli's refutation in 1903 (Fumagalli 1903). Finally, Anthony Hobson identified the correct patron in Giovan Battista Grimaldi (Hobson 1975). For a resume of the different attributions, see Barberi 1975.

⁴⁷⁷ Boinet 1957, 339. I thank Federico Macchi for bringing this instance to my attention.

⁴⁷⁸ I thank Federico Macchi for bringing this instance to my attention.

⁴⁷⁹ Not all workshops had tools explicitly made for this purpose. However, Masonic motifs could also be obtained by combining traditional tools, such as simple fillets, circles and semicircles. The fact that the bookbinder possessed specific tools with Masonic symbols was symptomatic of the stability of the workshop and the security of a specific market for these bindings. Bookbinders specialising in the execution of Masonic bindings were John Lovejoy, a

Therefore, the presence of these tools also indicates the text's content. However, one must be careful and not rely solely on the interpretation of the tools to deduce the book's content because tools specific to Masonic symbols could be used in bindings of texts unrelated to Freemasonry. For example, the compass could be well used for texts related to geometry or navigation.

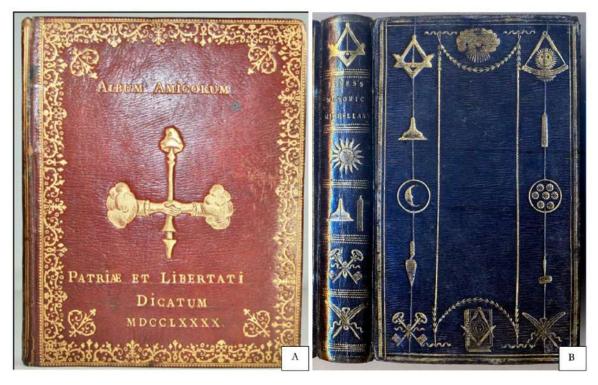


Figure 102. Binding decorations declaring the affiliation to ideals and associations. a) Revolutionary binding, 1790. Paris, private collection. Source: https://www.abebooks.de/Reliure-révolutionnaire... b) Masonic binding, 1797. London, private collection. Source: https://ashrare-books.com/....

4.2. Exploring the archival function of Coptic bindings

The examples illustrated in the previous section (4.1), served to define the research trajectory to investigate the role of Coptic bindings as embodiments of Egyptian society's memory. This section presents the results of the research thus undertaken on how Coptic bindings convey additional meanings beyond the textual content, thereby fulfilling an archival function that extends beyond mere preservation. Specifically, Coptic bindings are examined for their ability to define and identify the content of the book, attributing value using techniques and materials, and transmitting this value to future generations.⁴⁸⁰

4.2.1. Material information contained in inventories and book lists

Research on the archival function of Coptic bindings, following the approach of Brooker, started focusing on textual sources such as book lists, inventories, and catalogues to verify

Freemason himself, and Henry Walther, who displayed Masonic symbols on the trade papers of his workshops. See Marks 2022.

⁴⁸⁰ For the discussion of the meaning of the term 'archiving' for this research and the definition of bindings as embodied memory of the Egyptian society, see this dissertation, section 1.1.3.

whether material information about the bindings was recorded and whether this information could reveal any archival function similar to the color-coded system emerged in fifteenth- and sixteenth-century inventories in use to organise a book collection, by identifying specific contents based on the colour of the binding.

Élodie Mazy identifies three distinct categories of lists, each serving a unique purpose, thereby influencing their specific characteristics. The first category refers to inventories, which aim to provide an official record of an institution's possessions. In these inventories, the primary objective is to provide the essential information needed to identify the value of the holdings. Therefore, they typically prioritise the listing of precious objects, placing them among the foremost items documented. Notably, books are often listed at the forefront, alongside metal objects. The entries typically include details such as the number of books and the writing support (papyrus or parchment). For example, Oxford, Bodleian Library, MS. Gr. class. d. 2 (P) (TM 64902)⁴⁸³ is a list of the church of Apa Psoi in the village of Ibion (TM Geo 876) in Greek on a papyrus sheet dated to the fifth or sixth century, which lists objects made of precious metals and textiles before small objects. In this category are also books, for a total of 21. However, only their number and writing support is mentioned.

None of the inventories examined by Mazy contained explicit reference to the binding of the books and therefore, inventories are not useful to demonstrate the archival function of Coptic bindings.

The second category encompasses catalogues, which are specifically designed to identify each volume within an institution. Consequently, they information on their physical attributes. Such details encompass the material of the writing support, the condition of the book (whether new or old), and, albeit challenging to ascertain with certainty, 484 references to the binding. For example, the papyrus sheet London, BL, Or. 5301 (14) (TM 85797)⁴⁸⁵ plays a role in identifying books that have been 'marked'. The list contains book's titles where some are labelled as ΠΕΤΆλΟΝ while others are designated as ΔΠΕΤΆλΟΝ. Anne Boud'hors proposes that the list contains books marked possibly as a form of indicating possession, in this case, the term ΠεταλοΝ would refer to a cover adorned with gold leaves, distinguishing it from those lacking this characteristic. Therefore, in this list, the presence of binding, coupled with the book's title, serves as sufficient criteria to distinguish, and identify it within a collection. 486 According to Chrysi Kotsifou, instead, the papyrus manuscript would list the manuscripts that have been marked, in the sense of 'punctuated', and the term ΠΕΤΑΛΟΝ would indicate illuminated manuscripts in gold.487 The uncertainty in the translation of the term ΠεταλοΝ prevents using this instance as a definitive reference for discussing the archival function of bindings in adding an additional meaning to the text, in this case, a mark of ownership.

⁴⁸¹ Mazy 2019, 117.

⁴⁸² Mazy 2019, 121.

⁴⁸³ Corresponding in the edition to Chr.Wilck. 135.

⁴⁸⁴ Scholars have not yet reached an agreement on the translation of the terms related to binding and the discussion is still open. See, for example, Boud'hors 2008, 2021; Kotsifou 2007, 2012.

⁴⁸⁵ Also known as P.Fay.Copt. 44 from Crum 1893, P.Lond.Copt. 1 704 from Crum 1905, and P.Marganne p. 243–255 from Boud'hors 2021.

⁴⁸⁶ Boud'hors 2021.

⁴⁸⁷ Kotsifou 2007, 63–65 and Kotsifou 2012, 240–241.

The seventh/eight-century ostracon Cairo, IFAO, 13315 (TM 108484)⁴⁸⁸ is an extensive catalogue of more of eighty books of the Monastery of Apa Elias on the rock. This monastery was probably located in the Theban region, but archaeologists have not yet identified the exact spot. In this catalogue, books are listed by the titles of the texts they contain, with each entry also noting the type of writing support (parchment or papyrus) and its condition (old or new).⁴⁸⁹ However, there is no information provided about the bindings, thereby excluding also this catalogue from the discussion on the archival function of Coptic bindings.

The seventh-century ostracon Cairo, Coptic Museum, JdE 44674.18 (TM 87090)⁴⁹⁰ represents instead a useful case for the evaluation of the archival function of Coptic bindings. The ostracon contains a book list with two entries of the book of the *Apostles*, of which one is on papyrus, and one is defined **CTBHλ**, which the editor, Crum, tentatively translated as 'interpreted'. However, he also offered an alternative translation indicating the condition of the work as 'loose', implying a lack of binding. This interpretation aligns with Mazy's viewpoint, which suggests that the differentiation between the books of the *Apostles* was based on physical attributes, such as writing support and format. In this case, the archival function of distinguishing texts within a collection would not be fulfilled by the presence of a specific characteristic on the binding, as seen in the aforementioned fifteenth- and sixteenth-century inventories that use a color code. Rather, the mere presence of a binding would suffice to identify a text and distinguish it from others.

A comparable case emerges in the catalogue painted on the walls of a room in the White Monastery, edited by Crum but now faded. As discussed in section 1.1.1, the inscriptions were located on the walls of niches that were used to store books. The inscriptions note the title of the books, the number of copies for each title, and in the case of the Four Gospels, they provide information on their physical attributes, such as dimensions (small and large) and whether they were NATKOEI2, a term likely indicating the absence of the cover. This translation supports the thesis that bindings aided in the identification of books in a collection, helping to distinguish between texts with and without covers.

The mere fact that a text was bound in a codex, as opposed to being presented on loose sheets, could serve as a significant indication for the identification of its textual typology. This seems to have been the case in the archive Basilios pagarches of Aphrodito (TM Arch ID 124).⁴⁹⁴ The archive dates to the eighth century and consists of the official correspondence and tax registers in Greek, Coptic, and Arabic. While the letters are all in roll form, the codex form was preferred for tax registers, one of which still preserves its binding (Figure 103).

⁴⁸⁸ Corresponding in the edition to SB Kopt. I 12.

⁴⁸⁹ Coquin 1975.

⁴⁹⁰ Corresponding in the edition to P.Mon. Epiph 554.

⁴⁹¹ Crum and Evelyn-White 1926, 116 and 294.

⁴⁹² Mazy 2019, 125.

⁴⁹³ Crum 1904, 564. For a discussion of the translation of the term, see this dissertation, section 1.1.1.

⁴⁹⁴ The archive is named after the ancient town of Aphrodito (TM Geo 237), the modern Kom Ishgau, the village where it was found in 1901 by villagers excavating a well. When they came across the papyrus heap, they decided to divide the find among them and sell the manuscripts to antique dealers, so that today the archive is scattered among several collections.



Figure 103. The inked leather cover of a tax register from Aphrodito archive. London, BL, Papyrus 1442 (TM 19869). © British Library. Source: British Library digital images.

Finally, the ostracon discovered in situ at Deir el Bakhit (PAThs ID 192), divided into three pieces and identified in the edition as O DAN kopt 52 + 54 (TM 84603),⁴⁹⁵ provides additional avenues for book identification. In this instance, distinctions between copies are made by specifying that some are NZAXAPIA (of Zacharia). Although the binding is not explicitly mentioned, it remains plausible that signs of ownership or other indicators were placed on the external cover, aligning with the implications suggested by Boud'hors regarding the translation of the term TETAXON in London, BL, Or. 5301 (14) (TM 85797). The cover would then be an instrument to identify a book in a collection based on the note of ownership placed on it.

The third category examined by Mazy encompasses notes and letters that accompany the sending of books. In this context, the information provided is often limited, typically specifying the number of books sent and occasionally including details about the writing support. For example, in Prague, National Library, P. Wessely Prag. Gr. I 13 (TM 65247)⁴⁹⁶ a straightforward list is presented as 'list of the books sent to my brother', followed by the enumeration of five specific titles.⁴⁹⁷ Since there is no information regarding the binding, this category holds little value for the evaluation of the archival function of Coptic bindings.

In summary, in contrast to the inventories examined by Brooker, Coptic sources that contain book lists, inventories, or catalogues of books do not emphasize the materiality of the works. The most detailed information is found in the catalogues, which address the nature of the writing material (papyrus or parchment) and the condition of the codex (old or new). Information about the binding is challenging to decipher from these catalogues, as discussed in section 1.1.1, due to the uncertainty surrounding the translation of relevant terms. The examination of

⁴⁹⁵ Suzana Hodak, *Koptische Ostraka Online. Koptische nichtliterarische Texte aus dem Thebanischen Raum.* See https://www.koptolys.gwi.uni-muenchen.de/showOstraka.php?id=5001.

⁴⁹⁶ Corresponding in the edition to P.Prag 1 87.

⁴⁹⁷ Mazy 2019, 130.

inventories does not reveal a straightforward system that indicates the archival function of Coptic bindings. Instead, bindings are mentioned primarily in relation to the affixing of ownership marks, and it appears that merely noting whether a codex was bound or unbound was sufficient to distinguish it among other items in a collection.

4.2.2. Binding technique as an indicator of production and usage context

This research has furthermore analysed whether the technique employed in the binding could indicate additional messages, as is the case with Greek-style bindings in European Renaissance book collections. The technique used in the binding process offers unintentional indications about the type of text and its context of production and use. This allows for the identification of a manuscript within a specific category or classification.

Significant examples for the discussion are Coptic bindings of Typology 3 and 4B (3.3.1 and 3.3.2.2). These bindings are characterized by techniques that do not connect one quire to another but rather focus on securing stacks of individual leaves or double leaves together. This is achieved by stitching through the margins of the leaves or by ticketing the double leaves through the fold, without the inclusion of additional binding elements such as covers or fastenings. These methods reflect a utilitarian necessity rather than an emphasis on decorative or display purposes. Consequently, this type of binding allows to visually identify texts which exhibit signs of intensive use, where the binding was designed to accommodate frequent handling and ensure practicality in everyday use.

For example, the necessity to accompany the practitioners who travelled from village to village by performing magic and oracular rites determined the materials and techniques used for binding the texts used for the purpose. It is the case of Heidelberg, Heidelberg Library, P. Heid. Inv. Kopt. 686 (TM 100022) bearing magical formularies among which The praise of Michael the archangel.⁴⁹⁸ Another example is the manuscript Città del Vaticano, BAV, Pap.Vat.copt. 1 (CLM 6387) containing a collection of sortes sanctorum. The text was used in a divinatory practice where petitioners allowed their clients to receive answers to their questions by randomly opening a page of this divinatory text. 499 These books exhibit characteristics indicative of their utilitarian function rather than being curated for display. Their lightweight nature and compact size make them well-suited for portability. Notably, these codices were crafted from recycled materials, underscoring a resource-efficient approach to book production. The protective cover of Pap.Vat.copt. 1 (CLM 6387)involves the strategic joining of multiple pieces of leather, exemplifying an intentional effort to repurpose available materials. Furthermore, P. Heid. Inv. Kopt. 686 (TM 100022) is a palimpsest and the text is inscribed on reused parchment, further emphasising the practice of recycling. The sewing technique employed reflects a utilitarian approach, with the Heidelberg manuscript featuring simple tackets for quick and straightforward sewing.

⁴⁹⁸ See Kyprianos database of ancient ritual texts, https://www.coptic-magic.phil.uni-wuerzburg.de/.../kyp-m166/.

⁴⁹⁹ For an introduction to the use and diffusion of *sortes sanctorum* with further bibliography, see Luijendijk 2014, 2–9. For a description of the manuscript, see CLM 6387 in PAThs database, Kyprianos database of ancient ritual texts, https://www.coptic-magic.phil.uni-wuerzburg.de/.../kyp-m170/ and Meyer and Smith 1999, 251–256 (= n.126).

This binding technique is also observed in devotional texts that served as companions during the owner's journeys, akin to the practices of individuals like abba Serapion, mentioned in the *Apophthegmata Patrum*, who possessed nothing else except for a small Gospel that the carried always with him.⁵⁰⁰ An example is the stitching applied to the booklet of the psalms Ann Arbor (MI), University of Michigan Library, P. 4286 (CLM 2784).

This quick and inexpensive technique, with its predominantly practical purpose, makes it particularly suitable for school exercises, and is in fact applied to bind the leaves of Barcelona, Arxiu Històric de la Companya de Jesús a Catalunya, Palau-Ribes Inv. 410.

More intricate and time-consuming sewing techniques, like chainstitching, are employed in binding manuscripts that feature wooden board bindings. Remarkable examples are the bindings of the Dublin, CBL, Cpt 813 (CLM 64) and Cpt 814 (CLM 65), which present a high level of skill in meticulously creating small holes in the thin thickness of the boards. The attention to detail in the manuscript is further evident in the quality of the parchment, characterised by its fineness and whiteness. Additionally, the inclusion of ink drawings on the manuscript's edges adds to the overall craftsmanship. Subsequent bindings, characterised by laminated papyrus boards covered with leather, express craftsmanship through intricate designs cut out in the leather. Exemplifying this skill are masterpieces such as Wien, ÖNB – Papyrussammlung, P.Vindob. BD 37 (CLM 6506) and New York (NY), The Morgan Library and Museum, M569 (CLM 206) which serve as exemplary instances of such artisanal skill. The refined decoration of the covers in these cases is likely intended to showcase the wealth and prestige of the patron or institution associated with these manuscripts.

4.2.3. The archival significance of decoration in Coptic bindings

Building on the role of decoration in modern bindings discussed in section 4.1.3, which establishes ownership of codices, and considering the additional meanings conveyed by revolutionary and Masonic bindings, this research has focused on examining how decoration in Coptic bindings may serve to convey supplementary messages about the manuscripts.

4.2.3.1. Decoration as a sign of provenance

This research has shown that the decoration on Coptic bindings is highly indicative of their place of origin, through the use of decorative techniques or motifs. A significant example comes from the style of a cluster of bindings produced in the monastery of Touton (PAThs ID 101).

Nine bindings in PAThs and Heurist databases feature a scored decoration on the leather cover which presents a characteristic use of bands formed by a thicker central line flanked by two finer lines, with the central panel framed by X-forms and zigzag lines at the top and bottom. Eight were produced in Touton,⁵⁰¹ according to the colophon of the manuscripts or based on their text decoration. The decorations scored on the leather covers are very similar and exhibit the same distinctive features that are not found in any bindings from other monasteries. Therefore, it is logical to hypothesize that this type of decoration on the covers is typical of bindings executed at Touton.

⁵⁰⁰ Apophthegmata Patrum, N.566/15.117 as translated in Wortley 2013, 383.

⁵⁰¹ They are CLM 219, CLM 223, CLM 232, CLM 239, CLM 240, CLM 244, CLM 253, CLM 254.

For example, the bindings of the manuscript M600 (CLM 216), dated by the colophon to 905–906, and Hamuli-Ms. 3811, (CLM 219) also dated by its colophon around the same years, 903–904, show interesting parallels in their decoration. The colophon of both manuscripts explicitly informs the place of production was Touton. Observing the covers in Figure 104, the similarity between their decoration emerges.

In M600 (CLM 216), a frame with geometric designs encloses a Coptic cross within a lozenge intersecting a four-leaves flower. Circles at the angles of the lozenge and the central Coptic cross are cut-out from the leather showing the coloured parchment layer underneath. Above and below the central panel there is a band formed by further incised X-forms and zigzag lines.

In Hamuli-Ms. 3811, (CLM 219) straight lines form a frame, in which a *crux decussata* intersects an X-shaped pattern. Above and below the central panel there is a band formed by further incised X-forms and zigzag lines.



Figure 104. A comparison between the decoration of two covers of manuscripts produced in the monastery of Touton (PAThs ID 101). a) New York (NY), The Morgan Library and Museum, M600 (CLM 216). Source: https://www.themorgan.org/collection/coptic-bindings/128. b) Hamuli-Ms. 3811, (CLM 219). Source: https://cuislandora.wrlc.org/islandora/object/cuislandora%3A174926#page/1/mode/1up.

The ninth binding featuring this decoration is P. 14019 (CLM 6496) preserved in the Staatliche Museen in Berlin. This binding is, since its acquisition, detached from its associated manuscript, which remains unidentified, and its provenance is unknown.⁵⁰² The binding was briefly described by Hugo Ibscher, who affirmed that it probably entered in the Berliner Museum in 1896 as part of consul Herrn. Dr. Reinhardt's collection.⁵⁰³

Thanks to this research, it is now possible to associate the binding to the production of the monastery of Touton, since it is decorated with its characteristic technique and design of bands formed by a thicker central line flanked by two finer lines, with the central panel framed by X-forms and zigzag lines at the top and bottom, as shown in Figure 105.

⁵⁰² I thank Jan Moje, wissenschaftlicher Angestellter at the Ägyptisches Museum und Papyrussammlung for the information and photographs of the present state of P. 14019 (CLM 6496).
⁵⁰³ Ibscher 1911a.





Figure 105. The binding of Berlin, Staatliche Museen, P. 14019 (CLM 6496). a) Before conservation. Source: Arnold and Grohmann 1929, Pl. 20. b) After conservation. Source: Courtesy of the Staatliche Museen zu Berlin.

Another example of how the binding decoration can inform on the provenance of the manuscript, the decorative motifs employed can implicitly signify the affiliation of a binding with a monastery. For instance, the bindings of the manuscripts from the Monastery of Mercurius at Edfu (PAThs ID 95), present a distinctive decorative blind-tooled motif impressed on the covers, which has been classified in this research within the category 'rosettes' and marked as 'rosettes*'. This peculiar asymmetrical rosette, with longer petals on two sides, is exclusively identified in bindings associated with Monastery of Mercurius at Edfu. A search conducted in Heurist supports this observation, revealing that the decorative motif is consistently present in Edfu bindings, including the binding M633 housed at the Morgan Library and Museum in New York. Table 20 lists the results of the search for the decorative motif 'rosette*'.

Table 20. Results for the search 'rosette*'.

CLM	Shelfmark of the Binding	Place of Storage
181	London, BL, Or. 7027 (bindings)	Hagr Edfu
184	London, BL, Or. 6801	Hagr Edfu
186	London, BL, Or. 7028 A (bindings)	Hagr Edfu
	London, BL, Or. 7028 B (bindings)	
190	London, BL, Or. 7023 A (bindings)	Hagr Edfu
	London, BL, Or. 7023 B (bindings)	
194	London, BL, Or. 7022 (bindings)	Hagr Edfu
199	New York (NY), The Morgan Library and Museum, M633	Hagr Edfu
6715	London, BL, Or. 14822 (2)	Hagr Edfu

Figure 106 shows the appearance of the tooled motif on the leather covers of manuscripts from the Monastery of Mercurius at Edfu preserved at the British Library (Or. 7027 (CLM 181) and Or. 7028 B (CLM 186)) (Figure 106a and b) and at The Morgan Library and Museum (Figure 106c).

At the British Library, there are also seven detached bindings that are not associated with any manuscript and whose provenance is uncertain, but they are likely from Edfu. During the

⁵⁰⁴ The typical rosette motif associated with the bindings of the manuscripts from the Monastery of Mercurius at Edfu have been observed in CLM 181, CLM 184, CLM 186, CLM 190, CLM 194, CLM 199, and the detached binding CLM 6715.

direct examination of these bindings at the British Library, it has been observed the presence of the rosette motif (Figure 106d) on one of them, Or. 14822 (2) (CLM 6715), thereby confirming its provenance from the Monastery of Mercurius at Edfu.

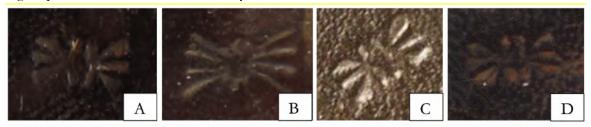


Figure 106. Rosettes motif identifying the bindings from the Monastery of Mercurius at Edfu. a) Or. 7027 (CLM 181) Source: British Library. b) Or. 7028 B (bindings) (CLM 186) Source: British Library. c) M633 (CLM 199) Source: https://cuislandora.wrlc.org/islandora/object/cuislandora/%3A86849. d) Or. 14822 (2) (CLM 6715) Source: British Library.

4.2.3.2. Decoration as a declaration of ownership

This research has confirmed that, within the Coptic tradition, bindings, similar to the examples presented in section 4.1.3, exhibit signs of ownership of the manuscript.

In the case of individual ownership, the owner's name may be integrated into the decorative elements of the binding. An illustrative example of this practice is found in the silver book cases discovered as part of a church treasure near the Luxor temple in 1889 by Sylvain Grébaut.⁵⁰⁵ Positioned between a baptistery and the southern wall of the court of Rameses II, these book cases became part of the church's wealth.⁵⁰⁶ The book cases are preserved in the Cairo Coptic Museum, catalogued as 7202 (CLM 6523), 7203 (CLM 6524), and 7204 (CLM 6525).⁵⁰⁷ Figure 107 shows the book case Cairo Coptic Museum, 7202 (CLM 6523) is inscribed with the name of Bishop Abraham of Armant.⁵⁰⁸

⁵⁰⁵ Strygowski 1904, 340.

⁵⁰⁶ Daressy 1920, 172–173.

⁵⁰⁷ Strygowski 1904, 341–344.

⁵⁰⁸ See PAThs place ID 19, 'Luxor complex'.



Figure 107. The bookcase Cairo Coptic Museum, 7202 (CLM 6523) . Source: Strygowski 1904, Plate XXXIX.

The binding New York (NY), The Morgan Library and Museum, M616-617 bis (CLM 200) (Figure 108) is a further example of this practice. Only a fragment of the binding has been preserved but it features a blind tooled decoration with a partially preserved *ex libris*, which, according to Theodore C. Petersen:

No doubt began in the top horizontal bar of the tooled frame design of the front cover and contained the title of the book and the name and the rank of the owner. 510



Figure 108. The binding New York (NY), The Morgan Library and Museum, M616-617 bis (CLM 200). Source: https://www.themorgan.org/collection/coptic-bindings/165.

⁵⁰⁹ Petersen 2021, 95.

⁵¹⁰ Petersen 2021, 97.

Otherwise, the owner's name could be added at a later stage, on the surface of the cover. An example of this practice could be represented by the binding Berlin, Staatliche Museen, P. 8502 (CLM 731). 'On the upper cover, at the bottom right was found the following owner's note in Coptic indicating 'Zacharias, Archipresbyter, Abt'. Such note, however, is now hardly readable, even by means of infrared images. ⁵¹²

The binding could also indicate the ownership of an institution rather than an individual, as in the case of the binding New York (NY), The Morgan Library and Museum, M569 (CLM 206) where along the upper inner margin of the cover is a strip of red leather decorated with a cut and sewn openwork on gilded parchment forming an inverted inscription in Coptic TAPXATTEAOC MIXA (Figure 109).



Figure 109. Ex-libris on New York (NY), The Morgan Library and Museum, M569 (CLM 206) (turned 180°). Source: https://www.themorgan.org/collection/coptic-bindings/8.

A note of ownership of an institution, although incomplete, is incorporated into the decoration of the binding London, BL, Or. 3367 (CLM 3750).⁵¹³ The readable inscription reads: KAHCIA ANA and it has been tentatively attributed by Petersen to the monastery of Apa Shenoute, the White monastery, but this identification lacks solid grounds as the binding is not associated with any manuscript (Figure 110).

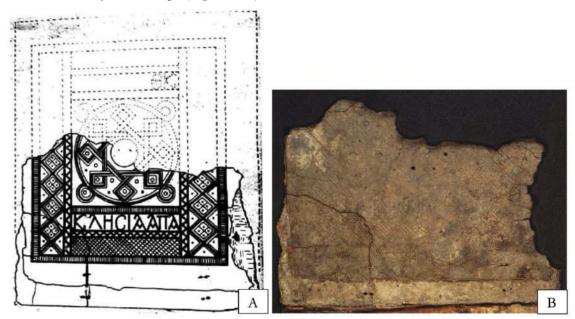


Figure 110. The binding London, BL, Or. 3367 (CLM 3750). a) A line-drawing by Petersen. Source: Petersen 2021, 444 (= binding 75). b) The binding fragment as it appears today. Source: British Library.

⁵¹¹ Krutzsch and Poethke 1984, 39. See also https://atlas.paths-erc.eu/manuscripts/731.

⁵¹² Personal communication of Przemysław Piwowarczyk to Paola Buzi, 31.01.2020.

⁵¹³ Petersen 2021, 444 (= binding 75).

4.2.3.3. Relationship between decoration and textual content

This research has then evaluated whether the decoration of the binding could also transmit information regarding the textual content, allowing it to be identified through the use of particular decorative motifs or its presentation with consistent designs.

As the research progressed, it was observed that the cover designs followed standard decorations that were repeated not only within the same institution but could also be found in bindings produced throughout Egypt. Furthermore, as stated in section 2.2, since these designs showed similarities with those found on post-Byzantine bindings studied by Boudalis, the descriptive system adopted Boudalis' framework, expanding it to incorporate new designs not catalogued by him. In total, 27 distinct designs have been identified.

The database in Heurist allowed to investigate the correlation between binding design and textual content. The application of Heurist enables the execution of a 'dynamic search' in the database. This mechanism allows for the customization of the search process by selecting specific parameters, thereby inducing corresponding adjustments in real-time. Figure 111 illustrates an instance of this database search. When the design 'Dec 16' is selected, the middle column displays a list of seven bindings, each identified by the corresponding CLM number, where this specific design was employed. Simultaneously, the parameters in the first column adapt to show-case characteristics of the bindings, along with the respective count of bindings featuring each specific characteristic. The chosen characteristics encompass the type of decoration technique, the tools employed in blind-tooled decoration, the titles of works within manuscripts featuring the designated design, and the relevant locations associated with the bindings. In the right section, the results are visually presented on both a map and a timeline.

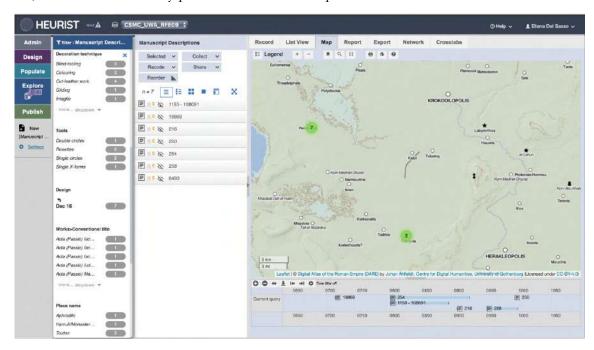


Figure 111. Dynamic search for the decoration design 'Dec 16' in Heurist.

The research on the potential link between texts and binding decoration focused on the manuscripts belonging to the collection of the Monastery of the Archangel Michael at Phantoou in Hamuli (PAThs ID 99).

This selection was made because it was considered a good sample of bindings on which to base the research. Indeed, this is the most extensive collection of Coptic bindings of known provenance and still associated with specific texts, even though detached from the manuscripts themselves. Furthermore, since all the bindings originated from the same collection, it was possible that they would reveal the logic behind its organisation.

The search limited to the Monastery of the Archangel Michael at Phantoou in Hamuli (PAThs ID 99) yields 81 bindings, encompassing 48 bindings associated with the Hamuli manuscripts and other binding fragments repurposed to stiffen the boards, such as New York (NY), The Morgan Library and Museum, M614bis (CLM 6544). The dynamic search shows that the most recurrent designs are Dec 4 (13 instances), Dec 16 (5 instances), Dec 18 (7 instances), and Dec 21 (7 instances).

Table 21 shows the results of the dynamic search for bindings presenting a design 'Dec 4' (Figure 112), Table 22 for the design 'Dec 16' (Figure 113), Table 23 for the design 'Dec 18' (Figure 114), and Table 24 for the design 'Dec 21' (Figure 115). The results list for each binding the relative CLM, the shelfmark, the work contained in the manuscript with the indication of the *Clavis Coptica* (cc) in brackets and the dating of the manuscript.

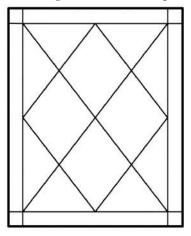


Figure 112. Design 'Dec. 4'. Source: Drawing mine.

Table 21. Content and date of manuscripts with binding design Dec. 4.

CLM	Shelfmark of the Binding	Work	Date
215	New York (NY), The Morgan Library and Museum, M599	In Crucem (cc0120)	854–855
218	New York (NY), The Morgan Library and Museum, M609	Confessio; Historia Cypriani Magi; Metanoia (cc0095) In Macarium ep. Tkou (cc0134) Passio Cypriani (cc0619)	801–925
224	New York (NY), The Morgan Library and Museum, M614	Institutio Michaelis (cc0488)	801–925
226	New York (NY), The Morgan Library and Museum, M603	In Michaelem (cc0346)	902–903
239	New York (NY), The Morgan Library and Museum, M613	Passio Theodori Anatolii (cc043)	901–904
241	New York (NY), The Morgan Library and Museum, M583	In Gabrielem (cc0045) In Mariam V. (cc0119) Vita Hilariae (cc0247) Passio Apaiule et Ptolemaei (cc0258) Passio Philothei (cc0296) Passio Shenute (cc0302)	848

		In Iohannem Baptistam (cc0386)	
		Passio Psote A (brevior) (cc0433)	
		Passio Theodori Anatolii (cc0437)	
242	New York (NY), The Morgan Library and Museum, M594	De Passione 1 (cc0114)	801–925
243	New York (NY), The Morgan Library and Museum, M595	De Lazaro e mortuis reuocato; In Ioh. 11.1-44 (cc0049)	855
		De misericordia Patris; De Passione (cc0051)	
		De divite et paupere; De Pentecoste (cc0052)	
		De Passione 1 (cc0114)	
		De Passione 2 (cc0115)	
		De Passione A (cc0116)	
		De Passione B (cc0117)	
		De Passione (cc0149)	
		De Resurrectione (cc0167)	
		In Crucem (cc0395)	
246	New York (NY), The Morgan Library and Mu-	Miracula Phoebammonis (cc0235)	801-925
	seum, M582	Passio Phoebammonis (cc0297)	
249	Cairo, Coptic Museum, Hamuli-Ms. 3816 (JdE	Passio Nabrahae (cc0522)	801-925
	47552)		
251	New York (NY), The Morgan Library and Mu-	Prophetiae (cc0092)	844
	seum, M586	Passio Theodori Ducis (cc0436)	
		Miracula Cosmae et Damiani (cc0933)	
253	New York (NY), The Morgan Library and Mu-	In Lc. 11.5-15 (cc0057)	894-895
	seum, M577	De Peccatrice; In Lc. 7.37 (cc0172)	
		Testamentum Isaac (cc0350)	
		Historia Stephani Protomartyris (cc0491)	
6544	New York (NY), The Morgan Library and Mu-	Only bookbinding preserved	_
	seum, M614bis		

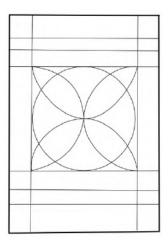


Figure 113. Design 'Dec 16'. Source: Drawing mine.

Table 22. Content and date of manuscripts with binding design Dec 16.

CLM	Shelfmark of the Binding	Work	Date
1150	Cairo, Coptic Museum, Hamuli-Ms. 3822	Bible: Genesis (cc0729)	801-893
216	New York (NY), The Morgan Library and Mu-	In Crucem (cc0120)	905-906
	seum, M600	In Mariam V. (cc0396)	
250	New York (NY), The Morgan Library and Museum, M608	In Theodorum Ducem (cc0383)	996
254	New York (NY), The Morgan Library and Museum, M604	De ecclesia frequentanda; Exhortatio ad Christianos; On Christian Behaviour (Kuhn) (cc0638)	801–925
258	New York (NY), The Morgan Library and Museum, M635	Acta (Passio) Iacobi Alphaei (cc0586) Acta (Passio) Iacobi Maioris (cc0590)	951–1000

Acta (Passio) Iacobi Zebedaei (cc0581)
Acta (Passio) Iudae Thaddaei (cc0587)
Acta (Passio) Matthaei (cc0585)
Acta (Passio) Matthiae (cc0588
Acta (Passio) Philippi (cc0582)
Acta (Passio) Thomae (cc0535)
Acta Bartholomaei (cc0564)
Acta Marci; Acta (Passio) Marci (cc0567)
Acta Simonis (cc0570)

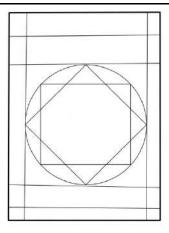


Figure 114. Design 'Dec 18'. Source: Drawing mine.

Table 23. Content and date of manuscripts with binding design 'Dec 18'.

CLM	Shelfmark of the Binding	Work	Date
206	New York (NY), The Morgan Library and Mu-	Bible: Iohannes (cc0737)	801-925
	seum, M569	Bible: Lucas (cc0743)	
		Bible: Marcus (cc0746)	
		Bible: Matthaeus (cc0747)	
207	Cairo, Coptic Museum, Hamuli-Ms. 3820 (JdE 47556)	Bible: Iohannes (cc0737)	861–862
214	New York (NY), The Morgan Library and Mu-	Liturgia: Antiphonae; Liturgia: Difnar (cc0782)	802-893
	seum, M575	Liturgia: Hermeniae cc0786	
221	New York (NY), The Morgan Library and Mu-	In Menam (cc0181)	892-893
	seum, M590	Passio Menae (cc0287)	
		Miracula Menae (cc0398)	
231	Cairo, Coptic Museum, Hamuli-Ms. 3815,	Vita Samuelis Archimandritae (cc0216)	891-893
	pastedown (JdE 47551 bis)	In Ioseph patriarcham (cc0138)	
		Paralipomena Ieremiae (cc0576)	
238	New York (NY), The Morgan Library and Mu-	Miracula Menae (cc0231)	801-925
	seum, M585	Homilia cathedralis 027: in Leontium prior; In	
		Leontium (cc0344)	
		Passio Leontii Arabi (cc0519)	
6443	New York (NY), The Morgan Library and Museum, M663 bis 2	Only bookbinding preserved	-

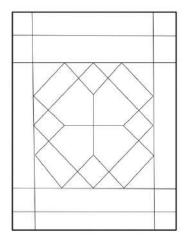


Figure 115. Design 'Dec 21'. Source: Drawing mine.

Table 24. Content and date of manuscripts with binding design Dec. 21.

CLM	Shelfmark	Work	Date
223	New York (NY), The Morgan Library and Museum,	Institutio Gabrielis (cc0378)	892–893
	M593	Institutio Michaelis (cc0488)	
229	New York (NY), The Morgan Library and Museum,	In Mercurium (cc0002)	842
	M588	In Mercurium (cc0078)	
		Mercurii Passio (cc0432)	
233	New York (NY), The Morgan Library and Museum,	In Mariam V. (cc0119)	913-914
	M597	In Mariam V. (cc0129)	
244	New York (NY), The Morgan Library and Museum, M610	De Vita et Passione Christi (cc0113)	801–925
248	New York (NY), The Morgan Library and Museum,	Historia monachorum; Vita Onophrii	889-890
	M580	(cc()254)	
		Passio Epimae (cc0270)	
255	New York (NY), The Morgan Library and Museum, M605	Responsa Biblica ad Theodorum (cc0180)	901–904
256	New York (NY), The Morgan Library and Museum, M601	Bible: Epistulae Catholicae (cc0723)	951–1000

It emerges that there is no unambiguous link between text and cover design, as different texts are presented with the same decoration design and the same text is presented with different decoration designs. This is evident when considering the text *In Crucem* (cc0120) recurs in bindings both with a decoration design Dec 4 and Dec 16. There does not appear to be a direct connection between binding design and intellectual content. Therefore, Coptic bindings do not fulfill their archival function in this sense, as they do not aid in the identification of texts within collections through the design of the decoration on their cover.

This result could be explained looking at the book production practices at the Vivarium, the monastery founded by Cassiodorus. A passage from the *Institutiones*, written in the sixth century, reveals how the Vivarium had skilled workers specialised precisely in bookbinding:

His etiam addidimus in codicibus cooperiendis doctos artifices, ut litterarum sacrarum pulchritudinem facies desuper decora uestiret, exemplum illud Dominicae figurationis ex aliqua parte forsitan imitantes, qui eos quos ad cenam aestimat inuitandos in gloria caelestis conuiuii stolis nuptialibus operuit. Quibus multiplices species facturarum in uno codice depictas, ni fallor, decenter expressimus, ut qualem maluerit studiosus tegumenti formam ipse sibi possit elegere.⁵¹⁴

⁵¹⁴ Flavius Magnus Aurelius Cassiodorus Senator, *Institutiones divinarum et saecularium litterarum*, I, XXX, 3 as it appears in the Biblioteca digitale di testi latini tardoantichi, https://digiliblt.uniupo.it/...

In addition to these things, we have provided workers skilled in bookbinding, in order that a handsome external form may clothe the beauty of sacred letters; in some measure, perhaps, we imitate the example in the parable of the Lord, who amid the glory of the heavenly banquet has clothed in wedding garments those whom He judges worthy of being invited to the table. And for the binders, in fitting manner, unless I err, we have represented various styles of binding in a single codex, that he who so desires may choose for himself the type of cover he prefers.⁵¹⁵

In this passage, Cassiodorus mentions having compiled a collection of designs in a book, from which the binder could select patterns to adorn the covers. The existence of a repertoire of designs, implies the availability of a collection of decorative patterns, allowing the binder a degree of creative freedom in their choices. A similar system may have been in use in Egypt as well, granting the binder the freedom to choose the design for decoration from a book of models. This practice would explain why there is no consistent relationship between the design and the text bound within.

It has then been examined if the use of specific tools in the decoration notify to the present of a specific textual content. As a first result, a search in Heurist demonstrated how common tools such as circles (single, double, triple, or fourfold), rosettes, and X-forms, appear in bindings without any connection to the text.

It has been then tested the hypothesis according to which the presence in the decoration of the covers of the figures of an eagle, a bull, an angel, and a lion could be associated with the evangelists, and therefore with the Gospels. Sophie-Elisabeth Breternitz supported this theory to state that the binding Cologne, Papyrussammlung Institut für Altertumskunde, inv. 20833.1-20 (CLM 6628)was originally employed to bind together the Four Gospels, rather than just the Gospel of John alone which has been preserved.⁵¹⁶

To test this theory, the search selected via the database in Heurist the bindings in which these decorative motifs appear. Due to the ambiguity in interpreting the shape of blind-tooled motifs, every tool depicting an animal resembling an eagle has been classified in the category of 'birds', without further specification. The same criterion has been applied to lions and bulls, which have been generically classified as 'single quadrupeds'. No human figures populate the cover decoration, except for an equestrian saint depicted on New York (NY), The Morgan Library and Museum, M603 bis (CLM 6709) which is, however, a binding reused to stiffen the boards of New York (NY), The Morgan Library and Museum, M603 (CLM 226). This binding stands out as the sole instance featuring a combination of decorative motifs encompassing 'equestrian saints', 'single quadrupeds', and 'birds', and therefore, according to Breternitz's theory would be a good candidate as a cover of Four Gospels. Nevertheless, due to the binding's historical reuse, it is not possible to establish a connection with a specific text.

Breternitz builds a significant portion of her theory on the assumption that the binding she refers to as M616-617, featuring the decorative tool she identifies as a bull, was utilized to cover the text of manuscript New York (NY), The Morgan Library and Museum, M616 (CLM 200) encompassing the Gospels of Matthew and Mark. However, this assertion is found to be inaccurate. Petersen clarifies that, the binding fragment, he designated as M672d, reached the library detached from the relevant manuscript. To be precise, however, Petersen suggests a nearly

⁵¹⁵ Jones 1946, 134.

⁵¹⁶ Breternitz 2020, 56–59.

certain identification with manuscript M616-617. This identification is based on the reconstructed size of the binding, which would correspond to the dimensions of the manuscript's leaves.

It is worth noting, as pointed out by Leo Depuydt,⁵¹⁷ that manuscripts M616 (CLM 200) and M617 (CLM 201), containing the Gospels of Luke and John, were originally bound together, forming a unified manuscript of the Four Gospels.⁵¹⁸ To support the theory, the binding should ideally exhibit a decoration with single quadrupeds, birds, and saints. Nevertheless, it only features the single quadrupeds.

Table 25 presents the eight results of the search in Heurist for bindings decorated with 'single quadrupeds' decorative motifs, which according to the theory would notify the presence of a text associated to St Luke or St Mark the Evangelists. For each binding, the table notes the CLM, the shelfmark, the work contained in the bound manuscript with indication of the *Clavis Coptica* (cc) in brackets and the date of the manuscript.

Table 25. Bindings and relative texts resulting from the search for the presence of the tool 'single quadrupeds'.

CLM	Shelfmark	Work	Date
22	London, BL, Or. 5001 (bindings) Dublin, CBL, Cpt 813	De parabola vineae; In Mt. 20.1-16 (cc0060) De templo Salomonis (cc0076) De misericordia et iudicio; In Rom. 1,28 (cc0079) In Mt. 15,21; De Chananaea. (cc0147) In Susannam (cc0178) De Poenitentia et Abstinentia (cc0182) De anima et corpore (cc0223) Contra Nestorium; De Incarnatione (cc0317) De Pascha (cc0318) De poenitentia et abstinentia (cc0393) Bible: Epistulae Pauli (cc0724) Bible: Iohannes (cc0737) Bible: Ad Colossenses (cc0695) Bible: Ad Corinthios 1 (cc0696) Bible: Ad Ephesinos (cc0697) Bible: Ad Ephesinos (cc0698) Bible: Ad Hebraeos (cc0700) Bible: Ad Philemonem (cc0701) Bible: Ad Philippenses (cc0702) Bible: Ad Thessalonicenses 1 (cc0704) Bible: Ad Timotheum 1 (cc0706) Bible: Ad Timotheum 1 (cc0707) Bible: Ad Titum (cc0775)	601–700 551–600
193	Dublin, CBL, Cpt 814	Bible: Iohannes (cc0737) Bible: Acta Apostolorum (cc0694)	551–600
200+201	New York (NY), The Morgan Library and Museum, M616-617bis	Attribution uncertain	_
844	London, BL, Papyrus V	Passio Camul (cc0264) Passio Iusti (cc0516)	601–900
6521	Dublin, CBL, Cpt 805	Only bookbinding preserved	_

⁵¹⁷ Depuydt 1993, 598–599 (n° 395).

⁵¹⁸ Petersen 2021, 95.

6555	Torino, Museo Egizio, Provv. 5062	Only bookbinding preserved	_
6628	Cologne, Papyrussammlung Institut für Altertums- kunde, inv. 20833.1-20	Bible: Iohannes (cc073)	601–700
6709	New York (NY), The Morgan Library and Museum, M603 bis	Only bookbinding preserved	_

The search for bindings decorated with motifs belonging to the category 'birds' yielded twelve results, shown in Table 26. The motif, which according to the theory, would notify the presence of a text associated to St John the Evangelist. The table notes for each binding, the CLM, the shelfmark, the work contained in the bound manuscript with indication of the *Clavis Coptica* (cc) in brackets and the date of the manuscript.

Table 26. Bindings and relative texts resulting from the search for the presence of the tool 'birds'.

CLM	Shelfmark	Work	Date
21	London, BL, Or. 5000 (covers)	Bible: Psalmi (cc0754)	601–700
22	London, BL, Or. 5001 (bindings)	De parabola vineae; In Mt. 20.1-16 (cc0060) De templo Salomonis (cc0076) De misericordia et iudicio; In Rom. 1,28 (cc0079) In Mt. 15,21; De Chananaea. (cc0147) In Susannam (cc0178) De Poenitentia et Abstinentia (cc0182) De anima et corpore (cc0223) Contra Nestorium; De Incarnatione (cc0317) De Pascha (cc0318) De poenitentia et abstinentia (cc0393)	601–700
64	Dublin, CBL, Cpt 813	Bible: Epistulae Pauli (cc0724) Bible: Iohannes (cc0737) Bible: Ad Colossenses (cc0695) Bible: Ad Corinthios 1 (cc0696) Bible: Ad Corinthios 2 (cc0697) Bible: Ad Ephesinos (cc0698) Bible: Ad Ephesinos (cc0698) Bible: Ad Hebraeos (cc0700) Bible: Ad Philemonem (cc0701) Bible: Ad Philippenses (cc0702) Bible: Ad Romanos (cc0703) Bible: Ad Thessalonicenses 1 (cc0704) Bible: Ad Timotheum 1 (cc0706) Bible: Ad Timotheum 2 (cc0707) Bible: Ad Titum (cc0775)	551–600
65	Dublin, CBL, Cpt 814	Bible: Iohannes (cc0737) Bible: Acta Apostolorum (cc0694)	551–600
844	London, BL, Papyrus V	Passio Camul (cc0264) Passio Iusti (cc0516)	601–900
6544	New York (NY), The Morgan Library and Museum, M614bis	Only bookbinding preserved	-
6554	Torino, Museo Egizio, Provv. 5061	Only bookbinding preserved	_
6555	Torino, Museo Egizio, Provv. 5062	Only bookbinding preserved	_
6560	Torino, Museo Egizio, Provv. 6205 bis 1	Only bookbinding preserved	_
6628	Cologne, Papyrussammlung der Universität zu Köln, inv. 20833.1-20	Bible: Iohannes (cc073)	601–700
6709	New York (NY), The Morgan Library and Museum, M603 bis	Only bookbinding preserved	_

The tables reveal a lack of clear correspondence between the decorative motifs of the symbols of the Evangelists, and the associated texts. For instance, although some bindings featuring the 'birds' motif are explicitly linked to the Gospel of John, bindings solely adorned with 'single quadrupeds' motifs are also associated with this Gospel. This suggests that the correlation between the 'bird' motif and the Gospel of John may be attributed to the widespread distribution of this text. Furthermore, as indicated in Table 25, the presence of 'single quadrupeds' motifs does not necessarily signify the presence of the Gospels of Luke or Mark. Additionally, some bindings have lost their original textual associations, precluding definitive conclusions.

Establishing a definitive correlation between the tools employed in the ornamentation of book bindings and their textual content proves challenging. Specifically, the analysis conducted fails to furnish substantial evidence in favour of the proposition that tools symbolising the figures of the bull, eagle, angel, and lion align with texts associated with the Evangelists' figures.

In conclusion, Coptic bindings served an archival function by facilitating the identification of texts within book collections based on their presence and the eventual addition of ownership marks. The techniques and materials used in binding a book reveal insights into the context of its use and production. Utilitarian techniques highlight texts intended for practical purposes, while decorations convey messages about the place of origin of the binding through distinctive motifs. These decorations also serve to signify ownership while there is no exact correspondence between the design of the decoration or the tools used and the textual content of the book.

As a final note, the concept of the binding as an expression of cultural identity can be reclaimed by observing that the messages conveyed through the materials and techniques used in their manufacture are decipherable by the society that reads them, as they communicate through a shared collective knowledge. Thus, Coptic bindings serve as an expression of Late Antique and Medieval Egyptian society.

Glossary of technical terms

The glossary serves as a reference tool that explains the specialised terms related to Coptic bookbinding techniques. It includes definitions of these technical terms to help readers understand the unique aspects of Coptic bookbinding. Additionally, when possible, the glossary provides links to the *Language of Bindings* thesaurus, developed by the Ligatus Research Centre, which offers broader definitions of these terms. However, this research built the glossary with the primary focus to clarify how these terms are specifically used and understood within the context of Coptic bookbinding.

- All-along sewing = Sewing where the threads move between the sewing stations along the fold of the quire without leaving any gaps, thus creating a continuous fold pattern. See LoB, http://w3id.org/lob/concept/1196.
- Blind tooling = Decoration impressed on the leather using tools with motifs carved or in relief on their top. See LoB, http://w3id.org/lob/concept/1212. In Coptic bindings, this decoration is achieved with small hand tools.
- Board attachment = System used to attach the boards to the bookblock or between them. See LoB http://w3id.org/lob/concept/3501. In Coptic bindings, various board attachment systems exist according to the binding Typology. In Typology 2A with wooden boards, the attachment is achieved by threading hinging slips or fringed hinges through a back strip and then pasting the case thus obtained to the sewn bookblock. Typology 2A in laminate boards presents different attachment systems which are either an integral part of the sewing or almost erratic attachments of the sewn bookblock to the boards, remaining undefined. Typology 2B uses hinging loops, in a codified system of C, I, and S patterns. In Typology 4 the quire is attached directly to the cover or to a spine strip, which is then pasted to the cover.
- Back strip = In Coptic bookbinding, it corresponds to a leather strip placed at the spine of a bookblock in bindings of Typology 2A with wooden boards connecting them. It is as high as the spine of the bookblock. It can be larger than the width of the spine so that its extensions can be pasted on the inner sides of the boards over hinging slips, or it can be as large as the book block and be pasted on fringed hinges and slips.
- Bookblock = The gathering of bound written and unwritten leaves. See LoB http://w3id.org/lob/concept/1227.
- Chainstitch = Unsupported sewing technique where the thread, upon exiting each sewing station, loops around the thread from the same station in the previous quires, creating linked chains of thread across the spine. See Lob http://w3id.org/lob/concept/1249.
- Chains = The pattern formed by the thread passages on the spine of quires sewn with chainstitch. See Spitzmueller 1982, 45 Fig. 10.

- Chainstitch with independent threads = A chainstitch where separate threads move independently between pairs of sewing stations. This technique is used in early Coptic binding Typology 2A and in Ethiopian tradition.
- Continuous fold pattern = Fold pattern without gaps between sewing stations, as defined in Spitzmueller 1982, 45.
- Cord endband = In Coptic bookbinding tradition, it corresponds to an endband formed around a cord core and attached to the boards by passing the looping thread through three holes drilled near the spine at the head and tail edges. This method is found in bindings of Typology 4B.
- Cover = The outer layer of the binding wrapping around the bookblock and sometimes adhered to the boards See LoB http://w3id.org/lob/concept/1268. It can host decorative elements and in Coptic bookbinding tradition, may be made of leather or textile.
- Cut leatherwork = A decoration consisting in cutting a design from the leather cover and backing the surface with parchment.
- Dec 4 = Cover design featuring a lozenge intersecting a *crux decussata* in the central panel.
- Dec 16 = Cover design featuring a lobed flower intersecting in a circle enclosed in a square in the central panel.
- Dec 18 = Cover design featuring two intersecting squares enclosed in a circle in the central panel.
- Dec 21 = Cover design featuring an X-form intersecting a lozenge in the central panel.
- Double Boards= Two individually covered boards that are then adhered together. The inner, or primary, board is closest to the bookblock and may have only its edges covered with a strip of leather known as the edging strip. In contrast, the outer, or secondary, board is fully covered with leather. In Coptic bookbinding, this feature is found in binding Typology 2A, which uses laminate boards, and in Typology 2B.
- Double leaf = A sheet of writing support that has been folded in half, resulting in two leaves or four pages. Alternative terms are bifolio (pl. bifolios) or bifolium (pl. bifolia).
- Edging strip = In Coptic bookbinding, a strip of leather covering an edge of a board. In folded boards of binding Typology 2A with laminate boards, the edging strip is applied to the half of the quire nearest to the bookblock, with the other half being completely covered. In double boards of binding Typology 2A with laminate boards and 2B, the inner boards may only have their edges covered with a strip of leather. The edging strip is also present on board edges not covered by turn-ins due to the extension of the cover to form flaps.
- Endbands = Binding components found at the spine pf the bookblock at the head (headband) and tail (tailband). See LoB http://w3id.org/lob/concept/2370. In Coptic bindings evidence show this component is sewn to the bookblock and appeared in binding Typology 2B.
- Endband cores = Endband components. Flexible or rigid materials which serve as support for sewing a worked endband. See LoB http://w3id.org/lob/concept/1309. In Coptic bindings of Typology 2B, cord endbands have been recorded where the core is made of cord.

- Fastening system = The system used to hold the codex firmly closed. See LoB http://w3id.org/lob/concept/2893. Different fastening systems have been noted in Coptic bindings. Typology 2A with wooden boards makes use of wrapping bands. Typology 2A with laminate boards uses prevalently paired ties. Typology 2B displays the greater variety of fastening systems being loops and ties, loops and pins, ties and rings. Late codices of Typology 2C may have a fastening system of loops and toggles. Bindings of Typology 4A present wrapping ties and paired ties.
- Fold Pattern = Sequences of stitches visible in the fold of the quires, as defined in Spitzmueller 1982, 45.
- Folded Boards = In Coptic bindings, a feature noted in some boards in binding Typology 2A with laminate boards. In folded boards, the first and last quires of the book block are left blank, and their leaves are pasted together to form the boards after the sewing. The thread then runs along the fold of the quire, becoming embedded in the board.
- Fore-edge = Edge of the bookblock or the binding opposite to the spine.
- Fore-edge flap = An extension of the upper leather cover. In the case of the Nag Hammadi bindings, it extends from the fore-edge of the upper cover, goes over the fore-edge of the bookblock, and reaches halfway across the lower cover. Typically, a leather tie is attached to the middle portion of the flap, allowing the codex to be securely fastened.
- Fringed hinges = In Coptic bindings, components of the board attachment in few bindings of Typology 2A with wooden boards. In these bindings the back strip is not a single piece but consists of two layers. The outer layer is a single piece of leather called the back strip, and the inner layer is formed by fringed hinges and slips. Fringed hinges are two leather strips whose ends are fringed to increase the number of anchoring points in comparison to that found in other codices with wooden boards. The fringed hinges are then threaded through further elements, called 'slips' and are then inserted into tiny holes made along the edge of the board.
- Groove = Feature of laminate boards consisting in indenting their edges to create a depression. In Coptic bindings, the groove is achieved either by tooling a fillet along the edges or by separately covering the inner and outer boards both in folded boards and double boards.
- Head = Upper edge of the bookblock and the binding.
- Hinging loops = In Coptic bindings, board attachment components in binding Typology 2B.

 The loops are formed by the thread wound around the spine edge through holes corresponding to the sewing stations of the bookblock. The sewing process anchors the sewing thread to these loops.
- Hinging slips = In Coptic bindings, board attachment components in binding Typology 2A with wooden boards. They are the ends of hinging thongs that pass through slits cut in the back strip and are threaded through holes drilled obliquely in the boards.
- Hinging thongs = In Coptic bindings, board attachment components in binding Typology 2A with wooden boards. They are strips of leather pasted across the spine of the

- bookblock, thereby connecting the upper and lower boards. The ends of these strips are called hinging slips.
- Laminate boards = Boards composed of two or more layers of sheet material, which may or may not be adhered together. See LoB http://w3id.org/lob/concept/1418. In Coptic bindings, board laminates are made of reused written papyrus leaves, later also parchment, leather, and paper scraps.
- Lapped mitres = Mitres formed by the overlapping of the turn-ins. See LoB http://w3id.org/lob/concept/1421.
- Linking sewing techniques = Bindings techniques aimed to connect one quire to the other in multi-quire codices or groups of double leaves.
- Link-stitch = Alternative term for chainstitch.
- Link-stitch endband = An endband formed by link-stitch sewing without the aid of cores. This method is found in Coptic bindings of Typology 4B.
- Loops and pins = Fastening system consisting in leather loops attached to the head, tail and fore-edge of the upper board closing in metal or bone pins fixed in correspondent positions on the lower board. It broadly corresponds to LoB http://w3id.org/lob/concept/2961. This fastening system is found in Coptic bindings of Typology 4B.
- Loops and ties = Fastening system consisting of ties at the head, tail, and fore-edge of the upper board closing in correspondent loops in the lower board. This fastening system is found in Coptic bindings of Typology 4B.
- Loops and toggles = Fastening system consisting of loops at the head, tail, and fore-edge of the upper board closing in correspondent toggles in the lower board. Loops and toggles are also used to secure the rabat, with the toggle attached to it and the loop attached to the upper cover. See LoB http://w3id.org/lob/concept/2964. This fastening system is found in Coptic bindings of Typology 4C.
- Mitres = The shape at an angle of the turn-ins of the cover. See LoB http://w3id.org/lob/concept/2344. In the surveyed Coptic bindings, only lapped mitres have been recorded.
- Non-linking sewing techniques = Binding methods that do not involve linking one quire to another but are instead utilised to hold stacks of single leaves or double leaves of a quire together, eventually attaching them to the cover.
- Notches = The V-shaped cuts in the leather covering that can be made to ease the fold of the leather cover. They have been observed in Coptic bindings of Typology 4A, the bindings of the Nag Hammadi codices.
- Paired ties = Fastening system consisting of ties attached in correspondent position on the upper and lower boards and closing in pairs. See LoB http://w3id.org/lob/concept/3029. In Coptic bindings, they have been recorded in binding Typology 2A with laminate boards and Typology 4A.
- Papyrus laminate boards = In Coptic bookbinding tradition, laminate boards formed either by reused written or blank papyrus leaves.
- Pegs = In Coptic bindings, components of the fastening system of the wrapping band type.

 Placed at the extreme ends of the wrapping band they secure the closure of the book by sliding them under the windings of the wrapping band. They are made

- of bone, ivory, or wood and are often decorated with double circles motifs. They have been recorded in binding Typology 2A with wooden boards and in one instance in Typology 2A with laminate boards.
- Periodic fold pattern = Fold pattern with gaps between sewing stations, as defined in Spitzmueller 1982, 45.
- Preliminary sewing = The provisional sewing used to prepare the quires to be bound together with a primary sewing.
- Pulp board = A board material made in single thick sheets from coarsely pulped material. See LoB, http://w3id.org/lob/concept/1528. In Coptic bindings, pulp boards initially were formed by materials such as papyrus scraps, vegetal fibres, parchment, leather, and then paper scraps.
- Raised endbands = Endbands exceeding the height of the boards, also known as projecting endbands. See http://w3id.org/lob/concept/1524.
- Rabat = An extension of the lower leather cover. In late Coptic bindings of Typology 2C, it extends from the fore-edge of the lower cover, goes over the fore-edge of the bookblock, and reaches halfway across the upper cover.
- Reused covers = In Coptic bookbinding tradition, ancient covers reused as boards to stiffen new leather covers. Reused covers permitted to obtain double boards, according to a method particularly frequent in the bindings from Edfu (PAThs ID 95) of Typology 4B.
- Running stitch = Basic stitch created by passing the stringy material up and down through the margin of the leaves, so that the stitches appear alternately on the front and underside of a booklet.
- Simple chainstitch = A chainstitch where a single thread moves from one sewing station to the next creating a continuous fold pattern with a single thread length between sewing stations. This technique is used in Coptic bindings of Typology 2B and Typology 2C.
- Sewing = Method to keep together the leaves of a bookblock by piercing a thread through the spine-folds of the quires. See LoB http://w3id.org/lob/concept/2362.
- Sewing holes = Holes left in the leaves by the passage of the sewing thread through the fold of the quires. See LoB http://w3id.org/lob/concept/1578.
- Sewing guards = Strips of parchment that protect the fold from being torn by the sewing. See LoB http://w3id.org/lob/concept/3282. In Coptic bindings, they are a common feature of papyrus codices of Typology 2A with laminate boards. Most of the times the guards are found only between sewing stations while other times they run along the entire fold and can also be positioned on the outside of the quire.
- Sewing stations = The position in which the thread passes through the fold of a quire when sewing a book. See LoB http://w3id.org/lob/concept/1579.
- Slips = In Coptic bindings, board attachment components in few bindings of Typology 2A with wooden boards. The slips are two strips of leather that form the inner layers of the back strip. Their extensions are pasted to the inner side of the boards and slits are cut through which are threaded the fringed hinges.

S-ply thread = Thread in which the single filaments are twisted to the right, in clockwise direction (Figure 116).



Figure 116. S-ply thread. Source: Wikimedia commons.

Spine = Edge of the bookblock and the binding opposite to the fore-edge, where the fold of the quires is found.

Spine lining = Lining of the spine. See LoB http://w3id.org/lob/concept/1619. In Coptic bindings, it is made of cloth and is pasted directly to the spine of the quires, with its extensions placed between the cover and the boards.

Spine strip = In Coptic bindings of Typology 4A, a leather spine strip can be added along the spine, between the quire and the cover. This strip can be either pasted or both pasted and knotted to the cover. The tacket pierces the spine strip instead of the cover.

Stab sewing = Stitching technique consisting in piercing the inner margin of the quires and linking them together, as it might happen in Coptic binding Typology 1.

Stay = A protective strip of leather (rarely of parchment) used to guard the central fold of the quires against tearing, used in Coptic binding Typology 4A.

Stitching = Binding method consisting in piercing the leaves through the inner margin. An alternative term is side hefting.

Stitching holes = Holes left by the passage of the thread through the inner margin of the leaves. See LoB http://w3id.org/lob/concept/1647.

Stub = An extension of the inner margin of the leaf, forming a ply that is pierced for binding. Stubbed singleton = A single leaf with a stub.

Tacket = A loop of stringy material that goes through the fold of double leaves to hold them together and eventually attach them to a covering material. It is found in Coptic bindings of Typology 4A and 4B.

Tacketing = Sewing method using tackets.

Tail = Lower edge of the bookblock and the binding.

Textblock = The gathering of bound written leaves. See LoB http://w3id.org/lob/concept/1663.

Turn-ins = The edges of a cover turned and wrapping around the edges of the boards. See LoB http://w3id.org/lob/concept/1694. They vary in shapes and, in Coptic bindings, are normally straight trimmed, or irregularly trimmed. They are kept in position by being pasted to the boards or tacked to them, a method seen in the Nag Hammadi bindings.

Unbound codex= Codex without any sewing, with its unity maintained only by the double leaves being folded together to form a quire.

- Unsupported sewing = Sewing techniques which binds the quires together without the use of sewing supports, such as the chainstitch. See LoB http://w3id.org/lob/concept/3748.
- Whipping = Stitching technique which involves passing the thread through the entire thickness of the textblock, wrapping it around the spine.
- Wrap-around tie = Fastening system of Coptic binding Typology 4A. A long and narrow leather tie attached to the middle portion of the fore-edge flap, which wrapping around the codex allows it to be securely fastened.
- Wrapping bands = Components of the fastening system of the wrapping band type. They are long, flat, and wide strips of leather attached to the fore-edge, and occasionally also to the head of the upper board which wound around the codices of Coptic bindings of Typology 2A with wooden boards keeping them closed.
- Z-ply thread = Thread in which the single filaments are twisted to the left, in counterclockwise direction (Figure 117).



Figure 117. Z-plied thread. Source: Wikimedia commons.

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Index of manuscripts and bindings

The index lists the manuscripts, and the bindings cited in the thesis. If available, CLM or TM identification numbers are provided, followed by the alias by which the codex is known on an indented line. The index contains the following abbreviations:

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NHC = Nag Hammadi codex.
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BP = Biblical Papyri.

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List of publications

- Dal Sasso, Eliana 2022. 'Describing Ethiopian Bookbinding in TEI', *Journal of the Text Encoding Initiative*, (2022).
- Dal Sasso, Eliana 2023a. 'The Bookbindings: History and Census', in Paola Buzi and Tito Orlandi, eds, *Coptic Codices of the Museo Egizio, Turin: Historical, Literary, and Codicological Features*, Studi del Museo Egizio, 4 (Modena: Franco Cosimo Panini, 2023), 91–104.
- Dal Sasso, Eliana 2023b. 'Catalogue of the Coptic Bindings in the Museo Egizio', in Paola Buzi and Tito Orlandi, eds, *Coptic Codices of the Museo Egizio, Turin: Historical, Literary, and Codicological Features*, Studi del Museo Egizio, 4 (Modena: Franco Cosimo Panini, 2023), 105–120.
- Dal Sasso, Eliana 2023c. 'Ethiopian and Coptic Sewing Techniques in Comparison', in Alessandro Bausi and Michael Friedrich, eds, *Tied and Bound: A Comparative View on Manuscript Binding*, Studies in Manuscript Cultures, 33 (Berlin, Boston: De Gruyter, 2023), 251–284.
- Melzer, Sylvia, Hagen Peukert, Eliana Dal Sasso, Charles Li, Thomas Asselborn, and Ralf Möller 2023. 'Federated Information Retrieval in Cross-Domain Information Systems', *Proceedings of the Workshop on Humanities-Centred Artificial Intelligence (CHAI 2023)*, (2023), 52–67.
- Dal Sasso, Eliana forthcoming. 'The Effect of Text-Focused Interest on the Preservation of Coptic Bookbinding', in Care and Conservation of Manuscripts 19: Proceedings of the Sixteenth International Seminar Held at the University of Copenhagen 19th-21st April 2023 (forthcoming).
- Dal Sasso, Eliana forthcoming. 'Convergenze parallele: La tecnica di legatura copta ed etiopica a confronto', in *La legatura dei libri antichi. Storia e conservazione*, Studi di archivistica, bibliografia, paleografia, 8 (Venice: Edizioni Ca' Foscari, forthcoming).
- Dal Sasso, Eliana, Jacopo Gnisci, Jonas Karlsson, Dorothea Reule, and Massimo Villa forthcoming. *The Ethiopic Manuscripts of the Bodleian Library* (Wiesbaden: Harrassowitz Verlag, forthcoming).

Dal Sasso, Eliana 2022. 'Describing Ethiopian Bookbinding in TEI', Journal of the Text Encoding Initiative, (2022).

The article presents the protocol for describing Ethiopian bookbinding developed for the **Beta** maṣāḥəft (Bm) project according to the schema prescribed by the Text Encoding Initiative (TEI) to obtain a standard description of manuscripts.

After elucidating the significance of bookbinding studies in understanding the manuscript as an object, this article presents an overview of the methods used for bookbinding recording. It then introduces the components of an Ethiopian binding. The core of the article is the presentation of the taxonomy and the customisation of the TEI schema developed for the description of Ethiopian bookbinding features by Bm. This solution is compared with that adopted by other projects. The article concludes by highlighting the current applications of the protocol in Bm and inspiring the potential future impact of the research on the field of bookbinding studies.

In this doctoral research, the documentation approach has also been used to describe Coptic bindings. Furthermore, the description of Ethiopian bindings builds the base for the comparative analysis of the sewing technique between Coptic and Ethiopian traditions.

Dal Sasso, Eliana 2023a. 'The Bookbindings: History and Census', in Paola Buzi and Tito Orlandi, eds, *Coptic Codices of the Museo Egizio, Turin: Historical, Literary, and Codicological Features*, Studi del Museo Egizio, 4 (Modena: Franco Cosimo Panini, 2023), 91–104.

The article is part of the collective volume edited by Paola Buzi and Tito Orlandi relative to a reassessment of the collection of Coptic manuscripts preserved at the Museo Egizio in Turin. My two contributions, which are the results of the autoptic analysis conducted at the Museo Egizio, are a significant part of this doctoral research.

This paper introduces a unique documentation method to examine bindings and binding fragments in the Museo Egizio in Turin. The results of this direct examination have allowed to define the composition of the collection of Coptic bindings. The article delves into the features of bindings with wooden boards and laminate papyrus boards covered with leather and presents the method for the classification of the blind tooled motifs. It reconstructs the history of the binding collection from the acquisition from Bernardino Drovetti to modern cataloguing and conservation with the aid of digitised documents at the Archivio di Stato in Turin, which was possible to access from home during the pandemic and the examination of traces left by modern conservation intervention.

Dal Sasso, Eliana 2023b. 'Catalogue of the Coptic Bindings in the Museo Egizio', in Paola Buzi and Tito Orlandi, eds, *Coptic Codices of the Museo Egizio, Turin: Historical, Literary, and Codicological Features*, Studi del Museo Egizio, 4 (Modena: Franco Cosimo Panini, 2023), 105–120.

The contribution describes the binding and binding fragments directly examined at the Museo Egizio according to the description method developed in PAThs and further refined for this doctoral research.

The relative CLM and inventory number, information on the restoration and conservation techniques, dimensions, and information on boards, covers, fastenings, and other ties are then presented for each examined binding and binding fragment. The description is accompanied by photographic documentation by the museum or taken during my examination of the bindings.

Dal Sasso, Eliana 2023c. 'Ethiopian and Coptic Sewing Techniques in Comparison', in Alessandro Bausi and Michael Friedrich, eds, *Tied and Bound:* A Comparative View on Manuscript Binding, Studies in Manuscript Cultures, 33 (Berlin, Boston: De Gruyter, 2023), 251–284.

The contribution explains the basis of the misconception that Ethiopian bindings are similar to Coptic. The article cites the many examples in the literature where this old conception is still retained.

It then offers a comprehensive definition of Ethiopian and Coptic bookbinding and thoroughly investigates the basis of the terminological misunderstanding, identifying the primary sources: the assumptions of great scholars of bookbinding studies (Petersen, Szirmai and van Regemorter) formulated at a time when the codicological research on Ethiopian bindings was in its infancy, and the digitisation projects did not exist. It then enters into a detailed comparison of the two techniques, explicitly highlighting the problem by comparing the two traditions and then confronting the sewing techniques, providing evidence of their dissimilarity emerged during this doctoral research.

The research represents the first step in comparing the Ethiopian and Coptic binding techniques, and it was further matured in the dissertation after the typological classification of Coptic bindings was developed.

Melzer, Sylvia, Hagen Peukert, Eliana Dal Sasso, Charles Li, Thomas Asselborn, and Ralf Möller 2023. 'Federated Information Retrieval in Cross-Domain Information Systems', *Proceedings of the Workshop on Humanities-Centred Artificial Intelligence (CHAI 2023)*, (2023), 52–67.

The paper has been elaborated with the Facing New Technologies group members, of which Sylvia Melzer helped me construct the database functional to this doctoral research.

The paper presents cross-domain queries between datasets in different databases using the Federated Information Retrieval technique. It presents the process of indexing key variables to match pairs of data. It is then possible to measure the similarities between matching data pairs through an algorithm. The query can be formulated in natural language and then translated into SQL queries by AI. In this instance, the query aimed to answer whether there are similarities between the binding techniques, the object size or the written area dimension of manuscripts from Ethiopia, Eritrea, early Egypt, and South India. Therefore, datasets from Bm, my database in Heurist and Text Surrounding Texts database have been compared for the purpose.

Dal Sasso, Eliana forthcoming. 'The Effect of Text-Focused Interest on the Preservation of Coptic Bookbinding', in Care and Conservation of Manuscripts 19: Proceedings of the Sixteenth International Seminar Held at the University of Copenhagen 19th-21st April 2023 (forthcoming).

The paper is based on the presentation given at the 19th International Seminar on the Care and Conservation of Manuscripts, held at the University of Copenhagen from 19 to 21 April 2023. The intervention aimed to deepen the aspects of conservation related to the treatment of Coptic bindings when the interest of the text dominated the material aspects.

The paper examines the adverse effects of a significant focus on textual content on preserving and understanding Coptic bindings. Evidence to support this claim was gathered during this doctoral research. The article is structured in three sections. First, it demonstrates how the priority of the text influenced the preservation of Coptic bindings. Secondly, it analyses the negative consequences of this orientation, particularly when old manuscript fragments were reused to create bindings, leading to their dismantling to recover these fragments. Finally, it looks at the reuse practice to contextualise it more broadly within the Coptic book production, aimed at minimising material waste.

Dal Sasso, Eliana forthcoming. 'Convergenze parallele: La tecnica di legatura copta ed etiopica a confronto', in *La legatura dei libri antichi. Storia e conservazione*, Studi di archivistica, bibliografia, paleografia, 8 (Venice: Edizioni Ca' Foscari, forthcoming).

The article derives from the presentation at the international conference on the history of bookbinding 'La legatura dei libri antichi. Storia e conservazione' organised by the Italian Association of Conservators and Restorers of Archives and Libraries (AICRAB) from 26 to 27 October 2023 in Cesena.

The paper presents the meticulous methodology adopted during this doctoral research to study binding techniques comprehensively. It addresses the challenges inherent in such investigations and explores technological solutions alongside their respective advantages and limitations. The study involves a case analysis comparing Coptic and Ethiopian binding techniques and outlines the erroneous outcomes of traditional historical comparative analysis. Subsequently, it presents the different conclusions that can be drawn through the modern methodology, rooted in directly examining bindings. It introduces the possibilities offered by the Federated Information Retrieval in Cross-Domain Information Systems. Still, it warns of the blind trust of this system since the binding descriptions are not yet formed according to a unique standard structure, and therefore, their comparison might be misleading. The cross-domain query has enormous potential but will be exploited when the binding descriptions are structured according to a common schema using standard terminology.

Dal Sasso, Eliana, Jacopo Gnisci, Jonas Karlsson, Dorothea Reule, and Massimo Villa forthcoming. *The Ethiopic Manuscripts of the Bodleian Library* (Wiesbaden: Harrassowitz Verlag, forthcoming).

This forthcoming publication is a joint effort and consists of a detailed catalogue of 69 Ethiopian manuscripts held at the Bodleian Library, described in XML according to the TEI schema in use at Bm. Using a PDF transformation programme, the XML descriptions will be converted to PDF.

Each expert deals with one aspect of the description of the manuscript and its text, as well as material characteristics such as the writing support, the state of preservation and, in my case, the binding. The description of bindings follows the protocol for the description of bindings in TEI developed for Bm and presented in my 2022 article.



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Describing Ethiopian Bookbinding in TEI

Eliana Dal Sasso

ABSTRACT

Ethiopian bookbinding is one of the material expressions of the ancient manuscript culture of Ethiopia and Eritrea, which is the research field of the Beta maṣāḥəft project. Despite the significance of the materials and techniques adopted in bookbinding manufacture for the understanding of the manuscript they enclose, they have never been systematically recorded, until very recently. The present paper introduces the Beta maṣāḥəft project's innovative approach to bookbinding descriptions and its customization of the TEI schema to record the small variations of Ethiopian bookbinding elements. Since a standard vocabulary for Ethiopian bookbinding features was lacking, Beta maṣāḥəft developed a tailored taxonomy to create consistent descriptions. The encoding of the binding occurs in the <bi>binding> element, within which a <decoNote> element is assigned to each significant bookbinding feature. The descriptions consist partly of free text and partly of markup using keywords enforced by the taxonomy. This paper presents some applications

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offered by the Beta maṣāḥəft project that use the recorded bookbinding features, and it shows how the encoding of this large amount of previously ignored data could open new research perspectives

on Ethiopian book production.

INDEX

Keywords: Ethiopian Studies, bookbinding, manuscripts, vocabulary, TEI customization

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(CSMC) at Universität Hamburg.

1. The Role of Bookbinding Studies in Understanding the

Manuscript

1 Looking at the codex as an object, one of its most noticeable—if present—yet overlooked attributes

is its binding. Bookbindings capture onlookers' gaze and through their design, they convey specific

messages without needing the book to be opened. Paraphrasing Rousseau (2007,1), it is possible to

note that bindings can inspire religious veneration or aesthetic admiration, or simply manifest the

purpose for which the manuscript was created. The information transmitted by the binding varies

according to the materials and techniques adopted in the manufacture, which are determined by $\frac{1}{2}$

temporal and local factors. The choice of materials depends on what can be found at a precise

 $moment\ in\ the\ place\ of\ production.\ Techniques, imparted\ by\ tradition,\ evolve\ across\ time,\ taught$

by one generation to the next, and assume distinctive traits according to the area to which they $\frac{1}{2}$

belong. Hence, the characterization of the materials and techniques helps to locate and date the

production of the binding, while their fineness offers clues to the prestige of a manuscript, to

its use, and to the context in which it is produced or transformed. Therefore, to understand the information transmitted through the binding, a careful examination of the materiality of the codex is necessary.

2. Bookbinding Recording: The State of the Art

- Despite their significance for the study of the context of production, use, and transformation of the manuscripts they enclose, bindings have never been systematically recorded (Pickwoad 2012). This situation was common to all material aspects of the codex until scholars recognized the importance of codicology for a holistic understanding of the manuscript.
- Yet additional factors delayed the development of bookbinding studies in particular, as, for example, the scarcity of original bindings. In fact, as a practice, bindings had been thrown away and replaced with new ones when they had deteriorated too much to perform their protective function or simply when their design grew out of fashion. The finely decorated covers escaped this fate more often than the plain ones did, which partly explains why the first studies on bookbindings focused on their aesthetics. Far more common is the case in which the bindings have been preserved thanks to the repairs they underwent through time—which, however, also significantly altered their original structure. To detect the modifications to which a binding had been subjected, distinguishing strata of original and altered elements, a certain familiarity with the methods of creating the codex is required. However, the domain of book technology has been for a long time a prerogative of craftsmen rather than scholars involved in manuscript studies. Therefore, the description of structural elements of bindings, when given, was mostly brief and inconsistent, and so of little use for research purposes. The lack of data regarding bookbinding structures constitutes a further obstacle to the development of research in the field.
- As interest in the materiality of the codex grew, structural elements of the binding received greater attention and pioneer scholars included them in their observations. The book started to be considered valuable not only for the text it carries, but also for its materiality, which bears witness to historical, economic, technological, and artistic aspects of the context in which it has been produced and used. This awareness led the English bookbinders Roger Powell (1896–1990) and Sydney Morris Cockerell (1906–1987) to develop a new approach to book conservation. The aim was to preserve the original elements as much as possible, balancing the need to use the

book with the need to preserve it from further damage. Such a methodology was passed on to the conservators who gathered in Florence after the Arno's flood in 1966 to repair the damaged books of the Central National Library, thus marking the start of modern conservation practice (Campagnolo 2020, 55–60). The study of bookbinding structures made it possible to to highlight the presence of recurring patterns and to group bindings accordingly, thus identifying macro-areas corresponding to different bookbinding traditions (Coptic, Ethiopic, Islamic, Byzantine, etc.). In this context, Janos A. Szirmai's work stands as a milestone in the systematization of bookbinding studies (Szirmai 1999).

Recently, digital technologies have improved the quality of bookbinding records. In 2001, their application in the Saint Catherine's Project³ resulted in the development of a consistent terminology—the Language of Bindings thesaurus⁴ (Velios, Pickwoad, and Martin 2014; Velios and Pickwoad 2020)—and a database (Velios and Pickwoad 2005) for the collection and ordering of the surveyed data (Pickwoad 2004). After creating a relational database, Ligatus developed an XML schema to describe bookbinding structures (Campagnolo 2015a, 141–145; Ligatus 2007). The experience strongly encouraged the improvement of efficient documentation systems to obtain consistent descriptions to share with the research community and overcome the long-standing absence of binding descriptions in manuscript catalogs (Campagnolo 2017). In this framework, the Beta maṣāḥəft⁵ project, whose aim is to provide a digital research environment for the exhaustive description of the written heritage of Christian Ethiopia and Eritrea, set up a protocol for bookbinding description. This paper presents how the project customized the TEI schema to encode peculiar features of Ethiopian bookbindings and collect consistent and accurate data useful for future research.

3. The Object of Inquiry: Ethiopian Bookbinding

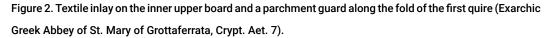
Ethiopic manuscripts were said to be "bound in a very simple codex form, which has in fact remained almost unchanged until the present day" (Szirmai 1999, 45), but recent studies have pointed out the existence of some previously unrecorded characteristics (Di Bella and Sarris 2014; Nosnitsin 2016) that would make us reconsider what we know about Ethiopian bookbinding. Indeed, it is not an immutable tradition but the technical and aesthetic variations are limited to detail.

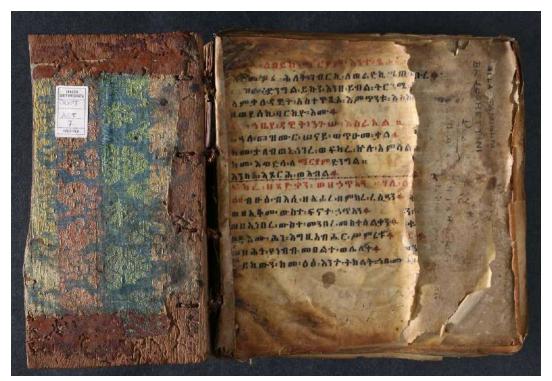
- An in-depth description of Ethiopian bookbinding⁶ features is beyond the scope of this paper.⁷ Therefore, the general characteristics of Ethiopian binding will be only briefly introduced to highlight, for each structural component, the possible existing variants. This will make it possible to understand the challenge faced by the Beta maṣāḥəft project in setting up a protocol to encode every binding in detail without renouncing the principle of consistency, and possibly to record enough of those small variations to prove the idea of their relevance.
- The ancient tradition of bookmaking has been handed down, and is practiced still today, in monastic centers as part of religious education (Bausi et al. 2015, 168–70). Traditionally, the quires, after being written and decorated, are sewn together to the boards with a paired *link-stitch*. Within this general category Bozzacchi (2000, 2007), in his study on fifty-six Ethiopic codices kept at the Library of the Accademia Nazionale dei Lincei e Corsiniana in Rome, was able to identify and describe twelve different sewing patterns. The variability of the structures depends on the number of sewing stations of the codex (see figure 1)—and thus on its dimensions—and on how the front board is attached to the first quire. Bozzacchi found that the binder could start sewing either from the center of the first quire or from the upper board. The thread used for sewing can be of animal (see figure 1)—probably sinew or gut—or vegetable origin. In recent times the use of synthetic fibers has also been documented (Bausi et al. 2015, 173).

Figure 1. Sewing on four sewing stations with a thread of animal origin (Grottaferrata, Exarchic Greek Abbey of St. Mary of Grottaferrata, Crypt. Aet. 7)¹⁰.



- Ethiopic codices are generally bound in wooden *boards*. Literature reports that the most-used wood types for producing the boards are *Cordia africana*, *Olea africana*, and cedarwood. However, Mellors and Parsons (2002) and Mersha Alehegne (2011) documented the use of thirteen further wood types. In some cases, the boards are made of stiff leather instead of wood, perhaps hinting at the need to use a less expensive material (Nosnitsin 2016, 81).
- Wooden boards can be left bare or be covered with leather. Commonly the cover extends over the entire board but, as highlighted recently (Bausi et al. 2015, 172; Nosnitsin 2016, 78), in some cases it covers only the spine and the back edge of the boards. Covering material that exceeds the size of the boards is folded over to form turn-ins. The shape of these turn-ins varies enormously in the ways in which they are trimmed or overlapped. Furthermore, textiles of varying quality can inlay the inner surface of the boards (see figure 2). A less common feature is the presence in this area of a mirror, the function of which is still not clear. The cover is then often embellished with blind-tooled decoration a variety of tools. Despite some authors dedicating part of their research to the study of these tools (Sergew Hable Selassie 1981; Faqāda Śellāse Tafarrā 2010; Winslow 2015; Tomaszewski and Gervers 2015), a comprehensive classification system has not yet been developed. Even less is known about the recurring decorative patterns and layout of the covers. In a few cases the boards are covered with metal sides of the study of bear metal bosses (Bausi et al. 2015, 172).





- Usually, *endbands*¹⁵ made of slit-braided leather tongues are added to the leather-covered codices, but a less common type, similar in technique to a Coptic one (Szirmai 1999, 39, fig. 3.7a), has been documented on two manuscripts with bare boards (Di Bella and Sarris 2014, 293, fig. 27b).
- 12 Sources of variance depend on other features, related to:
 - Pastedowns¹⁶ and their position in relation to turn-ins;
 - The spine, such as the presence of a piece of parchment folded around the text block and sewn with the first and last quire as a sort of spine lining¹⁷ (Di Bella and Sarris 2014, 301). In particular, the presence of rows of holes close to the head and tail of the quires is important. This feature can be related to the former presence of endbands or tackets (Bausi et al.2015, 159);
 - Fastenings or traces of them (Di Bella and Sarris 2014, 299);
 - Parchment guards¹⁸ (see figure 2), their position and technique of attachment to the quire;
 - Bookmark types;

• The traditional two-part leather slip case (Bausi et al. 2015, 172).

3.1 A Taxonomy for the Description of Ethiopian Bookbinding Features

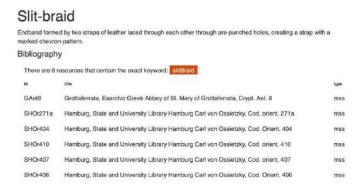
- The first step in the development of consistent descriptions is the use of a controlled vocabulary. The adoption of a selected terminology avoids the confusion which arises when different terms are used to describe the same concept. Therefore, a controlled vocabulary increases the efficiency of the documentary system by limiting data redundancy. Furthermore, the homogeneous descriptions created following this method have the great advantage of being easily comparable, thus making it easier to identify similarities and differences in a group of items.
- For this purpose, the terminology used in binding descriptions (<bindingDesc>)¹⁹ in Beta maṣāḥəft is partly enforced by the schema, customized so to pick up keywords from a specifically conceived taxonomy. The Beta maṣāḥəft taxonomy included in each XML file within the element <taxonomy> contains a main <category> for binding.
- The taxonomy is hierarchically structured so that broader <category> elements corresponding to selected bookbinding features (that is, sewing pattern, thread material, wood type, board lining, decoration motives, endband type, guards, and bookmarks) include one or more child <category> elements corresponding to keywords which describe the possible variants of that feature (see example 1).

Example 1. Part of the taxonomy dedicated to the category Endband Type.

```
</category>
[...]
</category>
</taxonomy>
```

- Each keyword in the taxonomy corresponds to a file in the authority-files repository of the project, which is also a TEI file, to accommodate future information about each of these concepts. Authority files for binding description reflect the hierarchical structure of the taxonomy. They usually contain just a <title>, a brief explanation of what the keyword stands for, and the bibliographic references for the concept. This also makes the concept a published, versioned, citable entity on the web with a stable identifier.
- Keywords are indexed in the Beta maṣāḥəft web application so that the user can visualize which bookbinding features are taken into consideration in manuscript records and which keywords are used to describe their possible variants. When selecting a keyword, the application displays the corresponding authority file, which also shows all the occurrences of that keyword in the manuscript records (see figure 3).²⁰

Figure 3. Slit-braid keyword displayed in the web application.



The keywords are also listed in the ODD^{21} (see figure 4).

Figure 4. The values in the Beta maṣāḥəft ODD as presented in the Guidelines.

Endbands	for use in binding description. Structural and decorative elements of the binding which are found at the head and tail of the spine of a book. The ethiopian endbands are usually slit-braid stripes of leather or link-stitch sewings.
Fastening	for use in binding description. Stripe of different form and material used to keep closed a book. Traces of fastenings can be holes and pins on the outer edge of the boards.
Spine	for use in binding description. The part of the book opposite the fore-edge.
SlipCase	for use in binding description. Portable leather case with attached slip where the manuscript is kept.
Boards	for use in binding description. Components made from one or more pieces of material (usually wood) used to protect and support a bookblock.

Since the aforementioned Language of Bindings thesaurus (LoB) describes in detail many aspects of ancient book structures, Beta maṣāḥəft uses it as much as possible in its controlled vocabulary. When the concept expressed by a keyword can be related to a LoB one, the authority file is set to provide the link to the LoB URI as well. The alignment with LoB is done—like other alignments in Beta maṣāḥəft—with <relation>. The @name attribute permits one to specify the semantic relationship between Beta maṣāḥəft and LoB concepts by using the SKOS²² semantic relation skos:broader or choosing a value from the SKOS mapping properties skos:exactMatch and skos:broadMatch. When a Beta maṣāḥəft concept does not match an exact LoB concept but it is possible to establish a sematic relation with a more general LoB concept, the relation skos:broader is used. For example, Beta maṣāḥəft distinguishes between various hardwood types which are not defined in LoB (which lists among the hardwoods only beech and oak). In this case the Beta maṣāḥəft concepts declare a semantic hierarchical relation with the more general LoB concept hardwood by using the relation skos:broader (see example 3).

Example 2. Use of skos:broader for the alignment to LoB.

```
crelation name="skos:broader" active="cordiaAfricana" passive="http://w3id.org/
lob/concept/1386"/>

crelation>
```

The property *skos:broadMatch* permits one to match a Beta maṣāḥəft concept with an external concept with which there is no exact correspondence. For example, LoB defines *board linings* as the pieces of sheet material adhered to the boards before the book is covered.²³ As explained above, a common board lining in Ethiopian bookbinding tradition is made of textile. Since the concept *textile* in Beta maṣāḥəft specifically refers to the use of the material as board lining, it has a broad match with the LoB concept *board lining*. Nevertheless, it has a semantic exact equivalence with the LoB concept *textile*.²⁴ The authority file specifies both relations using a skos:broadMatch with the LoB *board lining* and a skos:exactMatch with the LoB *textile* (see example 3).

Example 3. Use of skos:broadMatch **and** skos:exactMatch **for the alignment to LoB.**

- In this way the alignment to LoB occurs within the authority files and reflects directly on each manuscript entry where the file is used. This procedure regards LoB vocabulary as a semantic resource, without impacting its integrity but instead improving cooperation and reuse of open data.
- Nevertheless, a standard terminology to refer to the specific characteristics of Ethiopian bookbinding tradition was still lacking. Therefore, Beta maṣāḥəft developed a tailored terminology to offer accurate research data to the users of the application as well as to encoders. Thus, keywords—normally chosen from among the most frequently occurring terms in the bibliography—have been discussed among Beta maṣāḥəft team and external contributors in issues opened in the GitHub repository page of the project. Once the group reached an agreement, the taxonomy file was edited, an authority file was created, and the ODD was updated. When necessary, parts of the Guidelines were also edited, although changes to the ODD are immediately reflected.²⁵

3.2 Bookbinding Descriptions in Beta maṣāḥəft: A Customization of the TEI Schema

- Manuscript records in Beta maṣāḥəft follow the TEI Guidelines for manuscript description (TEI Consortium 2020). Therefore, the description of the current binding of the manuscript is located in <physDesc>, within <bindingDesc>, in the element <binding>. As stated in the Guidelines,²6 <binding> can take @notBefore @notAfter and @contemporary when it is possible to provide information on the dating of its manufacture.
- To produce useful data for scholars, every relevant structural element of the binding should be described, thus encoded, separately. In this way, the data about specific features become searchable and retrievable via the web application. Beta maṣāḥəft and other projects have developed their own ways of meeting this requirement as well as solutions to cope with the issue. According to the TEI Guidelines, the element

 the TEI Guidelines, the element

 child elements. It appears that most manuscript catalogs using TEI listed in the TEI Wiki²¹ have chosen to encode binding descriptions in one or more
 elements, as paragraphs of free text.²²²

 This is the case, for example, with the projects Manuscriptorium²²² and e-Codices.³³0 The latter does at least permit filtering the bindings according to their date and isolating the *luxurious bindings* (see example 4).

```
Example 4. Binding description in e-Codices (Appenzell, Landesarchiv Appenzell I. Rh., E.10.02.01.01)<sup>31</sup>.

<br/>
```

A similar approach is adopted in the ENRICH³² Schema on which the entries in Manuscriptorium are based (Driscoll 2010). According to the Reference Guide (Burnard 2008), the description of the binding is places in elements and <decoNote> elements are used to describe its decorative features.

Since the FIHRST³³ and SENMAl³⁴ union catalogs are based on a customization of the ENRICH schema, they structure the binding description uniformly. In addition, their ODD³⁵ states that the <term> element with @type attribute marks relevant features of the binding and the @ref attribute is used to refer to the appropriate URI in the Ligatus thesaurus. Nevertheless, the link does not seem to have been implemented in the records. An attempt at further structuring of binding records appears in the FIHRST description of some manuscripts in the Wellcome collection in London. Here the description of the binding is always set in paragraphs, but <sep elements with @type and @subtype attributes permit segmenting the paragraph and describing bookbinding structural elements separately (see example 5). Nevertheless, the website does not offer a dedicated search on bookbinding features.

Example 5. Binding description in FIHRST (London, Wellcome Trust, Wellcome Collection, MS Arabic 495)³⁶.

```
<br/><br/>dingDesc>
<binding contemporary="true">
 >
   <seg type="structure" subtype="unsupported"/>
   <seg type="board">
    <dimensions type="binding" unit="mm">
    <height>355</height>
     <width>246</width>
    </dimensions>
    <material>Paper; </material>
   </seg>
   <seg type="covers" subtype="unattached">
   <seg type="spine_formation" subtype="flush"/>
    <material facs="#i0001">leather; </material>
   </seq>
   <seg type="endbands">
    <seg type="primary">
     <seg type="color"> primary endbands natural colour; </seg>
    <seg type="secondary">
    <seg type="color">secondary endbands natural colour; </seg>
    <desc> evidence of endband is visible.</desc>
   </seg>
```

```
</binding>
</bindingDesc>
```

A customization of the TEI schema is also used for manuscript descriptions exported from Manus Online³⁷ (MOL), the Italian national catalog of manuscripts. The binding description is arranged in elements where <note> child elements with @n and @type attributes are added to encode the fields of MOL that do not have a corresponding tag in the TEI schema (Barbero and Trasselli 2014). In this way the boards and cover can be described separately (see example 6).

Example 6. Binding description in MOL (Arezzo, Biblioteca Città di Arezzo, Manoscritti, 118)³⁸.

The Bibliothèque national de France (BnF) created the website Reliures de la Bibliothèque nationale de France³⁹ which offers a selection of digitized French bindings from BnF's collection with a detailed description, using a customization of the TEI schema. As stated in the ODD⁴⁰ and explained in the manual of use (Le Bars et al. 2016),⁴¹ bookbinding descriptions may contain, beyond the elements expected in the TEI schema, <dimensions>, <index>, <globalDescription>, and <structure> elements. The last two elements were created as part of the project to give a summary identification and information on structural elements of the binding respectively (Campagnolo 2015b, 98–99). The <index> element takes a mandatory @indexName attribute with values controlled by the BnF Binding Scheme which serve to identify categories relative to the

type, the technique, the material, and the place of production of the binding—in a similar way to the use made by MOL of the <note> element. An exhaustive description of the binding is based on <decoNote> elements with @type attributes with values that specify the structural element being described (see example 7).

Example 7. Binding description in BnF (Paris, Bibliothèque nationale de France, Réserve des livres rares, RES P- YC- 1275)⁴².

```
<br/><br/>dingDesc>
  <binding contemporary="true">
   >
    <index indexName="typo_reliure">
     <term>Reliure à décor</term>
     </index>
     <index indexName="typo_decor">
     <term>Entrelacs géométriques</term>
     </index> Reliure en <material>maroquin</material> brun jaspé
   <decoNote type="plats"> à décor d'entrelacs géométriques (structure de losange
et
    rectangle) complété de fers évidés.</decoNote>
   <decoNote type="plat_sup">Titre <q>ivvenalis. persivs</q> et ex-libris de Jean
    Grolier <q>io. grolierii et amicorvm.</q> dorés respectivement au centre et
au bas
   du plat supérieur. </decoNote>
   <decoNote type="plat inf">Devise de Jean Grolier<q>portio mea sit in terra
    viventivm</q> dorée au centre du plat inférieur.</decoNote>
   <decoNote type="dos">Dos à cinq nerfs, sans décor ; simple filet doré sur
chaque
    nerf et en encadrement des caissons ; passages de chaînette marqués de même.</
decoNote>
    <decoNote type="tranchefiles">Tranchefiles simples unicolores, vert foncé.
decoNote>
   <decoNote type="coupes">Filet doré sur les coupes.</decoNote>
   <decoNote type="annexes"/>
   <decoNote type="tranches">Tranches dorées.</decoNote>
   <decoNote type="contreplats">Contreplats en vélin.</decoNote>
   <decoNote type="chasses">Filet doré sur les chasses.</decoNote>
```

```
<!-- Description des gardes : gardes blanches ; gardes couleurs (marbrées,
gaufrées, peintes, dominotées, etc.) généralement suivies de gardes blanches ;
dans tous les cas, spécifier le nombre de gardes (début + fin du volume)-->
    <decoNote type="gardes">Gardes en papier et vélin (2+1+2 / 2+1+2) ; filigrane
au
    pot.<ref>Briquet N° XX</ref>
   </decoNote>
   <!-- Élément qui inclut aussi bien des remarques sur la couture que les
charnières, claies ou modes d'attaches des plats : tous éléments de la structure
dont la description est jugée utile à la description et l'identification de la
reliure-->
   <decoNote type="structure">Defet manuscrit utilisé comme claie au contreplat
   inférieur (visible par transparence, sous la contregarde en vélin).</decoNote>
   <condition>Traces de mouillures anciennes plus ou moins importantes au bas des
   feuillets, qui n'ont pas affecté la reliure ; éraflure en tête du plat
   inférieur.</condition>
  </binding>
  </bindingDesc>
```

- What emerges from the inquiry is that the need to encode bookbinding structural elements separately is growing, but since there is no agreed structure, the flexibility of the TEI schema permits projects to develop their own alternative solutions. The technique used is the same: projects have added a @type attribute either to the <decoNote> element or to phrase-level elements within .
- Beta maṣāḥəft has also customized the TEI schema to adapt it to the specific needs of research on Ethiopian bookbinding. The customization of the protocol for bookbinding description started with the purpose of hosting the data inherited from the project Ethio-SPaRe⁴³ and has been further developed within the framework of the "Torno Subito 2017" initiative.⁴⁴ Despite TEI Guidelines defining the <decoNote> element as a note describing "either a decorative component of a manuscript or other object, or a fairly homogenous class of such components,"⁴⁵ Beta maṣāḥəft, like BnF, decided to use it to describe bookbinding structural elements, as well as the decorative elements for which it is designed. The use of <decoNote> elements seemed more appropriate at

the semantic level since the content model macro.specialPara defines them as special paragraphs which "either contain a series of component-level elements or else have the same structure as a paragraph, containing a series of phrase-level and inter-level elements."⁴⁶

- Therefore, <decoNote> elements have been added where the structural element encoded is specified within a @type attribute. The permitted values, related to the main categories of interest listed above, are: binding material, boards, cover, sewing stations, endbands, endleaves, spine, fastenings, slip case, other. The descriptions partly consist of free text and partly are marked up with keywords introduced by using <term> with a @key attribute, and choosing one of the values prompted by the schema.
- The decoNote[@type=bindingMaterial"] may contain the child element<material> to specify the materials the binding is made of, with a @key attribute equal to one of the values of the corresponding taxonomy from the schema (see example 8).

Example 8. Encoding of binding material (Exarchic Greek Abbey of St. Mary of Grottaferrata, Crypt. Aet. 7).

```
<decoNote xml:id="b2" type="bindingMaterial">
  <material key="wood"/>
  <material key="textile"/>
  <material key="silk"/>
  </decoNote>
```

In the decoNote[@type="Boards"] it is possible to use keywords to specify the wood type—if known—and to encode the presence of a textile inlay or of a mirror (see example 9).

```
Example 9. Encoding of Boards (Exarchic Greek Abbey of St. Mary of Grottaferrata, Crypt. Aet. 7).
```

```
<decoNote xml:id="b3" type="Boards">
```

The right board is broken in two halves which are held together by leather strings.

```
The left board is made from <term key="cordiaAfricana">Cordia Africana</term> wood while the right board is made from <term key="ficus">Ficus</term> wood.

On the inner part of the left board is pasted a silk <term key="textile">fabric</term>.

</decoNote>
```

The cover can be described within the decoNote[@type="Cover"]. The color of the cover can be recorded using the attribute @color⁴⁷ Keywords are used to encode the presence of an additional leather patch and describe the decoration motifs tooled on the cover. Furthermore, it is possible to specify the shape of turn-ins (see example 10).

Example 10. Encoding of *Cover* (Hamburg, State and University Library Hamburg Carl von Ossietzky, Cod. Orient. 404)⁴⁸.

```
<decoNote xml:id="b4" type="Cover">
```

Light brown leather cover with wide turn-ins (up to 80 mm) and <term key="additionalLeatherPatch">additional leather patch</term>.

Among the turn-ins is pasted a <term key="textile"/>textile inlay with yellow, red and black vertical lines on a red background.

The blind-tooling decoration of the cover is imprecise and asymmetrical. The patterns on the front and back cover differ slightly.

The decorative pattern shows a latin cross surrounded by a frame. The cross occupies almost the entire central panel of the cover and is formed by the repetition of <term key="XForm">X-Form</term> motifs within <term key="tripleStraightLine">triple straight lines</term>.

The same pattern builds the outer frame.

The extant space of the cover is divided in four rectangular panels by the cross. Here, triple straight lines cross each other diagonally.

At the corners and intersections are <term key="doubleCircle">double circles</term>, single or in groups of four.

On the turn-ins the triple straight lines follow the borders and at the intersections groups of four double circles are found.

The spine is not decorated while double circles are found on the board edges. </decoNote>

In the decoNote[@type="Endbands"] it is possible to encode the @color of the leather straps and specify the endband type using keywords (see example 11).

Example 11. Encoding of *Endbands* (Hamburg, State and University Library Hamburg Carl von Ossietzky, Cod. Orient. 404).

```
<decoNote xml:id="b5" type="Endbands" color="red white">
```

Narrow <term key="slitBraid">slit-braid</term> endbands and are sewn to the text block using a thread of animal origin.

The headband is sewn starting from the upper board while the tailband is sewn starting from the lower board.

```
</decoNote>
```

The decoNote[@type="SewingStations"] requires, by means of a schematron rule in the ODD, that its attribute be a number as attribute, which has to be equal to the number of sewing stations (see example 12).

Example 12. Encoding of *Sewing Stations* (Hamburg, State and University Library Hamburg Carl von Ossietzky, Cod. Orient. 404).

```
<decoNote xml:id="b6" type="SewingStations">4</decoNote>
```

A further description of the sewing is possible within a general <decoNote>, where one can encode the sewing pattern with keywords—according to Bozzacchi's classification (2007)—and the origin of the sewing thread (see example 13).

Example 13. Further encoding of the sewing (Hamburg, State and University Library Hamburg Carl von Ossietzky, Cod. Orient. 404).

```
<decoNote xml:id="b7">
```

The sewing is a chain-stitch on four sewing stations (two pairs). The sewing follows the <term key="patternA">pattern A</term> defined by G. Bozzacchi.

For each sewing station a thread of <term key="animalThread">animal origin</term> has been used.

```
</decoNote>
```

In the decoNote[@type="Endleaves"] the endleaves—if present— are described.⁴⁹ It is possible to add the attribute @pastedown, newly defined in the ODD, and chose up to three values to specify their position in relation to turn-ins. Possible values are "L" (left), "R" (right), "OTI" (over the turn-ins), "UTI" (under the turn-ins) (see example 14).

Example 14. Encoding of *Endleaves* (Hamburg, State and University Library Hamburg Carl von Ossietzky, Cod. Orient. 405). ⁵⁰

```
<decoNote xml:id="b11" type="EndLeaves" pastedown="L OTI">
```

The inner surface of the front board is covered with paper. Traces of paper are found also on the external surface.

</decoNote>

Special characteristics of the spine—for example, a series of holes related to the presence of tackets

—can be recorded in the decoNote[@type="Spine"] (see example 15).

Example 15. Encoding of *Spine* (Hamburg, State and University Library Hamburg Carl von Ossietzky, Cod. Orient. 405).

```
<decoNote xml:id="b9" type="Spine">
```

Small holes are present close to the head and tail of the quires, probably remains of the tackets.

Quires 1, 10 and 11 have additional holes, perhaps traces of a previous sewing or errors occurred during the preparation of the quires.

</decoNote>

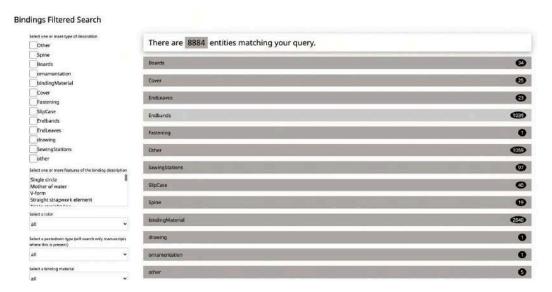
- Within the decoNote[@type="Fastenings"] it is possible to describe fastenings or remaining traces of them, while in the decoNote[@type="SlipCase"] the presence and the shape of the traditional leather case where the codex is kept may be recorded. Lastly, the decoNote[@type="Other"] permits, with keywords, encoding features related to guards—that is, their position in the quire and the technique of attachment—and bookmarks, namely the bookmark type. Furthermore, it is possible using <locus> and @target to mark where the bookmarks are found.
- In order to facilitate the work of the catalogers, guidelines for bindings descriptions have been prepared⁵¹ and are openly accessible to the research community (Liuzzo et al. 2018).

3.3 Current Applications and Future Research Perspectives

Thanks to the flexibility of the TEI it is now possible to accurately describe bookbinding features and thus gather previously unrecorded data which may enable in-depth studies of the Ethiopian bookbinding tradition. The data encoded according to the protocol presented in this paper are structured data that can be processed and presented in many different ways (Liuzzo 2019, 4). Thus, the Beta maṣāḥəft web application offers the user various options for exploring the data about the bindings.

For example, in the bindings' index it is possible to filter among all cataloged manuscripts those whose binding features have been described. 52 As figure 5 shows, at the moment the research environment displays several thousands entities, grouped according to their features. Most of them were described by the Ethio-SPaRe project when the protocol for binding description was not fully developed. For this reason, some features are represented more than others in the results. When one selects a feature, the app displays the shelfmarks of the manuscripts in which its description appears, and the shelfmarks point directly to the entire manuscript record. The left sidebar offers several options to further refine the research according to categories and keywords.

Figure 5. Binding-filtered search on Beta masāhaft web application.



From the results of a search a user can explore various aspects related to the topic of interest —among others bookbinding. A search limited to manuscripts with available images for a given selection allows the user to examine in detail the appearance of selected binding features. For example filtering for *manuscripts* and the keyword *Golden Gospel*,⁵³ the search will retrieve 13 results. It is possible to refine the search by limiting it to manuscripts with available images (6 results) and then filtering for a specific binding material (see <u>figure 6</u>). Thus, the user can directly inspect how the material is used in the manuscripts. Alternatively a view of the results as graphics can allow to directly analyze distributions.

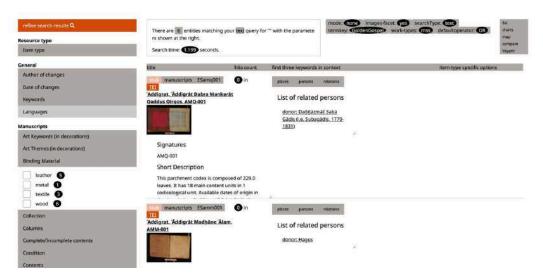
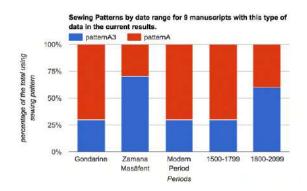


Figure 6. Faceted search for Golden Gospel with available images.

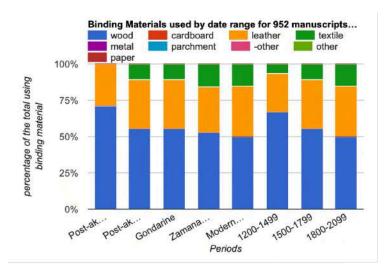
This view of selected items as charts displays, for a group of items, the correlation of the encoded bookbinding features with other manuscript data, such as date and location. In a recent work, Liuzzo introduces this application (Liuzzo 2019, 4-10) and explains how pie or column charts in Beta masāhəft are created using Google Charts, 54 providing the tool with tables of data extracted from the manuscript records. At present, in the web application, when a group of manuscripts is selected, it is possible to generate bar charts of how the number of sewing stations, the sewing patterns, the thread material, and the binding material vary across time-if these features are encoded. The charts have on the x-axis date ranges and on the y-axis the percentage of manuscripts with that feature. The date ranges are both arbitrary periods of three centuries (1200-1499, 1500-1799, and 1800-2099) and periods taken from the canonical periodization of the project.⁵⁵ Bars are created grouping the manuscripts by date, looking at <origDate>. If a manuscript falls within two date ranges, it is counted in both groups. The percentile value allows one to compare the distribution of a feature across different periods regardless of the total number of its attestations (Liuzzo 2019, 9). Figure 7 shows, for example, how the sewing patterns—pattern A and pattern A3 vary according to the dates of nine manuscripts at the State and University Library Hamburg Carl von Ossietzky.

Figure 7. Bar chart of sewing patterns by date range for nine manuscripts at the State and University Library Hamburg Carl von Ossietzky.



Nevertheless, the data charted in figure 7 cannot be taken as representative of the distribution of the sewing patterns in Ethiopian manuscripts since they refer to a sample of only nine manuscripts. More relevant for the representation of a phenomenon is the case when the chart analyzes data from a larger sample. For example, figure 8 shows the distribution of binding material across time for 952 manuscripts encoded by the Ethio-SPaRe project.

Figure 8. Bar chart of the binding materials by date range for 952 manuscripts encoded by the Ethio-SPaRe project.



- The customization of the TEI schema presented here allows catalogers to record accurate and consistent descriptions of Ethiopian bookbinding features. The gathering of this previously unrecorded data offers the opportunity to investigate the possible relationship between specific material features and the time and region in which the manuscripts were produced, thus opening completely new research perspectives in the field of Ethiopian bookbinding studies. Nevertheless, in order for the data to be effectively representative of the Ethiopian bookbinding tradition, they must be derived from a large sample of manuscripts. For this reason, the new protocol for binding description needs to be applied to an increasing number of manuscripts so that more data can be collected.
- In this way it will perhaps be possible to answer unresolved questions relating to the materials and techniques available for bookbinding manufacture and the reasons behind the choices of specific solutions. This study will permit both to understand a specific manuscript's history and also to shed further light on the development of a craft across time and space. Furthermore, the setup of a good documentation practice, based on standardized terminology and methods, would allow combining bookbinding records from different projects' databases, thus fostering comparative research. Hence, an agreement on a standard structure to adopt in binding description in TEI would foster the advance of bookbinding studies.

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NOTES

- 1 For a typological classification of the transformations a manuscript can undergo, see Andrist, Canart, and Maniaci (2013, 61–91). Specifically on bindings, Pickwoad (1995, 213; 2014, 238) notes how books sold in temporary retail bindings may be rebound according to the taste and the needs of the owner. Velios and Pickwoad (2019) show how the CIDOC CRM ontology (http://www.cidoccrm.org) can be used to represent the modifications (variants) of a binding across time. Beta maṣāḥəft evaluates implementing this methodology to enrich binding descriptions.
- **2** The term *original* indicates the first binding the manuscript received, whose manufacture is usually contemporary with the writing.
- 3 A project by Ligatus and the University of the Arts London for the conservation and preservation of the library of the monastery of St. Catherine in Sinai, Egypt. See, accessed January 25, 2022, https://www.ligatus.org.uk/stcatherines/.

- 4 The Language of Bindings (LoB) thesaurus is a reference tool for the description of historical bookbinding structures created by the Ligatus Research Unit at the University of the Arts London with the contributions of international experts in the field of bookbinding studies. LoB is a structured vocabulary, freely available to the research community, based on the Simple Knowledge Organization System (SKOS) and published as linked open data (LOD). See, accessed January 25, 2022, https://www.ligatus.org.uk/lob/.
- 5 "Beta maṣāḥaft: Manuscripts of Ethiopia and Eritrea (Schriftkultur des christlichen Äthiopiens und Eritreas: eine multimediale Forschungsumgebung) is a long-term project headed by Prof. Alessandro Bausi and funded within the framework of the Academies' Programme (coordinated by the Union of the German Academies of Sciences and Humanities) under survey of the Akademie der Wissenschaften in Hamburg. The project is hosted by the Hiob Ludolf Centre for Ethiopian Studies at the University of Hamburg (HLCEES)." See, accessed January 25, 2022, https://www.betamasaheft.uni-hamburg.de and https://betamasaheft.eu.
- **6** Ethiopian bookbinding is a term deeply rooted in literature and refers to the traditional technique used to bind Christian Ethiopian and Eritrean manuscripts.
- 7 See Bausi et al. (2015, 168-70), for an overview and further references; details can be found also in Di Bella and Sarris (2014); Winslow (2015, 201-62); and Nosnitsin (2016).
- **8** For a detailed explanation of the technique and its variations with diagrams, see Szirmai (1999, 16–19).
- **9** For the definition of *sewing stations* see LoB, accessed January 25, 2022, http://w3id.org/lob/concept/1579.
- 10 See Eliana Dal Sasso, "Grottaferrata, Exarchic Greek Abbey of St. Mary of Grottaferrata, Crypt. Aet. 7," in *Die Schriftkultur des christlichen Äthiopiens und Eritreas: Eine multimediale Forschungsumgebung/Beta maṣāḥəft*, edited by Alessandro Bausi, accessed January 22, 2022, https://betamasaheft.eu/manuscripts/GAet7.
- **11** For the definition of *turn-ins* see LoB, accessed January 25, 2022, http://w3id.org/lob/concept/1694.
- **12** For the definition of *blind-tooled decoration* see LoB, accessed January 25, 2022, http://w3id.org/lob/concept/2288.

- 13 The only study on the topic, to my knowledge, is that of Pankhurst (1984). A tentative classification of bookbinding tools and designs is under preparation by the author for the catalog of the Ethiopic manuscripts of the Bodleian Library, a project initiated by Jacopo Gnisci and Dorothea Reule with the cooperation of Eliana Dal Sasso, Solomon Gebreyes Beyene, Susanne Hummel, and Massimo Villa.
- 14 For the definition of *metal sides* see LoB, accessed January 25, 2022, http://w3id.org/lob/concept/4488.
- **15** For the definition of *endbands* see LoB, accessed January 25, 2022, http://w3id.org/lob/concept/2370.
- **16** For the definition of *pastedowns* see LoB, accessed January 25, 2022, http://w3id.org/lob/concept/1493.
- 17 For the definition of *spine linings* see LoB, accessed January 25, 2022, http://w3id.org/lob/concept/1619.
- Guards (see LoB, accessed January 25, 2022, http://w3id.org/lob/concept/1379) either reinforce the folds of quires (precisely defined in LoB as *sewing guards*, accessed January 25, 2022, http://w3id.org/lob/concept/3282) or attach single leaves to a textblock (precisely defined in LoB as *extension quards*, accessed January 25, 2022, http://w3id.org/lob/concept/1322).
- **19** See TEI Consortium 2020, 10.7.3.1: "Binding Descriptions," accessed January 25, 2022, https://tei-c.org/Vault/P5/4.1.0/doc/tei-p5-doc/en/html/MS.html#msphbi.
- 20 See Beta maṣāḥəft, accessed January 25, 2022, https://betamasaheft.eu/authority-files/list?keyword=slitBraid.
- ODD stands for "One Document Does it all." It is a TEI file which contains both machine- and human-readable information about the choices made by the project in the customization of the standard TEI schema.
- 22 The Simple Knowledge Organization System (SKOS) is a "common data model for sharing and linking knowledge organization systems via the Web" (Miles and Bechhofer 2009).
- 23 For the definition of *board linings*, see LoB, accessed January 25, 2022, http://w3id.org/lob/concept/1219.
- 24 For the definition of *textile* in LoB see, accessed January 25, 2022, http://w3id.org/lob/concept/2470.

- **25** See Beta maṣāḥəft, accessed January 25, 2022, https://betamasaheft.eu/Guidelines/? id=bindingDescription.
- TEI Consortium 2020, Appendix C: Elements, <binding>, accessed January 25, 2022, https://tei-c.org/Vault/P5/4.1.0/doc/tei-p5-doc/en/html/ref-binding.html.
- **27** See, accessed January 25, 2022, https://wiki.tei-c.org/index.php? title=TEI_manuscript_catalogues.
- 28 Examples of bookbinding descriptions in TEI can be found in TEI Consortium 2020, Example:

 <br
- 29 See Manuscriptorium, accessed January 25, 2022, http://www.manuscriptorium.com/en.
- **30** See e-Codices, accessed January 25, 2022, http://www.e-codices.unifr.ch/.
- **31** Appenzell, Landesarchiv Appenzell I. Rh., E.10.02.01.01, accessed January 25, 2022, http://www.e-codices.unifr.ch/en/description/laai/E-10-02-01-01/Rechtsquellen.
- 32 European Networking Resources and Information concerning Cultural Heritage. The documents related to the project are available at, accessed January 25, 2022, http://projects.oucs.ox.ac.uk/ENRICH/.
- 33 Union catalog of manuscripts from the Islamicate World: see accessed January 25, 2022, https://www.fihrist.org.uk.
- **34** Union catalog of manuscripts of Shan Buddhist lik lu n manuscripts in UK and Southeast Asian collections: see accessed January 25, 2022, https://senmai.bodleian.ox.ac.uk.
- **35** See, accessed January 25, 2022, https://github.com/msDesc/consolidated-tei-schema/blob/231ec69b8e769d6649ae644004bc3affa39198e6/msdesc.odd#L3071.
- 36 London, Wellcome Trust, Wellcome Collection, MS Arabic 495, accessed January 25, 2022, https://github.com/fihristorg/fihrist-mss/blob/master/collections/wellcome%20trust/WMS_Arabic_495.xml.
- 37 See Manus OnLine, accessed January 25, 2022, https://manus.iccu.sbn.it.
- **38** Arezzo, Biblioteca Città di Arezzo, Manoscritti, 118, accessed January 25, 2022, https://manus.iccu.sbn.it/opac_SchedaScheda.php?ID=49065.
- 39 See BnF, accessed January 25, 2022, http://reliures.bnf.fr.
- **40** See accessed January 25, 2022, http://bibnum.bnf.fr/reliure_20161025/index.html.

- **41** See, accessed January 25, 2022, http://bibnum.bnf.fr/reliure_20161025/manuel/bnf_reliure_tei_manuel.html#n2.6.
- 42 Paris, Bibliothèque nationale de France, Réserve des livres rares, RES P- YC- 1275, accessed January 25, 2022, http://reliures.bnf.fr/ark:/12148/cdt9x5x4/. The XML is the first example in TEI Consortium 2020, Example: <adminInfo> (administrative information), accessed January 25, 2022, https://www.tei-c.org/Vault/P5/4.1.0/doc/tei-p5-doc/en/html/examples-adminInfo.html.
- 43 The project Ethio-SPaRe (ERC Starting Grant 240720) was headed by Denis Nosnitsin of the HLCES from December 2009 to May 2015. It was dedicated to the preservation and scientific analysis of manuscripts located in Ethiopian churches and monasteries, with the focus of the activities being in the Tegray region in the north of the country.
- The "Torno Subito" program, promoted by Regione Lazio, financed by the Regional Operational Programme Lazio European Social Fund 2014–2020, aims at increasing the knowledge and the professional skills of young university students or graduates. In 2017 the author was granted funding to participate in the activities of the Hiob Ludolf Centre for Ethiopian and Eritrean Studies and thus contribute to the development of binding description in the Beta maṣāḥəft project. The second part of the project was carried out at the Italian Central Institute of Cataloging (ICCU) in Rome, within the Manus OnLine project (https://manus.iccu.sbn.it), for which it was possible for the first time to include in the online catalog Ethiopic manuscripts with detailed codicological descriptions (16 mss. from the Exarchic Greek Abbey of St. Mary of Grottaferrata, 1 ms. from the Angelica Library, 2 mss. from the Casanatense Library, 5 mss. from the Library of the Accademia Nazionale dei Licei e Corsiniana, 12 mss. from the Central National Library "Vittorio Emanuele II," 12 mss. from the Giovardiana Library, and 19 mss. from the Library of the Abbey of Casamari).
- TEI Consortium 2020, Appendix C: Elements, <decoNote>, accessed January 25, 2022, https://www.tei-c.org/Vault/P5/4.1.0/doc/tei-p5-doc/en/html/ref-decoNote.html.
- 46 See the definition of the content model macro.specialPara at TEI Consortium 2020, Appendix E: Datatypes and Other Macros, macro.specialPara, accessed January 25, 2022, https://www.tei-c.org/Vault/P5/4.1.0/doc/tei-p5-doc/en/html/ref-macro.specialPara.html.
- The recording of color can be difficult because of discoloration and degradation of materials over time. As stated in the Ligatus guidelines, the color is recorded from protected areas, such as the turn-ins. See Pickwoad and Gullick (2004, 12).

- 48 Eliana Dal Sasso, "Hamburg, State and University Library Hamburg Carl von Ossietzky, Cod. Orient. 404," in *Die Schriftkultur des christlichen Äthiopiens und Eritreas: Eine multimediale Forschungsumgebung / Beta maṣāḥaft*, edited by Alessandro Bausi, accessed Janury 25, 2022, https://betamasaheft.eu/manuscripts/SHOr404.
- 49 In Ethiopian tradition endleaves are mostly, if not exclusively, sewn to textblock.
- 50 Eliana Dal Sasso, 'Hamburg, State and University Library Hamburg Carl von Ossietzky, Cod. orient. 405', in *Die Schriftkultur des christlichen Äthiopiens und Eritreas: Eine multimediale Forschungsumgebung / Beta maṣāḥəft*, edited by Alessandro Bausi accessed January 25, 2022, https://betamasaheft.eu/SHOr405.
- 51 Many catalogers are not binding experts, and the guidelines nevertheless allow them to record features relevant to the study of bindings.
- 52 See Beta maṣāḥəft, accessed January 25, 2022, https://betamasaheft.eu/bindings.
- 53 See, accessed January 25, 2022, https://betamasaheft.eu/newSearch.html? searchType=text&clavistype=&query=&defaultoperator=OR&mode=none&work-types=mss&termkey=GoldenGospel
- 54 See Google Charts, accessed January 25, 2022, https://developers.google.com/chart.
- 55 See PeriodO, accessed January 25, 2022, http://n2t.net/ark:/99152/p03tcss4qvv.
- **56** Beta maṣāḥəft's bookbinding description keeps developing and improving, and benefits greatly from contributions by the research community.
- For example, the PhD project on Coptic bookbinding led by the present author, at the Centre for the Study of Manuscript Cultures of the University of Hamburg, will offer interesting data for comparison. For an introduction to Coptic bookbinding, see Szirmai (1999, 7–43), and for an overview of Late Antique binding crafts, see Boudalis (2018).

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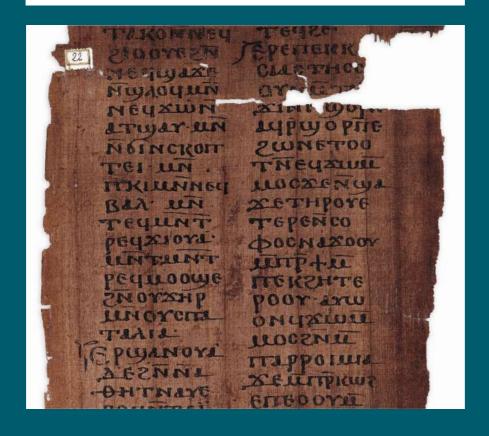
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THE COPTIC CODICES OF THE MUSEO EGIZIO, TURIN

HISTORICAL, LITERARY AND CODICOLOGICAL FEATURES

Edited by Paola Buzi and Tito Orlandi

Texts by
Paola Buzi
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STUDI DEL MUSEO 4





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THE BOOKBINDINGS. HISTORY AND CENSUS

Eliana Dal Sasso

According to its archival records, the Museo Egizio preserves at least seventeen shelf marks inventoried as binding materials. Among these, only the one corresponding to the parchment codex Cat. 7117's binding in wooden boards has elicited mild scholarly interest, while the others have never been described, because nobody could really have access to them until 2016.

It is worth noting that the history of the Coptic bindings in the Museo Egizio is intertwined with the history of the Coptic manuscript collection and, in this sense, indivisible from its conservation history. An examination of the bindings and binding fragments reveals one self-evident fact: they are all detached from the original manuscripts. This is not an unusual occurrence, since it reflects a practice common to many European and non-European institutions until the second half of the 20th century, when a modern approach to conservation was developed.² Prior to that date, the interest in studying the language and content of the Coptic manuscript overshadowed their material aspects. As a result, bindings became the target of invasive interventions designed to facilitate the manipulation of the leaves. Thus, even codices that still retained their ancient bindings were unbound, and the boards, if composed of written papyri from discarded books, were often split open to reveal their contents. Unfortunately, this process has rarely been documented, so today it is challenging, if not impossible, to determine to which manuscripts the Turin bindings originally belonged to.

Therefore, this chapter is dedicated to the study of the features and history of this barely known group of Coptic bindings, providing a detailed description of each item and using a consistent method and terminology in order to avoid further loss of information on their materiality.³

1. The Documentation Method

Each item was photographed with a Canon EOS-1300D on the recto and verso side, as well as on the four sides when necessary. Close-ups of blind-tooled ornaments and specific features were also taken, including metric references. Due to their fragile state of preservation, the objects were handled with extreme care, avoiding manipulation if they were too fragile or fragmented. For this reason, Provv. 6206 and Provv. 6205 *bis* 4 could not be thoroughly examined. It was possible to handle objects stored between glass plates more safely. However, while this is a good housing method for papyrus fragments, it is not suitable for covers since it completely denatures their three-dimensionality and irreparably alters some of their characteristics, which, consequently, could not be recorded during the examination.

¹ The inventory numbers are Cat. 7117/02, Provv. 5055, Provv. 5058, Provv. 5059, Provv. 5060, Provv. 5061, Provv. 5062, Provv. 5063, Provv. 5066.4, Provv. 6204, Provv. 6205, Provv. 6206, Provv. 6266, Provv. 6267, Provv. 8579, Provv. 8580, and Provv. 8581.

² Campagnolo, in Campagnolo, Book Conservation and Digitization, 2020, pp. 49–92.

The research for this contribution 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. The research is part of the PhD project "Bookbindings as Archival Instruments: Defining, Ordering, and Transmitting Knowledge in Christian Egypt (4th—1th centuries)" in close collaboration with the project "PAThs: Tracking Papyrus and Parchment Paths. An Archaeological Atlas of Coptic Literature" (http://paths.uniroman.it) (P.I. Paola Buzi). I express my sincere gratitude to the papyrus collection's curator, Susanne Töpfer, and to Valentina Brambilla and Valentina Turina, for their time and support during my research.

⁴ After a period of closure imposed by legislation to counter the spread of the Covid-19 pandemic, the museum reopened to researchers and, in the week from February 22 to 26, 2021, it was finally possible to examine in-person most of the items, except for Provv. 5062 (in conservation). The examination of the other items was conducted in the conservation laboratory, under the supervision of Valentina Brambilla and Valentina Turina.

⁵ They were put under glass in an undeterminable period, but certainly a long time ago. Their restoration is planned in the near future.

As part of the documentation process, the items that originally belonged to a binding were assigned a unique and stable identifier, the Coptic Literary Manuscript number (CLM), to attest to the existence of a codicological unit according to the classification of the "PAThs" project (https://atlas.paths-erc.eu/manuscripts).

The binding with wooden boards can undoubtedly be associated with parchment manuscript Cat. 7117. Therefore, both the parchment leaves and the binding are described under CLM 1131. According to Tito Orlandi, Provv. 6266 (CLM 6329) was found among the fragments of the codex mentioning Sabinus of Heraclea (CLM 6558). All the other items bear their own CLM, but they may be combined if additional evidence indicates that they belong to the same codicological unit. Provv. 5066/4 did not receive a CLM since there is insufficient evidence that it was part of a binding, while an examination of Provv. 6205 revealed that

it comprises fragments belonging to different codicological units. Therefore, sub-shelf marks (Provv. 6205 *bis* 1, *bis* 2, *bis* 3, and *bis* 4) were created to assign different CLMs (6560, 6645, 6646, and 6647) and describe them individually.

The aim of the examination was to obtain detailed and uniform descriptions of the items. Therefore, a survey to document distinctive bookbinding features was set up, expanding the schema for the codicological description of codicological units developed by the PAThs team (https://docs.paths-erc.eu/handbook/manuscripts).

A short description of the survey fields is presented here (*Table 1*). When the item lacks a specific feature, the relative survey field is suppressed. The descriptions of the individual shelf marks present in this contribution can be consulted on the PAThs online Atlas by looking for the respective CLM or shelf mark (https://atlas.paths-erc.eu/manuscripts).

Table 1: Survey fields for bookbinding description

CLM	Coptic Literary Manuscript identifier
Shelf mark	

Inventory number.

Codex stratigraphy

Brief description of the alterations which the codicological unit was subjected to. Most of the bindings and binding fragments are the only surviving elements of the respective codicological units.

Modern restorations

Information on the item's current state of preservation, its housing (in boxes, paper folders, or glass plates), and conservation interventions.

Dimensions

Measurement in mm (H x L) of the boards and the back (if applicable), or of the fragments.

Sewing

Information on the sewing or sewing thread.

Boards

Information on the material and technique used for board formation and description of specific features, such as board attachment system, bevels, and edge grooves.

Cover

Information on the cover's material and description of specific features, such as turn-ins, mitres, and decoration.

Spine lining

Information on the spine lining's material.

Fastenings

Description of the fastenings or their remnants.

Other ties

Description of other ties or their remnants, often found in the upper external corner of the boards and that can be connected to the former presence of bookmarks.

Notes

Further information on additional aspects.

2. The Composition of the Group of Coptic Bindings

Following a thorough examination of the bindings, it is possible to present the group's overall composition, which includes entire bindings and book covers, as well as fragments of bindings, covers, and boards (*Table 2*).

Provv. 6204 (CLM 6557) and Provv. 6205 *bis* 4 (CLM 6647) seem to be two complete bindings in laminated papyrus boards covered with leather, which still contain traces of the board attachment. However, this hypothesis could not be confirmed because they could not be handled due to their poor state of conservation. These form the "binding" category.

Shelf marks Provv. 5061 (CLM 6554), Provv. 5062 (CLM 6555), Provv. 5063 (CLM 6556), and Provv. 6206 (CLM 6561) all fall under the "cover" category, which refers to entire leather book covers. They consist of an upper and lower cover still attached at the back where the boards were removed. Also included in this category are the wooden boards with the shelf mark Cat. 7117/02 (CLM 1131).

Provv. 5058 (CLM 6551), Provv. 5059 (CLM 6552), and Provv. 5060 (CLM 6553) are leather fragments that can be identified as book cover fragments. Therefore, they have been included in the "cover fragment" category. Due to the lack of sufficient evidence to establish the same for Provv. 5066/4, this was not given a CLM.

Fragments of leather covers still adhering to the papyrus laminated boards have been classified as "binding fragments". These are Provv. 6205 *bis* 1 (CLM 6560), Provv. 6205 *bis* 2 (CLM 6645), and Provv. 6205 *bis* 3 (CLM 6646).

The "board fragments" category includes the fragments of laminated papyrus boards identified with the following shelf marks: Provv. 5055 (CLM 6550), Provv. 6267 (CLM 6658), Provv. 8579 (CLM 6661), Provv. 8580 (CLM 6659), and Provv. 8581 (CLM 6660). Provv. 6266 (CLM 6329), which contains the scribal inscription mentioning the city of This, can be included in this category, since it refers to a lower papyrus laminated board that is missing the upper board. *Table 2* resumes the overall composition of the group of items related to bindings.

Table 2: Group of items related to bindings

No.	CLM	Shelf mark	Short description
1	1131	Cat. 7117/02	Cover
2	6550	Provv. 5055	Board fragments
3	6551	Provv. 5058	Cover fragment
4	6552	Provv. 5059	Cover fragment
5	6553	Provv. 5060	Cover fragment
6	6554	Provv. 5061	Cover
7	6555	Provv. 5062	Cover
8	6556	Provv. 5063	Cover
9	-	Provv. 5066/4	Leather fragments
10	6557	Provv. 6204	Binding
11	6560	Provv. 6205 bis 1	Binding fragment
12	6645	Provv. 6205 bis 2	Binding fragment
13	6646	Provv. 6205 bis 3	Binding fragment
14	6647	Provv. 6205 bis 4	Binding
15	6561	Provv. 6206	Cover
16	6329	Provv. 6266	Board fragments
17	6658	Provv. 6267	Board fragments
18	6661	Provv. 8579	Board fragments
19	6659	Provv. 8580	Board fragments
20	6660	Provv. 8581	Board fragments

The "covers" category encompasses both entire leather covers where the boards have been removed and the wooden boards of Cat. 7117/02 (CLM 1131).

The "cover fragments" category identifies fragments of leather covers, without boards.

The "leather fragments" are pieces of leather that could not be identified as belonging to a cover.

The "board fragments" are fragmentary laminated papyrus boards.

The "bindings" category identifies items with a leather cover over papyrus boards and traces of board attachment.

The "binding fragments" are fragments where the leather covering still adheres to the laminated papyrus boards.

The examination enables some conclusions to be drawn on the number of codicological units represented by these bindings and binding fragments. It emerges that the museum holds seven almost complete bindings: two bindings in papyrus laminated boards covered with leather, four complete leather covers, and one cover in wooden boards. They attest to the existence of seven codicological units.

The three binding fragments and the three cover fragments are the remnants of six further codicological units. In particular, the papyrus laminated board with the scribal inscription (Provv. 6266 = CLM 6329) has features and dimensions that do not match any leather cover. Therefore, it represents an additional codicological unit. Shelf marks corresponding to board fragments were likely extracted from the preserved bindings. However, since it is impossible to prove this fact, they have currently been classified as six distinct codicological units.

Therefore, the group of bindings and binding fragments encompasses the remnants of fourteen codicological units, as well as further five units corresponding to board fragments. It must be noted that the board fragments not only attest to the existence of a codicological unit, but also to the existence of other former codicological units that were dismantled in antiquity to serve as raw material for the creation of a new binding.

3. Bookbinding Features

Most of the bindings preserved in the museum are bindings in laminated papyrus boards enclosed in leather covers, except for Cat. 7117 (CLM 1131), which is one of the few surviving bindings in wooden boards. The following paragraphs describe the main features of the two categories of bindings examined, using the terminology adopted in the catalogue.

3.1 Bindings in Wooden Boards

Coptic bindings in wooden boards are early examples of case bindings, namely, bindings in which the cover is added to the textblock after it has been sewn, as though to enclose it. To be precise, these are adhesive-case bindings because they are adhered to the textblock solely by means of adhesive (Fig. 10).

The case is formed by two wooden boards held together by a leather back strip and leather hinging thongs. The back strip is wider than the spine so that it has extensions that can lie on the inner surface of the boards. A variable number of holes are drilled obliquely from the spine edge to the inner surface of the boards for the attachment process. The leather hinging thongs are positioned in correspondence to the holes and pasted across the spine of the bookblock. The

thongs, like the back strip, extend beyond the width of the spine and their extensions are called hinging slips.

The actual casing-in takes place at this stage. The leather back strip is glued to the spine of the bookblock over the hinging thongs, and small slits are cut in correspondence to their position. The hinging slips are passed through the slits and threaded through the holes in the boards. Eventually, the hinging slips and the extensions of the leather back strip are pasted onto the inner surface of the boards. A fundamental component of casing-in is the adhesion of the bookblock's first leaf and last leaf to the inner surface of the upper and lower boards, respectively. This prevents the bookblock from detaching from the cover, since its weight is distributed over the entire surface of the boards. Nevertheless, the hinges are the points that are subjected to most stress and, consequently, breakage.

The bindings in wooden boards are kept closed by a fastening system of wrapping bands. These flat and wide strips of leather are attached to the fore-edge, and occasionally also to the head of the upper board, and wrapped around the codex. Pegs made of bone or ivory, which secure the closure by sliding them under the windings, may be placed at the extreme ends of the wrapping band. All wrapping bands are currently detached from the boards, but a reconstruction can be seen on Lamacraft's reproduction of Cpt. 813, Chester Beatty's Digital Collections (CLM 64).

An additional hole may be drilled in the upper external corner of one or both boards from where a leather tag was suspended, which possibly served as a bookmark.

The binding of Cat. 7117 (CLM 1131) possesses these characteristics, but the leather back strip, the tag, and the wrapping bands are not preserved. The only surviving elements are fragments of leather and the holes used for their attachment. However, the wrapping band secured at the fore-edge left a horizontal mark across the surface of the board.

As regards the sewing, it was removed when the manuscript was detached from its cover. However, based on observations of other codices that retain their sewing, it is possible to infer that the codex in Turin had chainstitch sewing, which is distinctive to Coptic manufacturing.

⁶ The others are listed in Sharpe, in *International Conference on Conservation and Restoration of Archival and Library Materials*, 1999 with an update by Dal Sasso, in Buzi, *Coptic Literature in Context (4th–13th cent.)*, 2020, pp. 283–93.

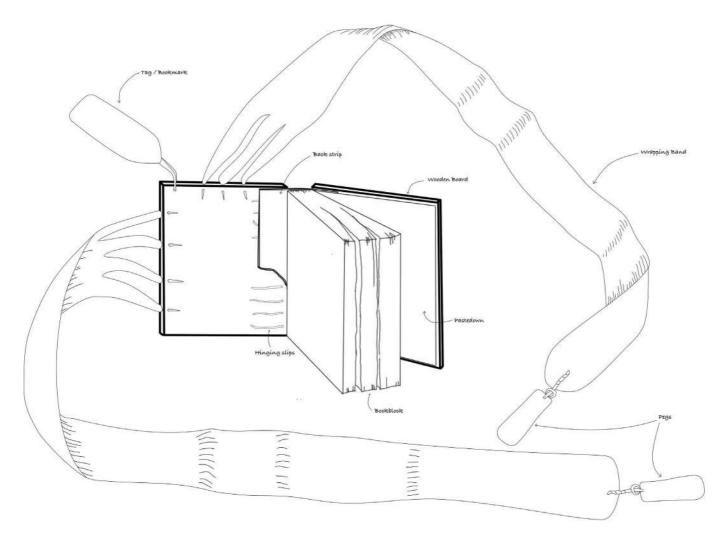


Fig. 10: Model of a binding in wooden boards showing a hypothetical reconstruction of Provv. 7117/02 (CLM 1131). Adapted from Petersen 1954.

It is worth noting that, while the boards of Coptic bindings are typically flush with the textblock, the boards of Cat. 7117 (CLM 1131) are not; they measure 240 x 210 mm while the leaves are 182 x 160 mm. This could be the consequence of parchment shrinkage caused by the deterioration of collagen fibres. Yet, it is interesting to observe that the same phenomenon is visible on the parchment codex found by Tomasz Górecki in 2005 (CLM 3469).7 CLM 3469's binding presents other characteristics similar to CLM 1131. For example, the dimensions of the boards (310 x 230 mm). Furthermore, CLM 1131's boards have eight holes arranged into two groups of four holes used for the anchorage of the leather back strip, while CLM 3469 has ten holes also arranged into groups: two of three and one of four holes. Lastly, both CLM 1131 and CLM 3469 had two wrapping bands (one at the head and one at the fore-edge).

However, even if it is useful to draw attention to these similarities, it would be misleading to deduce any conclusion based on the limited number of preserved bindings in wooden boards.

3.2 Bindings in Laminated Papyrus Boards Covered with Leather

The majority of preserved bindings fall into this category, where the boards are composed of layers of papyrus sheets and, in some cases, also of plant fibres, parchment, paper, and leather fragments, pasted together (Fig. 11).

Unlike the bindings in wooden boards, the board attachment is part of the sewing and can be obtained in two ways:

⁷ Cairo, Coptic Museum 13446. See Górecki, PAM 17, (2007), pp. 263-74.

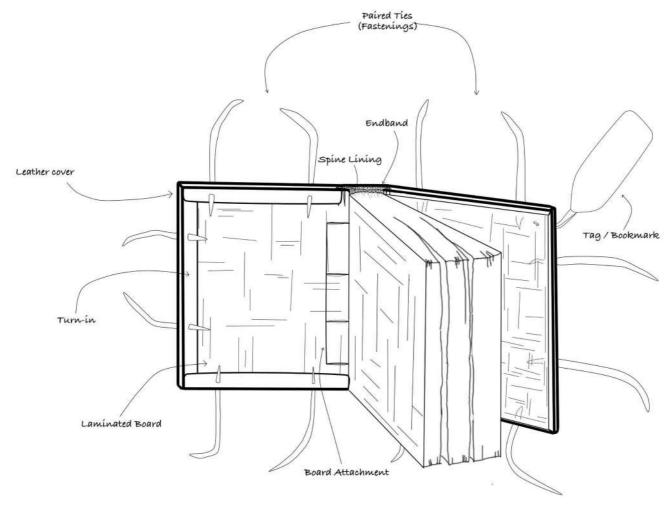


Fig. 11: Model of a binding in laminated boards. Adapted from Boudalis 2018.

- a) The first and last quires of the bookblock are left blank and their leaves are pasted together to form the boards after the sewing. The thread then runs along the fold of the quire and is thus embedded in the board. Boards of this type are referred to as folded boards.
- b) Once the laminated boards have been constructed, the thread is wound several times around their spine edge through holes, forming hinging loops. The sewing anchors the thread to the hinging loops and then connects the quires from the upper to the lower board.

Although invasive interventions led to the loss of almost all information concerning the sewing structures and board attachment, it is still possible to observe that the boards of Provv. 6204 (CLM 6557) are folded. Nevertheless, the thread emerges from holes stabbed through the thickness of the boards and not from the fold as expected. Unfortunately, the state of conservation precludes any further examinations of this uncommon structure. Similar considerations can be drawn for Provv. 6206 (CLM 6561). This

retains part of the sewing structure, but cannot be handled due to the brittleness of the leather cover.

Once the boards were constructed and attached to the sewing, they were completely covered in leather and decorated using different techniques. The covers in the museum mainly display a blind-tooled decoration, but CLM 6561 and CLM 6553 were embellished with a painted decoration that is now faded and barely discernible.

It is worth noting that the blind-tooled decoration of Provv. 5061 (CLM 6554) presents a double X-motif with a dot in the middle. This is very similar, but not identical, to the one on the binding of DB 2196 (= CLM 1210), which was found during excavations in the Monastery of Paulos in Deir el-Bachit.8

⁸ Eichner, in Gastgeber and Daim, *Byzantium as Bridge*, 2015, pp. 242–43 and Abb.4; Veldmeijer, *Sandals, Shoes and Other Leatherwork*, 2011, pp. 36–38, 153, 155, 156 [no. 175] and Fig. 35.

Some of the covers exhibit what seems to have been a fashionable feature at the time, which is also found in Byzantine bindings. The feature is achieved by indenting the board's edges to create a groove. The effect can be achieved in two ways: by completely covering the boards and creating a depression along the edge with the impression of a blind-tooled fillet (Fig. 12), or by creating double boards, that is, two boards formed as described above, covered individually, and adhered together (Fig. 13). The board closest to the textblock is called the inner, or primary board, and can only be covered along the edge with a strip of leather (the edging strip), while the outer board, or secondary board, is completely covered with leather. In the case of folded boards, the edging strip is applied to the half of the quire closest to the textblock, while the other half is completely covered. Both methods can be seen in the museum's bindings. The board edges of CLM 6561 and CLM 6646 are impressed with a fillet, while CLM 6560, 6645, and 6647 are examples of double boards.

It cannot be ruled out that the CLM 6553 leather cover was reused to stiffen the boards of a new cover. In fact, a large portion of the leather was cut out from the surface, traces of glue and papyrus fibres are present, and two holes were pierced in the margin, altering the decorative design.

A variety of fastening systems are attested on Coptic bindings in leather-covered boards. What remains on the bindings in Turin leads us to believe that they had a system of paired ties that passed through slits cut at corresponding points on the upper and lower boards.

An additional pair of holes is also present in this type of binding at the upper outer corner, which may indicate the former presence of hinging bookmarks.

4. Classification of Blind-Tooled Motifs

The blind-tooled motifs found on the leather covers of the Coptic bindings in the Museo Egizio were categorised according to the classification system proposed by Nicholas Sarris for the finishing tool impressions found on the Greek bindings at St Catherine's Monastery in Sinai. Each tool in Sarris' classification is identified by means of a unique alphanumeric string, for example, Ha.bi01. The first letter of the string identifies the type of tool. In the case of the museum's bindings, all the impressions are produced using



Fig. 12: Grooved board edge of Provv. 6205 bis 3 (CLM 6646). Photo by author.



Fig. 13: Double board structure of Provv. 6205 *bis* 1B (CLM 6560). Photo by author.

small hand tools, represented by the letter H. The second letter of the string identifies the theme represented by the motif. Sarris limits himself to five theme categories in order to avoid ambiguities caused by subjective interpretations of the designs. The motifs tooled on the covers in the museum can be classified as animal (a), vegetation (f), ornamental (o), and miscellaneous (m) motifs. The two letters following the full stop represent a further level of differentiation and designate the sub-categories as listed in *Table 3*. Lastly, each tool is identified by a unique number in bold. Therefore, the string Ha.bi**01** identifies an animal motif within the sub-category of birds with the accession number o1. Generally, the categories proposed by Sarris have been retained, and new sub-categories have been introduced only to iden-

⁹ A few of the bindings of the Edfu manuscripts were similarly treated, see Lindsay, *The New Bookbinder* 21 (2001), pp. 31–51.

¹⁰ Sarris, "Classification of Finishing Tools in Greek Bookbinding", 2010.

tify themes not included in his classification. Furthermore, motifs classified by Sarris as "crosses" in the "miscellaneous" category are here considered separately in two specific sub-categories (single X-forms and double X-forms) within the main "ornamental" category. *Table 3* presents the classification of tooled motifs on the covers in the Museo Egizio in accordance with Sarris' system.

Table 3: Classification of tooled motifs in accordance with Sarris'system

Theme Category	Sub-category	
Animal (a)		
	Birds	(bi)
	Single quadrupeds	(sq)
Vegetation (f)		
	Rosettes	(rs)
	Spikes	(sp)
Ornamental (o)		
	Single circles	(sc)
	Triple circles	(tc)
	Fourfold circles	(fc)
	Dotted double circles	(dd)
	Single X-forms	(sx)
	Double X-forms	(dx)
	Pyramidal	(py)
Miscellaneous (m)		
	Crosses	(cr)

Blind-tooled motifs are traditionally reproduced by means of rubbings, namely, 1:1 reproductions obtained by repeatedly moving a pencil back and forth with firm pressure on a sheet of paper positioned over the tooled motif. For obvious reasons, this method could not be applied to the fragile Coptic bindings. Therefore, each tooled motif was photographed with a metric reference. *Table 4* presents the blind-tooled motifs organised by the relative CLM and shelf mark of origin, and *Table 5* presents the associated B/W images organised by theme category.

Table 4: Blind-tooled motifs organised by the relative CLM and shelf mark of origin

CLM	Shelf mark	Tool name
6554	Provv. 5061	Ha.bi 01 Ho.dx 02 Hf.rs 03
6560	Provv. 6205 <i>bis</i> 1	Ha.bi 04
6645	Provv. 6205 <i>bis</i> 2	Ho.fc 05 Hf.rs 06 Ho.sc 07
6646	Provv. 6205 <i>bis</i> 3	Ho.py 08 Hf.rs 09 Ho.sc 10
6551	Provv. 5058	Ho.sx 11
6555	Provv. 5062	Ha.bi 12 Hm.cr 13 Ho.dd 14 Ho.tc 15 Ha.sq 16 Hf.sp 17

[&]quot; I am indebted to Giulia Pallottini for sharing the images of the hardly discernible tooled motifs on the cover of Provv. 5062.

Table 5: B/W images of the blind-tooled motifs organised by theme category

Theme Category	Images				
		Single quadrupeds			
Animal			S mm	<u> 5 mm</u>	
	Ha.bi 01	Ha.bi 04	Ha.bi 12	Ha.sq 16	
		Rosettes	I	Spikes	
Vegetation	Hf.rs 03	3 mm Hf.rs 06	Hf.rs 09	3 mm Hf.sp17	
	Single circles		Triple circles	Fourfold circles	
	3 mm Ho.sc 07	₹ mm Ho.sc 10	5 mm Ho.tc 15	Ho.fc 05	
Ornamental	Dotted double circles	Single X-forms	Double X-forms	Pyramidal	
	5 mm Ho.dd 14	3 mm Ho.sx11	Ho.dx 02	Ho.py 08	
	Crosses				
Miscellaneous	<u>₹ mm</u> Hm.cr 13				

5. The Bindings' History and Conservation

Early descriptions of Coptic bindings started to appear at the beginning of the 20th century thanks to the efforts of passionate scholars and restorers. Although these reports are far from consistent or complete,¹² they attest to the development of a new branch of codicology.¹³

Nevertheless, documentation for the Museo Egizio's Coptic bindings is scant. The presence of Coptic bindings in the collection seems to have been overlooked by researchers, although these artefacts have always been accurately preserved in the museum. Therefore, the reconstruction of the history of the bindings in the collection began from the few written sources available and must continue by integrating the information gleaned from the objects' autoptic analysis.

6. From Acquisition to Cataloguing

Bernardino Drovetti's inventory of the collection acquired by the museum comprises seven Coptic codices on papyrus, one on parchment, six manuscript fragments, and one manuscript on tanned leather.

Specifically, the list in the first section of his inventory, *Papyrus et Manuscrits*, enumerates:

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[...]
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125–131. Septes livres coptes manuscrits sur papyrus.

[...]

145. Livre copte sur parchemin.

146. Fragment de manuscript copte cursif ou inconnou.

147. Id. id. id.

148. Id. id. id.

[...]

154. Fragment d'un manuscript copte.

156. Manuscrit copte sur une peau simplement tannée.

[N° 155 is omitted; the numeration skips from N° 154 to N° 156, ndr]

[...]

162. Fragment de manuscrit copte sur parchemin.¹⁴

Given that there is no information concerning the ac-

quisition of other codices,¹⁵ it is likely that the Coptic bindings in the museum are those listed in Drovetti's inventory.

The codices were mentioned shortly after their acquisition in the essay that Amedeo Peyron read to the Accademia delle Scienze assembly on May 24, 1824. Even if the bindings are not mentioned directly, the text contains valuable information about the manuscripts' state of conservation and subsequent treatment. According to Peyron's report, the codices were shipped in a humid wooden box, and when he opened it, he found them in such a fragmentary state that he defined them as sfasciume di un migliaio di fogli papiracei ("a rubble of about one thousand leaves").16 Jean-François Champollion shared this opinion and underlined the need to transcribe the texts.¹⁷ According to Tito Orlandi, however, Peyron's statement might have been exaggerated.18 Peyron acknowledges that the parchment codex was in a good state of preservation and, most importantly for the reconstruction of the Coptic codices' conservation history, he mentioned that he repaired what he could.19

Apart from this short note on the materiality of the codices, Peyron focused on identifying the different texts contained in each codex, of which he gave a list in the introduction to the *Lexicon Linguae Copticae*. The first direct mention of a binding appeared in Francesco Rossi's essay, approved by the Accademia delle Scienze assembly on April 8, 1883, where he briefly stated that the parchment leaves of Cat. 7117 (CLM 1131) were bound in a volume with wooden covers. In 1881, the same note was reported in Fa-

T.C. Petersen's contribution on the bindings of the Hamuli manuscripts at the Morgan Library is the most significant. The catalogue which was edited by F.H. Trujillo for the Legacy Press, was finally published posthumously in 2021. See Petersen, *Coptic Bookbindings in the Pierpont Morgan Library*, 2021. However, in keeping with the conservative approach of that time, the bindings were separated from the manuscripts. Even though Fr. Franz Ehrle, the library's prefect, was conscious of the importance of this collection for studying bookbinding history, he performed the operation himself with his table scissors.

¹³ For a short overview on the development of this branch, see Gumbert, *Archiv für Diplomatik* 50 (2004), pp. 505–26.

Documenti inediti per servire alla Storia dei Musei d'Italia, 1880, p. 210.

¹⁸ The only other documented purchase of Coptic manuscripts is related to a fragment acquired during Schiapparelli's excavation in Asyut in 1905. The purchase is recorded in the register under number 8208. See ASTo, Museo Egizio, II versamento, mazzo 2, fasc. 12, Asyut.

¹⁶ Peyron, *Memorie* 29 (1825).

r See ASTo, Istruzione Pubblica, mazzo 2, fasc. 13, Osservazioni e idee di Champollion sulla conservazione e sull'ordinamento del Museo Egizio.

¹⁸ Orlandi, Muséon 87 (1974), p. 117.

¹⁹ Peyron, *Memorie* 29 (1825), pp. 70–92.

Peyron, Lexicon, 1835.

bretti, Rossi, and Lanzone's catalogue.²¹ Years later, Rossi discovered, in a wooden box in the deposits of the museum, fragments of leather covers, one of which still had the papyrus pastedown attached (CLM 6329). He separeted the leaves and fragments and attempted to recompose the codex.²²

The binding and binding fragments have since undergone several cataloguing, which have added further sigla but no additional information.²³ Thus, the bindings are still presently classified with the shelf mark Provv., an abbreviation for *Provvisorio*, which means the original inventory number is not known. The database files include a brief description of the item, the date of purchase (1824), additional identification numbers, and photographic reproductions.

As for the history of Coptic manuscript conservation, upon the manuscripts' arrival in Turin, Giulio Cordero di San Quintino was appointed conservator formally responsible for the museum's collection.²⁴ However, he did not take charge of the Coptic manuscripts. Instead, as Peyron mentioned and Rossi later reported in more detail,²⁵ the first conservation treatment on the manuscripts was performed under the directives of Peyron himself. After carefully extracting the leaves from the box,²⁶ he had them glued to transparent paper and coated the papyri with a thin layer of varnish, which caused the writing medium to delaminate and darken over time.

The codices were dismembered at the end of 1824: the bifolia were cut along the central fold and pasted onto paper. The papyri were temporarily housed in paper folders to later be mounted between glass plates.²⁷ The bindings were preserved separately to their leaves. Probably at the same time, the boards formed by papyrus leaves with traces of writing were analysed in an attempt to recover ancient texts, resulting in the shelf marks of board fragments.

7. Modern Conservation History

There is no mention of Coptic binding conservation from the 20th century. Yet, there are notes referring to the treatment of ancient Egyptian papyri and, to a lesser extent, Coptic papyri, which were restored through a similar process.

Erminia Caudana was the person responsible for the conservation of the papyrus collection from the 1930s to late 1950s. She arrived at the laboratory of the Turin National Library in 1910 and worked on the codices damaged by the 1904 fire under the guidance of Carlo Marrè and Piero

Giacosa.²⁹ Her position in Turin was confirmed in 1922 after Marrè's death and the favourable recommendation of the Ministero della Pubblica Istruzione. Her work on the papyri commenced in 1929 under the director Giulio Farina, and the laboratory was transferred to the first floor of the Accademia delle Scienze building in 1935. She started by detaching the papyri that were pasted to paper and transferring them onto gauze, and during World War II, she prepared the papyri for their temporary relocation to the Agliè castle outside Turin as a preventative measure against bombings.³⁰ The papyri were placed in wooden boxes and remained there for years after the war.³¹ She was joined by her nephew, Amerigo Bruna, in 1951, and she then officially retired on March 12, 1963.³²

Despite Caudana's proven skills, Hugo Ibscher, the well-known papyrus restorer of Papyrussammlung of the Egyptian Museum in Berlin, was asked to undertake the restoration of the fragments of the Turin Kings List (Cat. 1874 verso).³³ Wilhelm Schubart, the curator and director of the

- ²¹ Rossi, *Memorie* 35 (1884), p. 167. Fabretti, Rossi and Lanzone, *Regio Museo*, 1888, p. 309.
- ²² Rossi, Atti 5 (1893), pp. 3 and 136.
- ²³ This is how the sigla RCG, RCGE, and PN originated.
- Museum regulations required the conservator to oversee the museum's management and conservation assisted by an Alumno and a Custode. See ASTo, Istruzione Pubblica, mazzo 2, fasc. 12, *Progetti di regolamenti pel Museo Egizio*.
- ²⁵ Rossi, Memorie 35 (1884), p. 167.
- ²⁶ Rossi refers to the manuscripts extracted from the box as leaves. He may, however, have been misled by the appearance of the manuscripts at the time.
- ²⁷ An expense note dated 1835 records the purchase of paper from a shop called Mandillo, specifically for pasting and housing the papyri. The purchase of glass panes from a shop called Vedova Pomba e Simondetti is recorded in the same note. See ASTo, Museo Egizio, I versamento, mazzo 3, fasc. 1, *Contabilità anteriore al 1860*.
- ²⁸ For a resume of Caudana's conservation activities and additional bibliography, see Curto, *Aegyptus* 55 (1975), pp. 271–74. A report sent by Caudana to the Ministry of Education on the activities of the restoration laboratory of the Turin National Library in the years 1905–1955 is in ASTo, Museo Egizio, I versamento, mazzo 75, fasc. 1, *Raccolta di documenti per la storia del Museo Egizio, curata da Sivio Curto*.
- ²⁹ Carlo Marrè was a restorer of the Apostolic Vatican Library and was sent by Franz Ehrle to save what he could of the materials damaged by the fire at the Turin National Library. Marrè's restoration laboratory, dependent on the National Library, was located at the University's Medical Institute, directed by Professor Piero Giacosa.
- ³⁰ The documents also show that the museum's director, Giulio Farina, was uncertain about moving the papyri because of their fragility. See ASTo, Museo Egizio, I versamento, mazzo 6, fasc. 16, *Affari particolari e riservati*.
- ³¹ A document dated 10/30/1946 contains Ernesto Scamuzzi's reply to G. Goyon from the Services of Antiquities in Cairo. He stated that it was impossible to photograph the requested papyrus because it was still housed in one of the wooden boxes. See also ASTo, Museo Egizio, I versamento, mazzo 48, fasc. 12. Antichità egizie.
- ASTo, Museo Egizio, I versamento, mazzo 126, fasc. 7, Caudana.
- ³³ ASTo, Museo Egizio, I versamento, mazzo 48, fasc. 10, *Antichità egizie. Pratiche varie.*

Berliner Papyrus Collection, granted Ibscher two months' leave in 1930 to come to Turin and work on the manuscript. Ibscher had already studied and restored some Coptic bindings preserved in Berlin at the time, but there is no evidence that he worked on the Turin bindings.

Information on the recent conservation history of the Coptic manuscripts is derived from Tito Orlandi's paper in *Le Muséon*. The glazing of Coptic papyri, which continued for several years, was concluded during his stay at the museum. Orlandi rearranged the collection in line with Peyron's inventory, re-establishing the codices' original unity. Furthermore, Tito Orlandi was able to identify other codices that were not mentioned by Peyron, proving that the museum still held material that is so far undocumented. The bindings belonged to this group.

It is quite possible that the first binding to receive conservation treatment was Cat. 7117/02 (CLM 1131), consisting of the repair of the wooden boards that were both cracked and split into two parts by a lengthwise fracture. The upper board was repaired by nailing three metal plaques across the fracture on both board surfaces. At present, three plaques are missing, and the remaining ones are oxidized. The fracture on the lower board was repaired by pasting a strip of paper onto it. Two other strips of paper were folded tightly over the board's head and tail edges. The strip of paper above the fracture bears a watermark showing a crowned shield featuring two superimposed stylized figures (Fig. 14). The watermark was not mentioned in the consulted catalogues, 35 which could have provided an indication for the dating of the material and, therefore, its restoration. However, the type of intervention and material would place it in the 19th century.

Restoration work on the leather covers consisted of placing them between glass plates after the removal of the boards. The covers were fixed on the glass by pasting different materials (pink, grey plasticine, or transparent glue) onto their verso side. We can infer that at least three conservation projects were carried out. One of the interventions can be dated precisely, since the tape sealing the panes is inscribed with the writing "restauro 1954", which is the year of restoration, ³⁷ that is, during Caudana and her nephew's period of activity. Pink plasticine was used where the note is present. The grey plasticine was used on two covers: Provv. 5061 (CLM 6554) and Provv. 5062 (CLM 6555). The former was also fully lined



Fig. 14: Watermark on the strip of paper used to repair the lower board of Cat. 7117/02 (CLM 1131). Drawing by author.

with leather. The grey plasticine on Provv. 5062 had the double function of keeping the turn-ins connected to the boards and fixing the binding to the glass. However, it was removed during conservation treatment that lasted from 2020 to 2021 and was carried out at the premises of the Venaria Conservation Lab as part of Giulia Pallottini's MA dissertation project.³⁸

Drops of transparent glue were eventually added over the pink plasticine, probably to reinforce its adhesive function, which had diminished over time. *Table 6* gives an overview of the materials used in the bindings.

Orlandi, Muséon 87 (1974), p. 119.

³⁵ Corpus Chartarum Italicarum, Corpus Chartarum Fabriano, Laurentius, Italian Watermarks, 2016 (https://cci-icpal.cultura.gov.it/index.html); Leonardi, Cartiere e filigrane piemontesi, 2009, The Memory of Paper: Bernstein.

³⁶ The museum helds documentation about the time when this process took place.

³⁷ Namely, Provv. 5058 (CLM 6551), Provv. 5059 (CLM 6552), Provv. 5060 (6553), and Provv. 6266 (CLM 6329).

³⁸ Pallottini, "La Coperta Provv. 5062 del Museo Egizio di Torino", 2021.

Table 6: Materials used on the bindings

CLM	Shelf mark	Pink plasticine	Grey plasticine	Transparent glue	Other
1131	Cat. 7117/02				Paper strips, metal plaques
6551	Provv. 5058	X		X	1954 restoration
6552	Provv. 5059	X		X	1954 restoration
6553	Provv. 5060	X		X	1954 restoration
6554	Provv. 5061		X		Leather full lining
6555	Provv. 5062		Removed in 2020–2021		
6556	Provv. 5063	X		X	

Some bindings and binding fragments have not been treated; therefore, they are still preserved wrapped in paper envelopes.³⁹ They are a valuable source of information on Coptic bookbinding technology since they still preserve their unaltered, pristine aspect. Nevertheless, they are also very fragile due to the lack of conservation treatment, and it has not been possible to handle them to gather all the necessary information.

The board fragments were treated by applying the same procedures used for the papyri in the museum. It appears that the oldest treatment consisted of fixing the fragments between glass plated with narrow strips of tape. According to the museum's registrar, Provv. 5055 (CLM 6550) still retains the old glass mount bearing notes in Schiapparelli's handwriting. It is, therefore, possible to date the intervention back to the period in which he directed the museum (1894–1924). The note "restauro 1954" appears on the tape of Provv. 6266 (CLM 6329), which is fully lined with silk on the verso side. Drops of transparent glue were later applied on the verso side. The last intervention consisted of fixing the fragment to the glass with paper hinges. *Table 7* presents an overview of the material used on the board fragments.

³⁹ Namely, Provv. 6204 (CLM 6557), 6205 *bis* 1 (CLM 6560), 6205 *bis* 2 (CLM 6645), 6205 *bis* 3 (CLM 6646), and 6205 *bis* 4 (CLM 6647).

This is the case of Provv. 5055 (CLM 6550).

I am grateful to Valentina Turina for providing this information.

 $^{^{42}\,}$ Provv. 6267 (CLM 6658), Provv. 8580 (CLM 6659), and Provv. 6266 (CLM 6329).

Table 7: Materials used on the boards fragments

CLM	Shelf mark	Scotch tape	Silk full lining	Transparent glue	Hinges	Notes
6550	Provv. 5055	X				
6329	Provv. 6266		X	X		1954 restoration
6658	Provv. 6267			X	X	
6661	Provv. 8579		X		X	
6659	Provv. 8580			X	X	
6660	Provv. 8581	X				

The PAThs project continued the detailed study of the Coptic collection that Orlandi had started, and made it possible to finally include the description of the bindings and binding fragments in a catalogue.

The next section contains the complete catalogue, with a detailed description, of the shelf marks related to the Coptic bindings preserved in the Museo Egizio.

CATALOGUE OF THE COPTIC BINDINGS IN THE MUSEO EGIZIO

Eliana Dal Sasso

The following section contains a detailed description of the inventory numbers associated with the Coptic bindings preserved at the Museo Egizio, based on the survey presented here in pararaph 1. of the previous section and using the terminology introduced in the same section, paragraph 3.

CLM 1131

INVENTORY NUMBER

Cat. 7117/02

RESTORATION AND CONSERVATION

The wooden boards pertain to the parchment codex. The leather back strip originally joining the boards is not preserved. The boards are wrapped in a leaf of paper and stored in a modern two-part box. Apart from stains and deposits all over the surface, large tunnels excavated by insects are present on the external surface of both boards, which are cracked and split into two parts by a lengthwise fracture. The upper board was repaired by nailing three metal plaques across the fracture on both board surfaces. At present, three plagues are missing, and the remaining ones are oxidized. The fracture on the lower board was repaired by pasting a strip of paper onto it. Two other strips of paper were folded tightly over the board's head and tail edges. The strip of paper above the fracture bears a watermark (Fig. 14) showing a shield with two superimposed stylized figures topped by a crown.

DIMENSIONS

240 x 182 mm

BOARDS

Dark brown boards 10 mm thick, with a vertical grain (Fig. 15). The boards have an external shallow bevel. The external

surface is polished, while the inner surface exhibits signs of the working tool. The boards were probably connected by a non-extant leather back strip. Eight holes were drilled obliquely from the spine edge of the boards towards the inside (at 20, 40, 60, 80, 160, 179, 199, and 219 mm from the head) to accommodate the hinging slips, remnants of which are preserved within the holes and on the inner surface of the lower board (length max. 60 mm). This board attachment was repaired in antiquity as the lower board split at the 80 mm hole, and another had to be drilled next to it through the thickness of the board. A parchment pastedown is partially preserved on the lower board.

COVER

The boards were left undecorated.

FASTENINGS

Evidence of the former fastening system is present. It consisted of wrapping bands attached to the upper board (one at the head and one at the fore-edge), drawn through holes drilled from the edge towards the inside: four at the fore-edge (40, 90, 145, and 195 mm from the head) and three at the head (65, 98, and 127 mm from the spine). The wrapping band at the fore-edge also left a mark running horizontally across the board's surface.

¹ The terminology is mainly based on the *Language of Binding_Thesaurus* (LoB), which describes several aspects of ancient book structures in detail. Please refer to this glossary for a description of technical terms. Given that standard terminology for the specific characteristics of the Coptic bookbinding tradition was not available, a tailored terminology was developed in collaboration with the PAThs project in order to produce consistent and homogeneous descriptions of bindings and provide accurate data to researchers. The terms were typically chosen from those most frequently found in the literature and published in the PAThs' *Manual for the correct use and reading of the codicological descriptions of the codicological units*.





Fig. 15: Cat. 7117/02 (CLM 1131). Outer surface of the upper and lower boards. Photo by author.

OTHER TIES

A hole at the upper outer corner of the upper board (10 mm from the head and 15 mm from the fore-edge) indicates the former presence of an additional tie, possibly a bookmark.

NOTES

Nothing remains of the sewing structure, spine lining, or endbands (if any were originally present).

CLM 6329

INVENTORY NUMBER

Provv. 6266

CODEX STRATIGRAPHY

The papyrus laminated board was probably part of the binding of CLM 6558.

RESTORATION AND CONSERVATION

The laminated papyrus board is preserved between glass

plates, closed with brown paper and labelled "restauro 1954". A new layer of paper tape has been added and the note "rest. 1954" has been re-written. The note "SN" and the inventory number "Provv. 6266" were later written on the tape and on an additional paper label in black ink. Humidity damage in the form of a dark halo is present on the writing area and around the various holes. In addition, losses are present in the margins. The verso side of the board has been fully lined with textile and secured to the glass with drops of transparent glue.

DIMENSIONS

345 x 227 mm (boards)

BOARDS

Papyrus laminated board.

COVER

The dark brown deposits on the verso might be interpreted as remnants of glue and leather belonging to a former





Fig. 16: Provv. 5055 (CLM 6550). Photo by Museo Egizio.

leather cover. A row of slits is cut along the lower margin.

FASTENINGS

Some of the holes present in the outer margins could indicate the points where the fastenings were originally attached to the boards. Remnants of darkened Z-plied thread are visible between the papyrus layers; however, it is not clear if it is a sewing thread or remnants of leather fastenings.

NOTES

Nothing remains of the sewing structure, endbands, spine lining, or other ties (if any were originally present).

CLM 6550

INVENTORY NUMBER

Provv. 5055

CODEX STRATIGRAPHY

The board fragments are the only elements of this codicological unit that have currently been identified.

RESTORATION AND CONSERVATION

The CLM consists of two pieces of laminated papyrus boards (A and B) that were possibly once pasted together, one upon the other (Fig. 16). The boards are preserved between glass plates closed with brown paper tape, with the shelfmark "Provv. 5055" written in blue ink. Two paper labels are affixed to the upper left corner. One contains the wording "Copertine di papiro copto legato in volume" written in brown ink, while the other has "Confronto di quadri di Quadro 1" written in black ink in Schiapparelli's handwriting. The boards are secured to the glass with narrow strips of Scotch tape. The fragments are aligned and joined with tiny strips of paper while the verso side of the boards has been fully lined with textile. A dark brown substance is deposited along the left-hand recto side of board A.



Fig. 17: Provv. 5058 (CLM 6551), Provv. 5059 (CLM 6552), Provv. 5060 (CLM 6553). Photo by Museo Egizio.

DIMENSIONS

300 x 220 (A) mm 307 x 215 (B) mm

BOARDS

Faint lines of text attest to the reuse of the written papyri to form the laminated boards.

CLM 6551

INVENTORY NUMBER

Provv. 5058

CODEX STRATIGRAPHY

The cover fragment is the only element of this codicological unit that has currently been identified.

RESTORATION AND CONSERVATION

The cover fragment is preserved between two glass plates closed with brown paper tape and inscribed with the inventory number "Provv. 5058" written in blue ink and the note "restauro 1954", which enables the dating of the conservation treatment. The verso of the fragment is secured to the glass with pink plasticine. Transparent glue was later added.

DIMENSIONS

192 x 194 mm

BOARDS

Although the boards were removed, the process was not documented. However, the remnants of the papyrus laminated boards are preserved.

COVER

Full brown leather cover (Fig. 17).

The cover features a blind-tooled decoration of intersecting thin fillets, creating a maze pattern. Bands of small X-form hand tools (Ho.sx11) flank the fillets. In the rectangular panels in the maze pattern, fillets intersect, forming an eight-pointed star. The preserved turn-in is straight trimmed at 20 mm in length, and remnants of a papyrus endleaf remain above it.

FASTENINGS

A slit cut (7 mm long) through the turn-in at 13 mm from the border and 45 mm from the other side indicates the former presence of a tie.

NOTES

Nothing remains of the sewing structure, endbands, spine lining, or other ties (if any were originally present).

CLM 6552

INVENTORY NUMBER

Provv. 5059

CODEX STRATIGRAPHY

The cover fragment is the only element of this codicological unit that has currently been identified.

RESTORATION AND CONSERVATION

The cover fragment is preserved between two glass plates closed with brown paper tape bearing the inventory number "Provv. 5059" written in blue ink and the note "restauro 1954", which dates the conservation treatment. The verso of the fragment is secured to the glass with pink plasticine. Transparent glue was later added.

DIMENSIONS

137 x 230 mm

BOARDS

Although the boards were removed, the process was not documented. However, the remnants of the papyrus laminated boards are preserved.

COVFR

The full brown leather cover does not seem to be decorated (Fig. 17).

NOTES

Nothing remains of the sewing structure, endbands, spine lining, or other ties (if any were originally present).

CLM 6553

INVENTORY NUMBER

Provv. 5060

CODEX STRATIGRAPHY

The cover fragment is the only element of this codicological unit that has currently been identified.

RESTORATION AND CONSERVATION

The inventory number Provv. 5060 (**Fig. 17**) comprises three fragments (A, B, and C) preserved between glass plates and closed with brown paper tape bearing the inventory number "Provv. 5060" written in blue ink and the note "restauro 1954", dating the conservation treatment, written in black ink. The verso of the fragments is secured to the glass with pink plasticine. Transparent glue was later added. A and B could be fragments of the same binding. On the other hand, Fragment C appears to be part of the turn-in that is missing from the binding of Provv. 5062 (see CLM 6555).

DIMENSIONS

253 x 200 (A) mm 170 x 107 (B) mm 252 x 31 (C) mm

BOARDS

Although the boards were removed, the process was not

documented. However, fragments of the papyrus laminated boards are preserved. In addition, remnants of glue and papyrus fibres over the external surface of cover fragment A partially hide the decoration. This fact may indicate that the cover was reused to stiffen the boards of another binding or to form a double-board structure.

COVER

Two holes (3 mm in diameter) are pierced into Fragment A at 40 mm from the left-hand margin and at 72 and 140 mm from the upper margin. Fragments A and B feature a red and white painted decoration. Fragment A has a central motif in pink, possibly a cross; however, a large lacuna prevents precise identification. The motif is enclosed in a pink circle. Borders are outlined using the same pink pigment, and traces of a greyish colour are also present. Fragment B features a band formed by X-Form motifs painted in red and grey on the lower margin. Vertical bands of red and greyish pigment are flanked by red circles.

SPINE LINING

On the verso of Fragment A, along one of the margins, remnants of a textile spine lining are still visible beneath remnants of papyrus, indicating that the spine lining was positioned between the leather cover and the papyrus boards.

NOTES

Nothing remains of the sewing structure, endbands, or other ties (if any were originally present).

CLM 6554

INVENTORY NUMBER

Provv. 5061

CODEX STRATIGRAPHY

The cover is the only element of this codicological unit that has currently been identified.

RESTORATION AND CONSERVATION

The cover is preserved between two glass plates closed with brown paper tape and labelled with the inventory number "Provv. 5061" (Fig. 18). Leather was used to fully line the cover and the missing pieces along the edges and

at the head and tail portions of the back. It was secured to the glass by pasting grey plasticine on the verso side. White haloes caused by humidity are present on the inner sides of the glass plates.

DIMENSIONS

320 x 212 mm (boards) 320 x 53 mm (back)

BOARDS

Although the boards were removed, the process was not documented. However, as with other bindings in this collection, the binding was most likely originally made of papyrus laminated boards.

COVER

The turn-ins are rough-trimmed (10-34 mm wide), and now lie completely flat. Judging from the signs of usage, the head and tail turn-ins probably overlapped the fore-edge turnins. The cover features a blind-tooled decoration consisting of fillets and small hand-tool impressions. The upper and lower covers have the same design: four concentric frames of wide double fillets enclose a central panel with a crux decussata crossing a lozenge; semicircles begin on each outer side of the lozenge and connect to the bands of the cross. The lozenge, cross, and semicircles are formed by bands of rosettes (Hf.rs03) enclosed between fillets. Thus, the semicircles are formed by a single band, the cross by two, and the lozenge by three. Within the semicircles, a small circular hand-tool, perhaps representing a bird (Ho.bi01), is impressed at the corners and centre of the lozenge. A double X-motif with a dot in the middle (Ho.dx02) is stamped on the empty spaces of the central panel. This is similar to the one present on the DB 2196 (= CLM 1210) binding, which was found during excavations at the Monastery of Paulos in Deir el-Bachit (Eichner 2015, pp. 242-43 and Abb.4; Veldmeijer 2011, pp. 36-38, 153, 155, 156 [no. 175] and fig. 35).

FASTENINGS

Slits in the cover and two fragments of leather laces in a fore-edge turn-in are the only surviving elements of the fastening system. This probably consisted of paired ties, since the slits (10 mm long) are cut in corresponding positions on both boards: three at the fore-edge (at 35, 153, and



Fig. 18: Provv. 5061 (CLM 6554). Photo by Museo Egizio.

263 mm from the head) and one at the head and tail (at 90 mm from the back).

NOTES

Nothing remains of the sewing structure, endbands, spine lining, or bookmarks (if any were originally present).

CLM 6555

INVENTORY NUMBER

Provv. 5062

CODEX STRATIGRAPHY

The cover is the only element of this codicological unit that has currently been identified.

RESTORATION AND CONSERVATION

The cover could not be examined because it was in the conservation lab CCR – Venaria for restoration at the time of the survey (22-26 February 2021). Therefore, the description reflects the state of preservation prior to treatment. The cover is complete (both boards are still attached to the back) despite the absence of the upper board's foreedge turn-in, which perhaps corresponds to Fragment C of Provv. 5060 (see CLM 6553). The cover is preserved between two glass plates closed with brown paper tape and labelled with the inventory number "Provv. 5062" (Fig. 19). When photographed, the binding was in a bad state of preservation, with cracks and losses along the edges, the outer corners, and head and tail edges of the back. Grey plasticine was affixed to the verso side with the dual function of keeping the turn-ins attached to the boards and



Fig. 19: Provv. 5062 (CLM 6555). Photo by Museo Egizio.

fixing the binding to the glass. White haloes caused by humidity are present on the inner sides of the glass plates.

DIMENSIONS

354 x 226 mm (boards) 354 x 86 mm (back)

BOARDS

Although the boards were removed, the process was not documented. However, fragments of the papyrus laminated boards are still preserved.

COVER

Full brown leather cover.

The turn-ins are straight trimmed (20 mm wide) and now lie completely flat. The cover has retained its blind-tooled

decoration. A frame of wide fillets surrounds the central panel where linear designs, formed by bands of small rosettes between single fillets, interlace, forming a diamond pattern. The space between the lozenge and the frame is filled with small hand-tool impressions representing double dotted circles (Ho.dd14), triple circles (Ho.tc15), Coptic crosses (Hm.cr13), spikes (Hf.sp17), birds (Ha.bi12), and quadrupeds (Ha.sq16).

FASTENINGS

Slits in the cover are the only identifiable elements of the fastening system. This was most likely made up of paired ties, as the slits (7-10 mm long) are cut in corresponding positions on both boards: three at the fore-edge (at 45, 180, and 310 mm from the head) and two at the head and tail (at 70 and 180 mm from the back).



Fig. 20: Provv. 5063 (CLM 6556). Photo by Museo Egizio.



Nothing remains of the sewing structure, spine linings, or endbands (if any were originally present).

CLM 6556

INVENTORY NUMBER

Provv. 5063

CODEX STRATIGRAPHY

The cover is the only element of this codicological unit that has currently been identified.

RESTORATION AND CONSERVATION

The leather cover is fragmentary and disseminated of holes possibly made by insects. Parts from the edges are missing as well as a large part of the back and side of the cover. Three turn-ins are still attached to the cover, while the other three are entirely separated. The cover is preserved between glass plates, sealed with paper tape and labelled with the inventory numbers "Provv. 5063" and "P. 5063" (Fig. 20). A strip of paper tape, bearing the number "P. 5063" written in blue marker pen, has been attached on the recto side of the glass. The verso of the cover is secured to the glass with pink plasticine. Transparent glue was later added.



Fig. 21: Provv. 6204 (CLM 6557). Photo by Museo Egizio.

DIMENSIONS

290 x 230 mm (boards)

290 x 40 mm (back)

Maximum dimensions of the fragmentary binding, the outer edges of which are lost.

BOARDS

Although the boards were removed, the process was not documented. Papyrus fibres are attached to the inner side of the cover; therefore, the binding likely had originally papyrus laminated boards as other exemplars in the museum.

COVER

Full brown leather cover. The turn-ins are rough-trimmed (8-20 mm wide). The shape of the corners cannot be determined due to the state of preservation of the turn-ins. The cover features a blind-tooled decoration consisting of two concentric frames made of four intersecting single fillets each.

SPINE LINING

Remains of textile spine lining still adhere on the back.



Fig. 22: Provv. 6205 bis 1A (CLM 6560). Photo by author.

NOTES

Nothing remains of the sewing structure, endbands, fastenings, or bookmarks (if any were originally present).

CLM 6557

INVENTORY NUMBER

Provv. 6204

CODEX STRATIGRAPHY

The binding is the only element of this codicological unit that has currently been identified.

RESTORATION AND CONSERVATION

The binding is preserved in a paper box, wrapped in a thin sheet of white paper. It consists of two boards, stacked one upon the other; the lower one still retains the leather cover (Fig. 21). The box also contains a polyethylene folder with



Fig. 23: Provv. 6206 (CLM 6561). Photo by Museo Egizio.

seeds and seed shells of unknown origin. The relationship between the binding and the content of the folder remains unknown. The binding is deteriorated and very fragile, therefore it has been impossible to study all its features.

DIMENSIONS

245 x 230 mm (boards)

SEWING

Two ends of thread exit from two holes stabbed through the boards at 20 mm from the spine and at 102 mm and 170 mm from the head. They were probably part of the board attachment from which started the unsupported sewing, namely a chainstitch. The sewing could have been on four sewing stations; however, it is impossible to verify this hypothesis since the upper and lower inner corner of the boards are not preserved.

BOARDS

Papyrus laminated boards. At least two papyrus fragments bear traces of ink. While the papyrus sheets are cut at the external edges, they seem to be folded at the inner edge. The uppermost board shows two layers of leather pasted at the head, one on top of the other. This fact may suggest that the boards were double and constructed according to the scheme proposed in Szirmai 1999, p. 37, fig. 3.5 [b] or [c].

COVER

Full dark brown leather cover, greyish due to deterioration. The head turn-in of the lowermost cover (right) is straight trimmed 25 mm wide. Traces of papyrus pastedown above the turn-ins are visible.

The cover shows a blind-tooled and pierced decoration. From what can be seen on the tail and head edge of the right board, intersecting fillets formed a frame in which a rectangular stamp with a geometric motif was impressed. Bands of cut-out circles may also have been present. Rows of small holes pierced through the leather between bands of blind-tooled fillets decorate the back. Concentric frames of double fillets are visible on the margin of the lower board. Vertical lines of multiple fillets flank pierced circles on the spine, and along the lower margin there is a motif featuring intersecting triangles.

OTHER TIES

Two slits (6 mm long and at 10 mm one from each other) indicate probably the attachment site of a bookmark. They are cut in the upper outer corner of the uppermost board, at 12 and 25 mm from the fore-edge. What remains of the bookmark is probably the frayed piece of leather now adhered to the head turn-in.

NOTES

Nothing remains of the sewing structure, endbands, spine lining, or other ties (if any were originally present).

CLM 6560

INVENTORY NUMBER

Provv. 6205 bis 1

CODEX STRATIGRAPHY

The two binding fragments are the only elements of this codicological unit that have currently been identified.

RESTORATION AND CONSERVATION

The fragments of the binding, wrapped in a sheet of paper with other materials, are kept in a four-flap archival folder identified as inventory number Provv. 6205. Since the fragments belong to different codicological units, they are described separately. For this purpose, sub-inventory numbers have been created (Provv. 6205 *bis* 1, *bis* 2, *bis* 3, and *bis* 4), corresponding to separate CLMs (6560, 6645, 6646, and 6647). Provv. 6205 *bis* 1 consists of two fragments (A and B) from an outer (probably upper) corner of a papyrus laminated board covered with leather.

DIMENSIONS

117 x 58 (A) mm 78 x 80 (B) mm

BOARDS

Papyrus laminated double boards. Fragment B is formed by two papyrus boards independently covered with leather and adhered to each other (**Fig. 13**). Fragment A (**Fig. 22**) retains the outer board with the leather cover and a fragment of leather from the edging strip of the inner board. The double board could have been constructed according to one of the schemes suggested by Szirmai 1999, p. 37, fig. 3.5.

COVER

Full brown leather cover. The turn-ins are rough-trimmed (25-30 mm) and the edging strip is sensitively narrower (10-20 mm). Traces of papyrus pastedown are present. The cover shows a blind-tooled decoration. Concentric frames of multiple fillets flank a band of small hand tool stamps depicting a bird (Ha.bi04).

FASTENINGS

Fragment A shows traces of the former fastening system. A tie was probably fastened to the hole pierced at 40 mm and 20 mm from the edges.

OTHER TIES

The extensions of two leather strips are found on the in-



Fig. 24: Provv. 6205 bis 2 (CLM 6645). Photo by author.

ner side of Fragment A, protruding from two holes pierced through the corner at 10 mm, as well as 13 mm, and 25 mm from the edges.

NOTES

Nothing remains of the sewing structure, endbands, spine lining, or other ties (if any were originally present).

CLM 6561

INVENTORY NUMBER

Provv. 6206

CODEX STRATIGRAPHY

The cover is the only element of this codicological unit that has currently been identified.



Fig. 25: Provv. 6205 bis 3 (CLM 6646). Photo by author.

RESTORATION AND CONSERVATION

The cover is preserved wrapped in a blue paper bearing two handwritten notes in brown ink "I foderi logori di Codici" and "Codice copto in cattivissimo stato, epperciò da non toccarsi che colla massima precauzione N. 412" ("The worn covers of codices" and "Coptic codex in very bad state of preservation, and therefore not to be touched except with the utmost precaution No. 412"). The cover is complete although significantly deteriorated and fragile: the leather is hard, brittle and cracked (**Fig. 23**). Therefore, it has been impossible to examine some of its features. In addition, the colour of the decoration is faded.

DIMENSIONS

296 x 225 (boards) mm 296 x 35-40 (back) mm

SEWING

The museum report informs that part of the sewing structure is preserved, but it could not be examined. However, a purple thread (Z-plied) emerges from the fore-edge.

BOARDS

The boards have been removed, but the process has not been documented. However, fragments of the papyrus laminated boards are preserved, and among these, a small parchment (*c*. 30 x 20 mm) has been found (CLM 6643).

COVER

Full brown leather cover. One of the outer corners of the binding is folded outward, and its inner surface is fully visible. The turn-ins are 30 mm wide and cut obliquely to form a butt mitre. The cover features a painted and blind-tooled decoration: a circular design painted purple and black within the central panel delimited by single fillets. The painted decoration is also visible on the back. The edges of one of the two boards are grooved by the impression of a fillet.

SPINE LINING

Textile fragments are preserved in a polyethylene folder and are also present among the papyrus fragments. The verso side of the exposed corner shows impressions of a textile pattern which may indicate that the lining was originally extended over the entire surface of the boards.

FASTENINGS

Slits in the cover are the only surviving elements of the fastening system. It consisted perhaps of paired ties; however, only one board could be examined. The slits (10 mm long) were originally three at the fore-edge and one at the head and tail. Today, only two slits are preserved at the fore-edge (at 37 and 150 mm from the preserved margin) and one at the head and tail (at 110 mm from the fore-edge).

NOTES

Nothing remains of the endbands, spine lining, or other ties (if any were originally present).

CLM 6645

INVENTORY NUMBER

Provv. 6205 bis 2

CODEX STRATIGRAPHY

The binding fragment is the only element of this codicological unit that has currently been identified.

RESTORATION AND CONSERVATION

The fragment of the binding, wrapped in a sheet of paper with other materials, is kept in a four-flap archival folder identified by the inventory number Provv. 6205. Since the fragments belong to different codicological units, they

are described separately. For this purpose, sub-inventory numbers have been created (Provv. 6205 *bis* 1, *bis* 2, *bis* 3, and *bis* 4), corresponding to separate CLMs (6560, 6645, 6646, and 6647).

Provv. 6205 *bis* 2 consists of a fragment derived from one of the outer borders of a papyrus laminated double board covered with leather (**Fig. 24**).

DIMENSIONS

156 x 136 mm

BOARDS

Papyrus laminated double boards.

The fragment of the board is formed by two layers of papyrus laminate independently covered with leather before being adhered to each other. The outer papyrus laminate has a full leather cover, while a narrow strip of leather covers only the edges of the inner laminate. The double board might have been constructed according to one of the schemes suggested by Szirmai 1999, p. 37, fig. 3.5.

COVER

Full brown leather cover. The cover shows a blind-tooled and cut-out decoration. A four leaves flower is cut out in the leather and enclosed within a square formed by bands of single circles (Ho.sc07) between fillets. These bands are interlaced, forming an octagon shape around the square. Rosettes (Hf.rs06) and fourfold circles (Ho.fc05) fill the empty spaces. Along the upper margin, circles may have been cut out.

The turn-ins are straight trimmed and covered by the inner papyrus board. The edging strip is irregular (10-20 mm). Traces of papyrus pastedown with handwritten text are present.

FASTENINGS

A fragment of a leather tie is the only preserved element of the former fastening system. A slit (10 mm long) is cut at 10 mm from the border, and the extension of a leather tie is still adhered on the inner surface of the board, below the papyrus pastedown.

NOTES

Nothing remains of the sewing structure, endbands, spine lining, or other ties (if any were originally present).

CLM 6646

INVENTORY NUMBER

Provv. 6205 bis 3

CODEX STRATIGRAPHY

The binding fragment is the only element of this codicological unit that has currently been identified.

RESTORATION AND CONSERVATION

The fragment of the binding, wrapped in a sheet of paper with other materials, is kept in a four-flap archival folder identified by the inventory number Provv. 6205. Since the fragments belong to different codicological units, they are described separately. For this purpose, sub-inventory numbers have been created (Provv. 6205 *bis* 1, *bis* 2, *bis* 3, and *bis* 4), corresponding to separate CLMs (6560, 6645, 6646, and 6647). Provv. 6205 *bis* 3 consists of a fragment of a leather cover with grooved edges belonging to an outer (probably upper) corner (**Fig. 25**). The leather is hard, brittle and cracked. Another piece with grooved edges lays below all the other fragments, but it has been impossible to remove it safely in order to verify if it belongs to CLM 6646.

DIMENSIONS

171 X 227 mm

BOARDS

Papyrus boards.

The boards have been removed, but the process has not been documented. Since papyrus fibres are attached to the inner side of the cover, the binding likely had originally papyrus laminated boards as other exemplars of this collection.

COVER

Full brown leather cover. The cover shows a blind-tooled decoration and perhaps traces of a cut-out decoration. Three concentric frames formed by multiple fillets enclose a central panel where bands of single circles (Ho.sc10) between fillets are interlaced, thus creating a geometrical pattern. Impressions by small hand tools featuring rosettes (Hf.rs09) and pyramidal ornamental motifs (Ho.py08) fill the empty spaces. At the centre of the panel, a triangular and a circular form may have been cut out. The impression

of a fillet grooves the edges of the cover. Traces of papyrus pastedown are preserved above the turn-ins.

FASTENINGS

At the fore-edge, located at 15 mm from the border and 60 from the head, a slit (10 mm long) is cut. The fragment of a leather tie passing through it still adheres on the inner surface. A leather cord knotted to the lace prevents it from pulling out. Another slit (10 mm long) is cut at the head, located at 15 mm from the border and 115 mm from the fore-edge. Two holes (3 mm in diameter) are pierced at the fore-edge (60 mm one from each other and 185 from the fore-edge).

OTHER TIES

Two holes of oblong shape (5 mm long) are pierced close to each other at 12 mm from the fore-edge. They might be the remains of a former bookmark.

NOTES

Nothing remains of the sewing structure, endbands, spine lining, or other ties (if any were originally present).

CLM 6647

INVENTORY NUMBER

Provv. 6205 bis 4

CODEX STRATIGRAPHY

The binding is the only element of this codicological unit that has currently been identified.

RESTORATION AND CONSERVATION

The fragmentary binding, wrapped in a sheet of paper with other fragments, is kept in a four-flap archival folder identified by the inventory number Provv. 6205. Since the fragments belong to different codicological units, they are described separately. For this purpose, sub-inventory numbers have been created (Provv. 6205 *bis* 1, *bis* 2, *bis* 3, and *bis* 4), corresponding to separate CLMs (6560, 6645, 6646, and 6647). Provv. 6205 *bis* 4 could not be examined in depth due to its state of conservation. The binding is much deteriorated and fragile, and the CLM 6560, 6645, and 6646 lay upon it, together with other fragments of laminated papyrus boards, leather, and papyrus fibres.

The risk of displacement of tiny fragments has made impossible to extract Provv. 6205 *bis* 4 to examine it. Based on what has been observed, the binding might consist of two double boards covered with leather and possibly back cover remnants.

DIMENSIONS

c. 370 x 220 mm

BOARDS

Papyrus laminated double boards.

Each board was formed by two layers of papyrus laminate independently covered with leather before being adhered to each other. It seems that the lowermost board retains both laminates while the uppermost board has lost the inner one.

COVER

Full brown leather cover. Traces of papyrus pastedowns are present above the turn-ins.

OTHER TIES

The uppermost board shows two oblong holes located in one corner, which could be associated to the former presence of bookmarks.

NOTES

Nothing remains of the sewing structure, endbands, spine lining, or other ties (if any were originally present).

CIM 6658

INVENTORY NUMBER

Provv. 6267

CODEX STRATIGRAPHY

The board fragments are the only elements of this codicological unit that have currently been identified. The fragments have possibly been extracted from the boards of the papyrus codices from This preserved in the museum.

RESTORATION AND CONSERVATION

The twenty-two papyrus fragments are preserved between glass plates sealed with an old brown paper tape and a new one has been added over it. The inventory number "Provv. 6267" is written, both on the old and the new tape in blue ink, as well as on a white paper label in black ink. The note "NS" is also present. Traces of writing and leather are visible on the surface. On the recto, the fragments are secured to the glass with narrow strips of tissue while on the verso, they are fixed to the glass with drops of transparent glue. On the verso, fragments are also attached to the board with drops of transparent glue.

DIMENSIONS

9 x 10 mm (min.) 90 x 56 mm (max.)

BOARDS

The fragments likely formed laminated papyrus boards.

FASTENINGS

One fragment presents a hole that resembles a slit for fastening. The hole is placed at 20 mm and 40 mm from the borders. Other fragments show holes, which however could be the result of deterioration.

CLM 6659

INVENTORY NUMBER

Provv. 8580

CODEX STRATIGRAPHY

The papyrus fragments are the only elements of this codicological unit that have currently been identified. The fragments have possibly been extracted from the boards of the papyrus codices from This preserved in the museum.

RESTORATION AND CONSERVATION

The three papyrus fragments (A, B and C) are preserved between glass plates closed with brown paper tape. The inventory number "Provv. 8580", as well as the notes "SN" and "quadro 3" are written in black ink on one side of the pane. On the other side, the inventory number is written with the same hand and ink. There is no trace of writing on the fragments but only remnants of darkened glue. The fragments are secured to the glass with narrow strips of adhesive tissue and drops of transparent glue.

DIMENSIONS

188 x 82 mm (A) 146 x 90 mm (B) 205 x 135 mm (C)

BOARDS

The fragments likely formed laminated papyrus boards.

CLM 6660

INVENTORY NUMBER

Provv. 8581

ADDITIONAL INVENTORY NUMBERS

PN 772/2

CODEX STRATIGRAPHY

The eleven papyrus fragments are the only elements of this codicological unit that have currently been identified. The fragments have possibly been extracted from the boards of the papyrus codices from the city of This preserved in the museum.

RESTORATION AND CONSERVATION

The eleven papyrus fragments are preserved between glass plates closed with brown paper tape inscribed with the note "P. 772/2" and labelled with the inventory number "Provv. 8581" both written in black ink. The fragments are secured to the glass with strips of Scotch tape, now yellowed. Traces of writings are still visible on the recto and verso of the fragments, under a darkened layer of glue.

DIMENSIONS

15 x 10 mm (min.) 50 x 90 mm (max.)

BOARDS

The fragments likely formed laminated papyrus boards.

CLM 6661

INVENTORY NUMBER

Provv. 8579

CODEX STRATIGRAPHY

The papyrus fragments are the only elements of this codicological unit that have currently been identified. The fragments have possibly been extracted from the boards of the papyrus codices from This preserved in the museum.

RESTORATION AND CONSERVATION

The two papyrus fragments (A and B) are preserved between glass plates closed with brown paper tape. The inventory number "Provv. 8579" is written twice directly on the tape in black ink. Later, modern paper labels bearing the inventory number written in black ink have been pasted to the recto (partially covering the old note) and verso sides of the pane. No traces of writings are visible on the fragments.

The papyrus fibres are coarse, and traces of darkened glue are present and lie along the right margin of the recto and verso side of Fragment A.

Fragment B has been consolidated with narrow strips of adhesive textile on the recto and verso sides. Fragment A has been consolidated with strips on the recto while the verso is fully lined with textile. The fragments are then secured to the glass with narrow strips of adhesive textile.

DIMENSIONS

121 x 123 mm (A) 248 x 75 mm (B)

BOARDS

The fragments likely formed laminated papyrus boards.

CLM Not Assigned

INVENTORY NUMBER

Provv. 5066/4

CODEX STRATIGRAPHY

There is not enough evidence to state that the leather fragments belonged to the binding of one of the codices from the city of This which are preserved in the museum.

RESTORATION AND CONSERVATION

As recorded in the museum database, the inventory number Provv. 5066 belongs to a paper box that also contains tiny papyrus fragments of literary content (Provv. 5066/1), turquoise faience tubular beads, some still strung on the cord (Provv. 5066/2), fragments of a leather cover and sewing thread (Provv. 5066/3-4). Also found in the box was a false papyrus roll consisting of a core of cords later covered with papyrus. This box houses numerous paper and plastic folders containing papyrus fibres and other fragments. Because of the fragmentary state of the items, only Provv. 5066/4 has been examined. This inventory number corresponds to a glassine paper envelope that contains three leather fragments (A, B, and C). The leather of all the fragments is hard and has suffered an alteration in colour. The surface is cracked and tears open on the margins so that Fragment B looks frayed. Among the surface deposits are visible papyrus fibres.

DIMENSIONS

150 x 33 (A) mm 70 x 80 (B) mm 15 x 20 (C) mm

NOTES

There is insufficient evidence to identify to which type of artefacts the fragments belonged to, therefore each element is described separately.

FRAGMENT A

Rectangular fragment of brown leather. It belonged to a larger piece of leather since the four margins are ripped. No decoration is present. Holes have been pierced at both ends of the fragment: two on one side and four on the other.

FRAGMENT B

Approximately square fragment of considerably deteriorated leather. A margin is folded. It bears a blind-tooled decoration of multiple fillets. Remains of papyrus fibres adhere above the decoration. A strip of leather passes through a row of holes pierced through the fragment. Two holes are pierced at 7 mm from the margin. A fragment of leather string still remains in one of the holes.

FRAGMENT C

This tiny leather fragment shows three neat margins while the fourth has been ripped. Two margins are parallel and a third connects them obliquely. Remains of papyrus fibres adhere on the flesh side.

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Ethiopian and Coptic Sewing Techniques in Comparison

Abstract: This article addresses the problem of Ethiopian sewing wrongly being referred to as 'Coptic'. Indeed, the technical jargon has solidified an outdated idea of similarity between Ethiopian and Coptic binding traditions. Therefore, to distinguish their respective fields of relevance, the article discusses the definitions of Coptic and Ethiopian bookbinding and evaluates the probable origins of the terminological misunderstanding. Although exploratory and open to reconsideration, the last section of the article compares Ethiopian and Coptic sewing techniques to identify their similarities and differences. Based on the comparison, the modern Ethiopian binding technique can be seen to differ from the ancient Coptic one; therefore, 'Coptic chain-stitch' can be considered a misleading term for the Ethiopian technique.

1 Introduction

In common understanding, the distinction between Coptic and Ethiopian book-binding is blurred, and confusing terminology is used for the Ethiopian structures. As a simple web search for 'Ethiopian bookbinding' shows, the term 'Ethiopian' is often equated with the term 'Coptic', thus giving the impression that the two binding techniques are identical. Online tutorials describing how to construct a 'Coptic/Ethiopian binding' or 'Ethiopian (Coptic) binding' model are significant examples.¹ On the other hand, a search for 'Coptic bookbinding'

¹ Among the first ten results of a search for 'Ethiopian bookbinding' – based on a Google search performed from Hamburg, Germany, on 30 August 2022 – a video tutorial and a post on a blog provide two fitting examples. The tutorial is titled *Coptic/Ethiopian Binding Part 1* and was uploaded to YouTube on 5 December 2019 (Part 2 has not yet appeared). In the video, the author shows 'how to make Coptic bookbinding', drilling holes for the attachment of the boards and the endbands in the upper and lower wooden boards. The tutorial shows the combination and re-elaboration of features of historical Ethiopian bookbinding (the board attachment) and historical Coptic bookbinding (the attachment of the endband). The result is a hybrid structure. See https://youtu.be/ZKtuBn8vfZU (accessed on 28 February 2023). As regards the post, it appeared on the *Work of the Hand* blog, which is meant to share some of the author's 'experiences during graduate school at the University of North Carolina at Chapel Hill and through the bookbinding program at the North

returns images of either modern book structures or models of historical Ethiopian book structures.2

The misleading use of the terms stems from the technical jargon having assimilated an outdated idea of the similarity between Coptic and Ethiopian binding, which also persists to some extent in literature.³ A survey of publications related to the description of Ethiopic manuscripts that have appeared in the last two decades, 4 online cataloguing projects, and digitisation initiatives with some

Bennet Street School in Boston, MA'. The post is titled 'Ethiopian/Coptic Bindings' and dated 29 September 2010, but it stimulated a discussion that was active until 25 July 2022. The author presents a model of a Coptic-style binding described as 'one of the oldest known forms of the codex'. However, the images show the model of a historical Ethiopian binding. See https://henry hebert.net/2010/09/29/ethiopiancoptic-bindings/ (accessed on 28 February 2023).

- 2 I find it symptomatic of this terminological confusion that the photograph used to describe a 'simple Coptic binding (model)' in Wikipedia represents a historical Ethiopian binding model. See https://en.wikipedia.org/wiki/Coptic_binding (accessed on 28 February 2023).
- 3 For example, a book presenting extensive research on the three manuscripts of the Four Gospels preserved in the monastery of 3ndä Abba Gärima states the continuity between the Coptic and Ethiopian binding traditions. It affirms: 'Coptic binding was used on the earliest codices (bound books) in Egypt and continues to be used in Ethiopia' (McKenzie and Watson 2016, 43). Along the same lines, one of the conservators who worked on the gospels, talking about the Ethiopic gospels and other books kept in the treasury of the monastery, affirmed that they were all 'made in the same Coptic style of binding' (Capon 2008, 4). The conservation treatment of the gospels entailed rebinding them by repeating the sewing according to the 'Coptic twin method' (a less common expression to identify the two-needle/double-needle Coptic sewing); see Winstanley 2007, 8. Furthermore, Winslow 2015, 124, referring to Ethiopian book structures, uses the expression "Coptic stitch" bound books', and in Gnisci et al. 2019, 24, he affirms that 'the relatively simple "Coptic" form of binding still in evidence in Ethiopian manuscripts became the basis of Islamic bookbinding'. However, the use of inverted commas serves as a caveat. Miller 2018, 649, adds 'Ethiopian Christians had an ancient binding tradition, corresponding with the Coptic Christians in Egypt, and binding practices were shared between the two cultures'. A broader terminological problem is present in Brown 2006, 73, as he affirms that the vast family of unsupported chain-stitch sewing techniques, as a whole, 'is known as "Coptic sewing" although it was widely practised in eastern Mediterranean lands and is still employed in Ethiopia'. In general, it seems that the misunderstanding is based on the widespread opinion reported in Tomaszewski and Gervers 2015, 120, according to which 'it is believed that the simple structure of Ethiopian binding is very similar to that of early Coptic codices'.
- 4 The survey of publications is based on the reference list provided in the text of the presentation given by Alessandro Bausi at the conference Manuscript Cataloguing in a Comparative Perspective: State of the Art, Common Challenges, Future Directions organised by the Centre for the Study of Manuscript Cultures and held in Hamburg on 7 – 10 May 2018. The text by Alessandro Bausi (and Denis Nosnitsin) is available at https://www.csmc.uni-hamburg.de/written-artefacts/workinggroups/permanent-seminar/conference-contributions.html (accessed on 28 February 2023).

metadata⁵ has shown increased attention toward codicological features. As regards binding in specific, it is possible to note that:

- the sewing structure (sewing type, number of sewing stations, etc.) is not systematically recorded in these sources;
- the Ethiopian sewing technique, when encountered, is often referred to as 'Coptic'.⁶

It must be acknowledged that not always the Ethiopian sewing is described as 'Coptic'. In these cases, the sewing structure is described by noting the sewing technique (chain-stitch)⁷ and the number of sewing stations (or pairs of sewing stations).⁸ However, given the continued use of such confusing terminology, it

⁵ The online resources surveyed include entries in *Beta maṣāḥaft: Manuscripts of Ethiopia and Eritrea* (Bm), which 'aims at creating a virtual research environment that shall manage complex data related to the predominantly Christian manuscript tradition of the Ethiopian and Eritrean Highlands' (https://betamasaheft.eu, accessed on 28 February 2023); the *Catalogo Nazionale dei Manoscritti Etiopici Italiani* (CaNaMEI), which aims to digitise, catalogue, and publish online Italian collections of Ethiopian manuscripts (https://www.ipocan.it/index.php/it/canamei-2, accessed on 28 February 2023); the Endangered Archives Programme (EAP), which 'facilitates the digitisation of archives around the world that are in danger of destruction, neglect or physical deterioration' (https://eap.bl.uk, accessed on 28 February 2023); and Hill Museum & Manuscript Library Reading Room (HMML), which 'offers resources for the study of manuscripts and currently features manuscript cultures from Europe, Africa, the Middle East, South Asia, and Southeast Asia' (https://www.vhmml.org, accessed on 28 February 2023).

⁶ The formula 'Coptic chain-stitch' appears in the catalogues of the Ethiopian Manuscript Imaging Project (EMIP) (Getatchew Haile et al. 2009; Melaku Terefe et al. 2011; Six et al. 2011) as well as in the companion volumes that I surveyed (Delamarter and Melaku Terefe 2009, 27 and Delamarter et al. 2014, 21). Thus, the manuscript descriptions imported from the EMIP project into the Bm online catalogue use the same wording. The formula also appears in Delamarter and Demeke Berhane 2007 and Meley Mulugetta 2016, which use the template of the EMIP catalogue. In reviewing Meley Mulugetta's catalogue, Denis Nosnitsin has already questioned using the term 'Coptic' to describe the Ethiopian sewing technique. However, he also affirmed that 'it is a known fact that "Ethiopian" link-stitch sewing resembles that of later Coptic manuscripts'; see Nosnitsin 2017a, 294.

⁷ For a definition of 'chain-stitch', see *The Language of Binding Thesaurus* (LoB), http://w3id.org/lob/concept/1249.

⁸ For example, Ewa Balicka-Witakowska prefers to describe the Ethiopian sewing technique as 'two independent pairs of link-stitches join[ing] the quires together'; see Balicka-Witakowska 2007, 750. The expression 'pairs of sewing stations' is used when the sewing is described in Nosnitsin 2017b; Nosnitsin and Bulakh 2014; Nosnitsin and Reule 2021; and Tomaszewski and Gervers 2015. In the reports of the CaNaMEI project, the terms *doppia catenella* (double chainstitch) or *catenella a due fili* (two-thread chain-stitch) are used (see Lusini et al. 2020; Lusini et al. 2021; Lusini et al. 2022) and the sewing pattern is identified according to the system codified

seems worthwhile to compare Coptic and Ethiopian sewing techniques to demonstrate that, despite their similarities, they are fundamentally different traditions. Therefore, the term 'Coptic' does not seem appropriate, but is misleading for describing the Ethiopian sewing technique.

Though exploratory and open to reconsideration, what I set out in the article is based on my own autoptic examinations. Therefore, I hope my contribution will be useful especially from this point of view, as it introduces first-hand data for studying the relationship between Coptic and Ethiopian bookbinding techniques. This article aims to discuss (1) the definitions of Coptic and Ethiopian bookbinding; (2) how the terminological confusion between them arose; and (3) the difference between Ethiopian and Coptic sewing technique based also on the evidence that has emerged from my first-hand observations.

2 Defining Ethiopian and Coptic bookbinding

When discussing historical book structures, the term 'Ethiopian bookbinding' refers to the traditional technique used to bind Ethiopic manuscripts, that is, manuscripts written in the Ethiopic language. In contrast, 'Coptic bookbinding'

in Bozzacchi 2001. As a side note, in Report 2, where the sewing is described as being on 'quattro coppie di fori' ('four pairs of holes'), is clear from the images that the pairs are two and, therefore, the sewing stations are four in number (see Lusini et al. 2021, 12, 15, 17, 19, 24). Further exceptions are the entries in Bm that are not imported from EMIP catalogues and describe the sewing. Generally, Bm entries record the number of sewing stations, and, occasionally, the sewing pattern is identified according to Bozzacchi 2001. See, for example, the bindings of the Ethiopic manuscripts in the Exarchic Greek Abbey of St Mary of Grottaferrata (https://betamasaheft.eu/INS0414Abbey_of_St_Mary_of_Grottaferrata, accessed on 28 February 2023) and the Staats- und Universitätsbibliothek Hamburg Carl von Ossietzky (https://betamasaheft.eu/INS0387State_and_University_Library_Hamburg_, accessed on 28 February 2023).

⁹ As part of my doctoral project, from 2020 to 2022, I had the chance to examine Coptic bindings first-hand at the Arxiu Històric de la Companya de Jesús de Catalunya, the Bibliothèque nationale de France, the British Library, the Chester Beatty Library, the Kölner Papyrussammlung Institut für Altertumskunde, the Museo Egizio in Turin, the Österreichische Nationalbibliothek, the Rijksmuseum van Oudheden, and the Staats- und Universitätsbibliothek Hamburg Carl von Ossietzky. Further, as part of the 'Torno Subito 2017' Operational Programme of the Regione Lazio, I could examine the bindings of the Ethiopic manuscripts kept in the Staats- und Universitätsbibliothek Hamburg Carl von Ossietzky, in the Angelica, Casanatense, Giovardiana, and Nazionale Centrale Vittorio Emanuele II libraries, in the Casamari abbey, in the Grottaferrata abbey, and few specimens in the library of the Accademia Nazionale dei Lincei e Corsiniana.

is commonly used to refer to the binding techniques prevalent in Egypt in the late antique and early medieval eras. However, some clarifications are necessary to precisely delineate these fields of enquiry.

The expression 'Ethiopian bookbinding' identifies a set of structural features shared by the bindings of Christian manuscripts produced in Ethiopia and Eritrea. These include chain-stitch sewing (mostly) on paired sewing stations, slit-braid endbands, 10 and wooden boards, which may be covered with leather and lined with colourful textiles. In Ethiopic manuscripts, the writing support is usually parchment, produced without making use of lime baths.11 While this is the general rule, one should note that not all Ethiopic manuscripts have an Ethiopian binding or are written on parchment. Indeed, manuscripts made outside Ethiopia and Eritrea often use materials, techniques, and decorations distinctive to the place where they were produced.¹²

Furthermore, Christian and Islamic traditions coexist in the Horn of Africa, but the two differ in the shape of their books.¹³ Indeed, the Islamic texts are written on paper in Arabic script and bound with a technique that falls under the category of Islamic bookbinding. It has been rightly suggested that the possibility of differentiating Christian and Islamic traditions through the form of their books raises 'issues of identities' that could be investigated at an anthropological level.14

In reference to historical book structures, 'Coptic bookbinding' is a historical expression, deeply rooted in the literature, which refers to the binding tradi-

¹⁰ For a definition of slit-braid endband and a line drawing of its construction, see Szirmai 1999, 49 and Fig. 4.3.

¹¹ For an introduction to the traditional method of parchment making and further bibliography, see Balicka-Witakowska et al. 2015, 154-155; also with beautiful photographs, see Winslow 2015, 69-112.

¹² See, for example, Rome, Biblioteca Casanatense, ms. 2206, written on paper (Zarzeczny 2015). Furthermore, Ethiopic manuscripts with an originally Ethiopian binding may have been rebound using a different technique, also as a result of conservation interventions. See, for example, manuscripts Grottaferrata, Biblioteca statale del Monumento Nazionale di Grottaferrata, Crypt. Aet. 2, Crypt. Aet. 4, and Crypt. Aet. 9.

¹³ After being long neglected, studies on Islamic written heritage in the Horn of Africa have been revitalised by initiatives such as the EMIP (see Gori et al. 2014) and the ERC project 'IslHornAfr: Islam in the Horn of Africa, A Comparative Literary Approach' (PI Alessandro Gori); see http://www.islhornafr.eu (accessed on 28 February 2023).

¹⁴ Regourd et al. 2014, xci. Anne Regourd gives a detailed account of Ethiopian Islamic bindings found on manuscripts kept at the Institute of Ethiopian Studies (IES) in Addis Ababa that have been digitised by EMIP; see Regourd et al. 2014, lxx-ccii and Regourd 2019. For the binding technique in the city of Harar, see also Pankhurst 1992.

tion prevalent in Egypt during the late antique and early medieval periods. Coptic book structures vary, and include single quires attached directly to the leather cover using tackets;¹⁵ multi-quire codices sewn with chain-stitch and furnished with wooden boards, or laminated papyrus boards with leather covers.¹⁶ However, the use of the term 'Coptic' requires some caution, since it is fundamentally inappropriate when applied outside of a very specific context: it alludes to a link with Christianity and to a specific language that the bound codices may never have had.

The term 'Coptic' derives from the term qubt/qibt-, from the Greek αἰγύπτιος, used after the Arab conquest of Egypt (639–641 CE) to designate the indigenous population. Therefore, it initially had no religious connotation. However, with time, the term 'Coptic' came to be used as a general term to denote the Christian minority as distinct from the vast Muslim majority. However, it is necessary to recall that after the Council of Chalcedon (451 CE), Egyptian Christianity was divided between the Copts, opponents of the Chalcedonian choices, and the Melkites, who remained in communion with the Patriarchate of Constantinople. Therefore, the term 'Coptic' cannot be considered a general term for Egyptian Christianity, but refers only to its anti-Chalcedonian component. Likewise, the term is appropriately applied to the literature and language specifically created for this religious sphere.¹⁷

Furthermore, the Egyptian religious landscape in the first centuries of Christianity was uneven: the Christian faith was mixed with traditional cults, and different Christian theologies were present, such as Manichaeism and Gnosticism. For example, the bindings of the Nag Hammadi codices contain Gnostic texts, and recently three wooden boards belonging to the bindings of Manichaean codices were found at the Chester Beatty Library (henceforth CBL). Coptic' is an inappropriate term for such bookbinding because it is associated with the idea of a canonised Christianity that was not present in the early centuries; it would thus be improper to trace the production of bindings of this period to the same Christian context.

Moreover, the term 'Coptic' is misleading because it links the tradition to a specific language. Therefore, the expression 'Coptic bookbinding' could be

¹⁵ For a definition of 'tackets', see the LoB, http://w3id.org/lob/concept/1657.

¹⁶ The presence of vegetal fibres, mud-like fillers, leather, parchment, and paper fragments in the boards has also been observed.

¹⁷ For an introduction to the correct use of the term 'Coptic' and a discussion of the cultural traits of Christian Egypt from its origins to modern times, see Buzi 2014.

¹⁸ These are Dublin, CBL, Cpt 824, Cpt 825, and Cpt 826.

interpreted as the technique used to bind Egyptian codices in the Coptic language. However, in the period under consideration, Egypt was a bilingual country, and codices written in Greek and Coptic in Egypt were bound according to the same technique. The similarity between the bindings of Greek and Coptic Egyptian manuscripts has already been noted by the bookbinder and book historian Berthe van Regemorter, 19 who in a published posthumously study on Byzantine binding, affirmed:

Rien ne différencie les reliures des livres grecs trouvés en Égypte de celles des livres coptes, aussi devons-nous considérer ce type primitif comme caractéristique de l'Égypte et non point comme propre au livre copte.20

Therefore, the same technique was adopted to bind all manuscripts produced in the same cultural context, regardless of language and content.²¹

Improper as it may be, since the term 'Coptic' is also commonly associated with other artistic manifestations of the period and has a long history in the scientific literature, it is reasonable to retain the expression 'Coptic bookbinding' to denote the set of characteristic features common to all late antique and early medieval Egyptian bindings.

However, in reference to modern book structures, the meaning of 'Coptic bookbinding' is different still. Indeed, Julia Miller informs us that the term is nowadays applied to 'any book with unsupported link sewing where the boards are sewn simultaneously with the text'.22 Hence the misunderstanding: although Ethiopian and Coptic are distinct bookbinding traditions, since Ethiopian bindings have structural characteristics that fall within the modern definition of 'Coptic bookbinding', they are sometimes referred to as 'Coptic'.

¹⁹ For her biography, see Irigoin 1966.

^{20 &#}x27;There is no difference between the bindings of the Greek books found in Egypt and those of the Coptic books, so we must consider this primitive type as characteristic of Egypt and not as specific to the Coptic book' (van Regemorter 1967, 102; translation mine).

²¹ For instance, we find the same technique in the binding of the Greek gospel known as the codex Washingtonianus (Washington, DC, Smithsonian Institution, Freer Gallery of Art, 06.274), the binding of the papyrus codex containing the Acts and the Catholic Epistles in Greek (Cologny, Fondation Martin Bodmer, P.Bodmer XVII), but also in the binding of a Greek grammar and Graeco-Latin lexicon (Dublin, CBL, BP XXI); see Rose-Beers 2023.

²² Miller 2010, 425. Note that 'link sewing' is an alternative label for 'chain-stitch sewing'.

3 The basis of the terminological misunderstanding

How did the expression 'Coptic binding' come to be associated with the Ethiopian binding tradition? One reason might be related to the history of the Ethiopian Church, which, until the middle of the twentieth century, was formally dependent on the Coptic Church.²³ The other is most probably rooted in the early literature on Ethiopian bookbinding that used to emphasise its similarity to the Coptic tradition.²⁴

Thanks to the increasing number of digitisation projects, researchers can now base their observations on a broader range of manuscripts. Some established beliefs have thus proven to be generalisations and are now obsolete. The studies of Theodore C. Petersen, Berthe van Regemorter, and Janos Szirmai on Coptic and Ethiopian bookbinding will be discussed first because of the significant impact they had on the development of studies in the field.

Ethiopian bookbinding was considered closely related to the Coptic, particularly in terms of sewing technique. Theodore C. Petersen, the author of the most extensive and detailed monograph on Coptic bookbinding to date, supported this theory. Although the catalogue, completed in 1951 after more than twenty years' effort, has never been sent to print, the typescript served as a reference for many book historians. It was finally published posthumously in 2021.²⁶ Petersen based his observations on the bindings of the Coptic manuscripts from Hamuli kept at the Morgan Library and Museum and on additional Coptic bindings in institutions scattered worldwide. He offers no information, however, on the provenance of the Ethiopian manuscripts he studied.²⁷ In the monograph, he notes that in many late antique Coptic codices, double stitches²⁸

²³ Störk and Müller 2003, 799a.

²⁴ Without the intention of providing a complete list, see Cockerell 1977, 8; Bosch et al. 1981,

^{23;} Bull 1987, 44b; Greenfield 1991, 183; and Greenfield 1998, 83.

²⁵ This article is not intended to discredit those scholars who laid the foundations of the study of bookbinding as a discipline in its own right; their studies on understanding bookbinding techniques remain fundamental.

²⁶ Edited by Francisco H. Trujillo for the Legacy Press. For details regarding the history of the manuscript collection and the edition of the catalogue, see Trujillo 2021.

²⁷ Petersen includes three drawings of Ethiopian structures (Petersen 2021, Figs 11a–c).

²⁸ The expression 'double stitches' in this article refers to two thread lengths along the fold between sewing stations.

are found in the centre of the guires, and he observes the similarity of this sewing method with the Ethiopian one. He affirms:

In many [Coptic] parchment codices, both early and later, the sewing stitches placed in the folds of the quires are found to be of double threads indicating that the sewing operation was executed either with two separate threads and needles or with a thread with a needle at either end, in a manner similar to that used by Ethiopic bookbinders until comparatively recent times.29

Therefore, according to Petersen, the Coptic sewing technique is often similar to the Ethiopian one, still in use in recent times, due to the presence of double stitches in the fold of the guires.

Later, Berthe van Regemorter, who was among the first to dedicate a study exclusively to Ethiopian bookbinding, considered the similarity of the sewing a sign of Ethiopian binding's descent from the Coptic. According to van Regemorter, the similarity derives from an additional feature of the sewing structure, that is, its periodic fold pattern.³⁰ In the 1962 article 'Ethiopian Bookbinding', after translating the description of the Ethiopian bookmaking technique that the French explorer Antoine d'Abbadie provides in his catalogue,³¹ she writes:

I want to add a detail about the technique of the Ethiopian binder, which probably did not strike the French explorer but which is quite characteristic of the Coptic origin of the Ethiopian bookbinder's craft. An Ethiopian book is never sewn with one thread beginning at the tail of a quire and going up to the head before entering the next quire. The centre of the quires always have [sic] an even number of holes. A thread will be passed through number 1 and then go through number 2. Another thread will go through number 3 and number 4, and so on.32

According to van Regemorter, then, the Ethiopian codices always present an even number of sewing stations and a periodic fold pattern, which is considered proof of their Coptic origin. It follows that Coptic codices were considered to have the same characteristics. However, van Regemorter's statement is not always true. Petersen had already discovered that Coptic and Ethiopian bindings

²⁹ Petersen 2021, 25.

³⁰ The fold pattern is defined as the 'the sequence of stitches visible in the fold of the innermost folio of a section' and 'periodic fold patterns have intervals between some of the stations'; see Spitzmueller 1982, 45.

³¹ D'Abbadie 1859, xii-xiii.

³² van Regemorter 1962, 87.

could be sewn on three sewing stations,³³ and Theodore Lamacraft, the conservator who worked on the codices from the monastery of Apa Jeremiah now kept at the CBL, noted that the codex Dublin, CBL, Cpt 814 (CLM 65)³⁴ was sewn allalong, continuously, on four sewing stations.³⁵

Another common opinion was that Ethiopian bookbinding had remained almost unchanged for centuries. Indeed, modern Ethiopian bindings seem outwardly similar to the ancient ones, which would confirm the stability of the Ethiopian binding technique. Not surprisingly, Janos Szirmai, in his book *The* Archaeology of Medieval Bookbinding – one of the most influential volumes on bookbinding history – shares this theory, affirming that Ethiopic manuscripts are 'bound in a very simple codex form, which has in fact remained almost unchanged until the present day'. 36 However, codicological research on Ethiopian manuscripts is in its infancy; by recording some previously unknown characteristics of Ethiopian bookbinding,³⁷ recent studies have revealed how limited our knowledge of Ethiopian codex manufacture is.³⁸ However, many aspects still deserve dedicated research to be fully understood. For example, as regards the sewing technique, Giampiero Bozzacchi has examined fifty-six Ethiopic codices kept at the library of the Accademia Nazionale dei Lincei e Corsiniana in Rome, and was able to identify and describe twelve variation patterns within the general typology of Ethiopian sewing.³⁹ Further research may verify whether the variations are related to temporal or geographical factors. 40 As a preliminary remark, it can be argued that the technical and aesthetic variations in Ethiopian bookbinding are concentrated on detail, as Richard Pankhurst had already noted with respect to their decoration.41

³³ For an early analytical drawing of an Ethiopian structure sewn on three sewing stations, see Petersen 2021, Fig. 11b.

³⁴ CLM stands for Coptic Literary Manuscript and is the stable ID attributed to each codicological unit by the project 'PAThs: Tracking Papyrus and Parchment Paths. An Archaeological Atlas of Coptic Literature. Literary Texts in Their Original Context. Production, Copying, Usage, Dissemination and Storage' (PI Paola Buzi) (http://paths.uniroma1.it and https://atlas.pathserc.eu, accessed on 28 February 2023). This article indicates the CLM stable ID in brackets.

³⁵ Lamacraft 1939, 227.

³⁶ Szirmai 1999, 45.

³⁷ Di Bella and Sarris 2014; Nosnitsin 2016.

³⁸ For an overview of the development of Ethiopian manuscript studies with a focus on codicological aspects and further bibliography, see Nosnitsin 2012.

³⁹ Bozzacchi 2000; Bozzacchi 2001.

⁴⁰ For a summary of the possible variations in Ethiopian bookbinding and relevant bibliography, see Dal Sasso 2022.

⁴¹ Pankhurst 1984, 209.

Lastly, the idea of the similarity between Coptic and Ethiopian bindings combined with the latter's stability over time gave rise to the assumption that the Ethiopian bookbinding craft, to a lesser extent still practised today, preserved Coptic techniques and passed them on to us. In fact, van Regemorter wrote about how the Ethiopians preserved the ancient Coptic binding technique until the nineteenth century:

Les reliures éthiopiennes présentent une technique de couture absolument égyptienne (à fils indépendants) [...]. Ce pays est resté fidèle à ce modèle de reliure jusqu'au XIXe siècle inclus.42

Szirmai has reported this theory, and even if he does not clearly support it, he does not discredit it either. Indeed, referring to Ethiopian bindings, he states:

Their simple structure has often been equated with that of early Coptic codices, which would have meant that the Ethiopian binder had preserved the tradition of his craft for more than a millennium.43

In light of this, it can be argued that the confusing use of the terms 'Coptic' and 'Ethiopian' binding has its roots in the past literature produced by distinguished scholars, who spread the idea of the similarity between Ethiopian and Coptic binding technique. The assumption was also fuelled by the Ethiopian Church being formally dependent on the Coptic Church until the mid-1950s. As a consequence, the Ethiopian sewing technique began to be called 'Coptic'. However, the assumption of similarity between the two traditions was founded on underlying generalisations and misunderstandings. To highlight the differences between Coptic and Ethiopian sewing techniques, Section 4 presents a comparison between them.

^{42 &#}x27;Ethiopian bindings have an undoubtedly Egyptian sewing technique (with independent threads) [...] This country remained faithful to this binding model until the nineteenth century included' (van Regemorter 1967, 104; translation mine).

⁴³ Szirmai 1999, 45.

4 Ethiopian and Coptic sewing technique in comparison

The following section offers a comparison between Ethiopian and Coptic binding. It first discusses how the quantity and state of conservation of preserved specimens influence the study of the binding tradition; it then compares Ethiopian and Coptic sewing technique.44

4.1 The problem with Ethiopian and Coptic bookbinding evidence

The problem with a comparative study of Coptic and Ethiopian binding is, first and foremost, the considerable time gap between the preserved specimens of the two traditions. Ethiopian manuscripts dated before the thirteenth century are rare, their number limited to a handful of examples. Several factors probably underlie this scarcity: besides the Muslim persecution that destroyed Christian heritage during the sixteenth century, other violent events, such as the Italo-Ethiopian war (1935-1941), certainly also played a role. So too did the deliberate replacement of old manuscripts with new ones due to damage, the need to remove and replace texts, or simply the poor storage conditions that accelerated the natural decay of manuscripts. 45 Amid the paucity of evidence, it is difficult to trace the evolution of the binding technique.

As Ethiopian manuscript production still endures today⁴⁶ – producing codices that, at first glance, are similar to the older ones – one might be tempted to reconstruct the ancient technique based on modern practices. However, recent studies have revealed minor variations among Ethiopian bindings. Moreover, the preserved manuscripts have often been reworked and repaired. The boards and leather covers, fulfilling their function as protective elements of the book block, inevitably suffer deterioration. The sewing in particular is one of the first elements that must be replaced, due to the wear it undergoes when turning pages. The presence of unused holes in the quires (for sewing) or boards (for

⁴⁴ For the purpose of this article, only the structures sewn through the fold of the quires will be considered.

⁴⁵ For a discussion on the number of early manuscripts and the causes of their scarcity, see Bausi 2008, 518-520 and Bausi 2015, 48.

⁴⁶ For recent studies on the manuscript production as it is today, see Mellors and Parsons 2002a; Mellors and Parsons 2002b; Winslow 2015.

attaching them to the book block) indicates the practice of replacing the sewing and reusing old boards in new bindings. Therefore, it is even more difficult to assess to what extent the ancient technique has been preserved.

Despite such cycles of deterioration and replacement, some original features have survived in the binding of the Abba Gärima Gospels, the most ancient Ethiopian manuscripts known so far (sixth/seventh century).⁴⁷ As evidenced by the 2006 restoration, the bindings have been repaired over time, so the codices do not retain the original sewing. Although the dating of the bindings is uncertain, the Abba Gärima Gospel 2 metal covers are decorated 'with a large cross in late antique style'. 48 A further feature of their antiquity is that the lower metal cover of Abba Gärima Gospel 1 is attached to a laminated papyrus board on which traces of a leather cover are visible. It may be speculated that this is the rest of an ancient, laminated papyrus board with a leather cover, 49 similar to some preserved Coptic bindings.⁵⁰

As far as Coptic bindings are concerned, since the late eighteenth century, Coptic and Greek manuscripts from Egypt have entered European and non-European collections. However, it is evident from the first glance is that these manuscripts are in a highly fragmentary state, and rarely has a codex been preserved intact at a single institution. Coptic and Greek manuscripts have either suffered the ravages of time, or were intentionally torn apart when discovered to sell them in separate pieces, thus increasing the sale proceeds. As a result, fragments belonging to the same codicological unit are scattered throughout various collections worldwide.51

Moreover, as researchers focused on the language and intellectual content rather than the materiality of the manuscripts, even codices preserved in good condition underwent invasive processes to facilitate the handling of the leaves. For example, the bindings were separated from the book block; the sewing was cut to free the quires and allow the bifolia, sometimes cut in half for the purpose, to be housed between glass panes. This procedure was common in many

⁴⁷ The dating of the gospels has been discussed in Bausi 2011.

⁴⁸ Bausi et al. 2020, 49.

⁴⁹ A full set of digitised images of Abba Gärima Gospel 1 is available, upon registration, in the HMML Reading Room (see https://w3id.org/vhmml/readingRoom/view/132896).

⁵⁰ The presence of a papyrus board has been noted in Winslow 2015, 249, n. 69.

⁵¹ For this purpose, abbreviations identifying codicological units, like the CLM, are used. For example, the manuscript fragments originating from the monastery of Shenoute at Atripe, belonging to the codicological unit CLM 264, are scattered in collections in Egypt, France, Germany, Italy, the United Kingdom, and the US. See https://atlas.paths-erc.eu/manuscripts/264 (accessed on 28 February 2023).

European and non-European institutions until the second half of the twentieth century. In some cases, the treatment was even worse: in antiquity, discarded fragments of old manuscripts were often reused, glued together to provide rigid supports for leather coverings; later, in the interest of recovering scholarly texts, the boards were split to extract the precious manuscript fragments, thus reducing the bindings to empty leather covers. Moreover, since the bindings were deemed of little value, they were sometimes even disposed of by conservation institutions after these invasive operations.

In light of this, one can understand why there are so few manuscripts still preserving the original Coptic binding, complete with sewing.⁵² Additional information can be gathered from folios with remnants of sewing threads but detached from their cover, which has not been preserved. Therefore, research must combine all the fragmentary evidence and interpret the resulting image, filling in the remaining gaps.

In the absence of material evidence, the sewing structure could only be reconstructed if it was documented before the invasive interventions. Unfortunately, this happened only rarely. For example, the sewing structure of the codices from the monastery of Apa Jeremiah is known thanks to Lamacraft, who documented it, even with drawings, before the codices were dismembered. One outstanding case consists of a few photographs that emerged, during the course of this research, from among Walter Ewing Crum's papers at the Griffith Institute in Oxford. They show some of the Coptic manuscripts from the city of Edfu purchased by the British Library from the American Egyptologist Robert de Rustafjaell on 12 November 1907. When they were first acquired, the manuscripts still preserved their binding, albeit in a deteriorated state. Most of the photographs accompany the description of Rustafjaell's collection that appears

⁵² Coptic manuscripts still preserving the ancient sewing are: Barcelona, Arxiu Històric de la Companya de Jesús a Catalunya, P. Palau Ribes 181–183 (CLM 3956); Cologny, Fondation Martin Bodmer, P.Bodmer VI (CLM 34), P.Bodmer XVI (CLM 35), P.Bodmer XIX (CLM 37), and probably P.Bodmer XVIII (CLM 36) (in the digitisation, the fold is hidden by strips of parchment with the function of sewing stays); Leiden, Rijksmuseum van Oudheden, AMS9 (CLM 3355); New York, NY, Morgan Library and Museum, G67 (CLM 44) and M910 (CLM 1399) (which has not been opened yet due to its state of preservation); and probably Princeton, NJ, University Library, Scheide MS 144 (CLM 6296).

⁵³ See Lamacraft 1939. He had an incredible conservationist sensitivity for the time, since he kept all the original materials he removed from the bindings (even the dust and smallest debris). Now, everything is housed neatly in forms cut to size in Plastazote® panels and preserved in boxes.

in The Lights of Egypt (1909), but those showing binding features (for example, Fig. 1 and Fig. 2) were not selected for publication.⁵⁴



Fig. 1: The Coptic manuscripts London, British Library, Or. 6799 (CLM 183), Or. 6800 (CLM 197), Or. 6801 (CLM 184) and the Old Nubian manuscript Or. 6805, in their ancient bindings. Oxford, Griffith Institute, Crum mss I.3.12.4 © Griffith Institute, University of Oxford

⁵⁴ De Rustafjaell 1909.

The manuscripts have since been rebound and the ancient bindings were not preserved;55 therefore, the photographs are unique testimonies of the pristine state of the bindings: they show aspects of the external appearance of the covers, and internal structural features such as the sewing. The previously unknown photographic documentation makes new observations on Coptic sewing technique possible.



Fig. 2: Original sewing of London, British Library, Or. 6799 (CLM 183). Oxford, Griffith Institute, Crum mss I.3.12.3 @ Griffith Institute, University of Oxford

⁵⁵ Of the manuscript binding London, British Library, Or. 6801 (CLM 184) only the central panel of the covers is preserved, trimmed and glued as doublure to the modern binding. For a summary of the bindings of the Edfu manuscripts still preserved at the British Library, see Lindsay 2001. Jen Lindsay is currently preparing an updated study of these Coptic bindings.

4.2 Ethiopian and Coptic sewing methods

As discussed in the previous sections, the sewing technique is traditionally indicated as an element of similarity between the Ethiopian and Coptic binding traditions. Specifically, the statements on which this assumption was built, based on the surveyed literature, are that of Petersen regarding the presence of double stitches in the fold, and that of van Regemorter regarding the periodic structure of the fold pattern. However, these statements are not universally valid, and to avoid generalisations, they must be restricted to specific cases, as demonstrated by direct observation.

The sewing technique used in both Ethiopian and Coptic multi-quire codices is the chain-stitch, a type of unsupported sewing common to Eastern bookbinding traditions (for example, Islamic, Byzantine, Coptic, and Ethiopian), which assumes a chain-like pattern on the spine of the book block. Usually, in the Ethiopian tradition, the chain-stitch is executed with independent threads on pairs of sewing stations and is often referred to as a 'two-needle sewing'. The expression indicates that each pair of sewing stations is sewn using two needles: either with one thread (one needle at each end) or two threads (one needle each).⁵⁶ Therefore, in the centrefold of the quires, two thread lengths move independently, resulting in a double stitch. Normally, Ethiopic manuscripts are sewn on two sewing stations (one pair) or four sewing stations (two pairs). The latter structures present the periodic fold pattern noted by van Regemorter. An analytical drawing of the Ethiopian sewing on four sewing stations is presented in Fig. 3, and the resulting periodic fold pattern in the centre of the quire is shown in Fig. 4.57

⁵⁶ Sean Michael Winslow observes that the sewing could be conducted either with needles or solely by means of awls to punch the holes in the quires and pull the thread through; see Winslow 2015, 205.

⁵⁷ Fig. 3 does not show the sewing of the first quire or the board attachment, as several variants are possible.

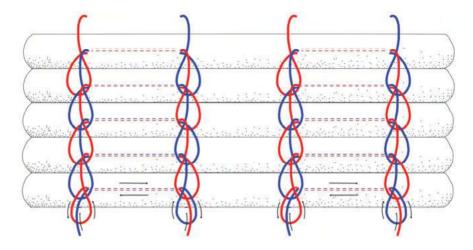


Fig. 3: Analytical drawing of an Ethiopian sewing on four sewing stations (two pairs).



Fig. 4: Periodic fold pattern of an Ethiopic manuscript sewn on four sewing stations (two pairs) with double stitches between each pair. Grottaferrata, Biblioteca statale del Monumento Nazionale di Grottaferrata, Crypt. Aet. 7.

However, structures sewn on an even number of paired sewing stations are not the only possibility, and a smaller number of manuscripts are sewn on three sewing stations.⁵⁸ Ethiopian three-hole sewing has been the object of Dan Paterson's investigations in preparation for the conservation of Ethiopic manuscript MS 93 of the Thomas Kane Collection in the African and Middle Eastern Division of the Library of Congress. Common features of the three-hole bindings are the

⁵⁸ The manuscripts sewn on three sewing stations represent a minority in the collections of Ethiopic manuscripts. For example, only seven of the one hundred and one manuscripts examined by the conservator Dan Paterson had a three-hole pattern (see Paterson 2008, 58), and only six of the ninety-one manuscripts in the collection of May Wäyni had the same (see Tomaszewski and Gervers 2015, 210).

continuous fold pattern and the presence of double lengths of thread in the fold. However, during his investigation, Paterson discovered that even among the few structures with three sewing stations, there are variations in the way the sewing was performed, leading him to state:

the variations within the small number of three-hole bindings confirms [sic] for me that Ethiopian bindings are not as uncomplicated or uniform in structure as is often assumed.⁵⁹

Specific research is needed to fully understand these structures. For this purpose, an essential aid would be the systematic recording of the number of sewing stations in cataloguing projects.

In the Coptic bookbinding tradition, multi-quire codices are sewn with the chain-stitch technique as well. 60 However, this exhibits different features compared to the Ethiopian tradition. Based on the current evidence, in Coptic bindings, the presence of double stitches between sewing stations is confined to quires with a continuous fold pattern. In some codices, the continuous fold pattern with double stitches could have been maintained throughout the codex, as, for example, in the codex Washingtonianus (Washington, DC, Smithsonian Institution, Freer Gallery of Art, 06.274, where the quires have been sewn on five sewing stations with double stitches, 61 and Dublin, CBL, Cpt 815 (CLM 66), sewn on three sewing stations with double stitches. 62 Sometimes the continuous sewing pattern is maintained, but the presence of double stitches between the sewing stations is limited to the first and last quires. So far, this feature is common to codices furnished with wooden covers, as it has been recorded in the manu-

⁵⁹ Paterson 2008, 61.

⁶⁰ The presence of a sort of sewing supports has been recorded, but only for the repair of broken sewing. Indeed, Petersen notes that broken chain-stitch links in manuscripts M586 (CLM 251) (= binding 6) and M599 (CLM 215) (= binding 12) at the Morgan Library and Museum were repaired by sewing the loose quires to strands of cord stretched across the spine of the book; see Petersen 2021, 36-37.

⁶¹ According to Petersen (2021, 34, Fig. 16c), in two instances there are even three stitches between the sewing stations, while in the second and third quires there is only one length. However, the state of the sewing today is not the same as that observed by Petersen. See the digital reproduction available in the digital collection of the Centre for the Study of New Testament Manuscripts, https://manuscripts.csntm.org/manuscript/View/GA 032 (accessed on 1 March 2023).

⁶² See Lamacraft 1939, 232 (= MS. C); Petersen 2021, 29; and for an analytic drawing of the sewing, Szirmai 1999, Fig. 2.3c. It is worth noting that both Ethiopian and Coptic book structures sewn on three stations have a continuous fold pattern, but their comparison awaits dedicated research.

script Dublin, CBL, Cpt 814 (CLM 65), sewn on four sewing stations:⁶³ the codex Princeton, NJ, University Library, Scheide MS 144 (CLM 6296), on three sewing stations; the codex Glazier (New York, NY, Morgan Library and Museum, G67; CLM 44), on three sewing stations;⁶⁴ and the codex Ann Arbor, MI, University of Michigan Library, Ms 167 (CLM 68), kept at the University of Michigan Library, sewn on four sewing stations.⁶⁵ Other times, only one thread length connects one sewing station to the next, creating the continuous fold pattern. The late Copto-Arabic specimens, such as Vatican City, Biblioteca Apostolica Vaticana, Barb. Or. 17 (CLM 3070), which is sewn on five stations, preserve this structure. However, this is not the most adequate example on which to base a general assessment, as it represents an evolution of the binding technique that assimilated features of Islamic tradition and possibly underwent conservation treatments. However, even though other codices featuring chain-stitch sewing with a single thread length have not been preserved in their entirety, there is further evidence to document its use. In fact, the miniature Cologne Mani-Codex shows this type of sewing. Though the outer margins of the parchment bifolia are missing, the fold is preserved, and it retains fragments of the S-plied thread used for sewing arranged in a continuous fold pattern.66 Another fragmentary proof of sewing with a single thread length in the centre of the fold can be found among Crum's papers at the Griffith Institute in Oxford. The photograph is the only document of the now lost sewing of the Coptic manuscript Or. 6799 (CLM 183) shortly before its acquisition (and dismembering) at the British Museum (Fig. 2). The photograph shows an open central bifolium sewn with a Z-plied thread that connects three sewing holes in a continuous fold pattern. Another piece of evidence comes from Hyvernat's photostats of the Hamuli Coptic codices that are now in the Morgan Library and Museum. Fr. Henry Hyvernat, director of the Department of Semitic and Egyptian Languages and Literatures at the Catholic University of America in Washington, DC, was hired to catalogue the collection and took a series of photostats showing the codices still in their bindings before they were sent to the Vatican Library for preservation, where the sewing was cut to separate the book blocks from the covers. According to Petersen, the photo-

⁶³ See Lamacraft 1939, 227 (= MS. B), and for an analytic drawing of the sewing, Szirmai 1999, Fig. 2.3b.

⁶⁴ See Sharp 1999, 463 and Fig. 6.

⁶⁵ See Lamacraft 1939, 233 (= MS. D) and Sharp 1999, 463 and Fig. 6.

⁶⁶ For colour digital reproductions, see https://papyri.uni-koeln.de/features/mani-kodex (accessed on 1 March 2023).

stats show the codices sewn with 'three stitches' on four sewing stations.⁶⁷ Fig. 5 is one of the photostats,68 which confirms Petersen's statement showing the manuscript New York, NY, Morgan Library and Museum, M605 (CLM 255) sewn on four sewing stations with continuous fold pattern and single thread length. The image also shows stitches at the head and tail for attaching endbands. The short horizontal lines mark the extention of stitches and were later added on the photostat probably by Petersen.

In Coptic bookbinding, as in the Ethiopian tradition, there are structures with a periodic fold pattern, sewn on pairs of sewing stations. Yet the preserved specimens show that there is a difference between the two traditions; while in the Ethiopian tradition there are two thread lengths between each pair of stations, in the Coptic there is just one. The Coptic sewing method has already been described and drawn by the conservator and bookbinding historian Paul Adam, and more recently by Brent Nongbri. 69 A schema of the sewing is presented in Fig. 6. From the comparison of the sewing schemas of the Ethiopian (Fig. 3) and Coptic (Fig. 6) manuscripts sewn on two pairs of sewing stations, the difference in the number of threads passing along the fold between a pair of sewing stations emerges.

Furthermore, in the Coptic tradition, a codex can switch the fold pattern from continuous to periodic. In these cases, the presence of double stitches is limited to the first and last two quires, with a continuous fold pattern, while the remnant, with a periodic fold pattern, have only a single thread length between the pairs of sewing stations. This structure has been recorded, for example, in the manuscript Dublin, CBL, Cpt 813 (CLM 64).70 Other structures might have been sewn entirely on paired sewing stations with a single thread length between them, as shown in the digital images of Cologny, Fondation Martin Bodmer, P.Bodmer VI (CLM 34),71 P.Bodmer XVI (CLM 35),72 P.Bodmer XIX (CLM

⁶⁷ In the specific, Petersen refers to the photostats of M586 (CLM 251) (Petersen 2021, 102 = binding 6), M599 (CLM 215) (Petersen 2021, 118-119 = binding 12), M585 (CLM 238) (Petersen 2021, 141 = binding 20), M575 (CLM 214) (Petersen 2021, 150 = binding 23), M574 (CLM 213) (Petersen 2021, 152 = binding 24), M570 (CLM 208) (Petersen 2021, 157 = binding 25), M605 (CLM 255) (Petersen 2021, 160 = binding 26).

⁶⁸ The original colours of the negative print have been inverted using the graphics editor Affinity Photo.

⁶⁹ Adam 1914, 91; Nongbri 2018, 31-34.

⁷⁰ See Lamacraft 1939, 218–220 and Fig. 2 (= MS. A).

⁷¹ See https://bodmerlab.unige.ch/fr/constellations/papyri/barcode/1072205347 (accessed on 1 March 2023).

37),⁷³ and P.Bodmer XXI (CLM 38).⁷⁴ The same pattern has emerged from the direct examination of Barcelona, Arxiu Històric de la Companya de Jesús a Catalunya, P. Palau Ribes 181–183 (CLM 3956), and P. Theol. 51 and 53–60 in the Papyrussammlung der Universität zu Köln.⁷⁵ Szirmai's drawing of the fold pattern of Barcelona, Arxiu Històric de la Companya de Jesús a Catalunya, P. Palau Ribes 181–183 seems to contradict this observation, since he drew the sewing structure as periodic and with double stitches between each pair of sewing stations.⁷⁶ Szirmai has affirmed that he based the drawing on Coptologist Hans Quecke's description of the manuscript; however, Quecke has described the sewing as follows:

Es läuft nämlich jeweils zwischen den beiden unteren und den beiden oberen Einstichen ein Faden im Inneren der Lage. [...] Es befanden sich also im Lageninneren jeweils zwei 4 cm lange Fadenstückchen, die die Einstiche des unteren und des oberen Paares verbanden.⁷⁷

Therefore, he describes the sewing with a periodic fold pattern and one stitch between each pair of sewing stations. Thus, the photograph, taken during my first-hand examination of Barcelona, Arxiu Històric de la Companya de Jesús a Catalunya, P. Palau Ribes 181–183, corresponds to Quecke's description (Fig. 7), but not to Szirmai's drawing.⁷⁸

⁷² See https://bodmerlab.unige.ch/constellations/papyri/barcode/1072205355 (accessed on 1 March 2023).

⁷³ See https://bodmerlab.unige.ch/constellations/papyri/barcode/1072205348 (accessed on 1 March 2023).

⁷⁴ For the leaves kept at the Fondation Martin Bodmer see Cologny, Fondation Martin Bodmer, P.Bodmer XXI at https://bodmerlab.unige.ch/constellations/papyri/barcode/1072205359 and for those kept at the CBL see Dublin, CBL, Cpt 2019.8, https://viewer.cbl.ie/viewer/image/Cpt_2019_8/1/LOG_0000/ (accessed on 1 March 2023).

⁷⁵ The digitised manuscripts in Cologne, are available at https://papyri.uni-koeln.de/features/tura (accessed on 1 March 2023).

⁷⁶ Szirmai 1999, 21, Fig. 2.3d.

^{77 &#}x27;There is a thread running inside the centrefold respectively between the two lower and the two upper sewing stations. [...] So there were two 4 cm long pieces of thread inside the centrefold, connecting the sewing stations of the lower and the upper pair' (Quecke 1984, 11; translation mine).

⁷⁸ As Quecke notes, the sewing is broken and the quires are loose (Quecke 1984, 10). Therefore, it cannot be ruled out that fragments of thread may have been lost. However, it is unlikely that this happened systematically in each quire, leaving only one length per pair of sewing stations.



Fig. 5: Original sewing on four sewing stations, with continuous fold pattern and single thread length of New York, NY, Morgan Library and Museum, M605 (CLM 255). Washington, DC, The Institute of Christian Oriental Research (ICOR) Library, CODD. Copt. Tom.XIV M.575 (K.11), Pl. 85 © ICOR Library

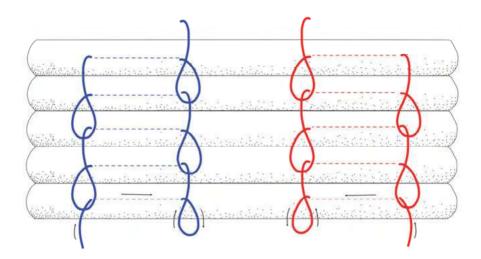


Fig. 6: Analytical drawing of a Coptic codex sewn on four sewing stations (two pairs) with a single thread between each pair.



Fig. 7: Periodic fold pattern of a Coptic codex sewn on four sewing stations (two pairs) with a single thread between each pair. Barcelona, Arxiu Històric de la Companya de Jesús a Catalunya, P. Palau Ribes 181–183 (CLM 956) / © Arxiu Històric de la Companya de Jesús a Catalunya.

The difference between the Ethiopian and Coptic techniques can also be appreciated from a spine view of the codices, where the appearance of the 'chains' resulting from sewing is distinct. Whereas the Ethiopian chain-stitch takes on a distinct 'chevron' pattern on the spine of the codex (Fig. 8), the Coptic does not (Fig. 9).

Lastly, to conclude the comparison of Coptic and Ethiopian sewing techniques through the fold of the quires, it can be mentioned that both Ethiopian and Coptic bookbinding feature book structures in which the sewing is not intended to connect one quire to another. This is obviously the case of those codices formed by one quire, but also of multi-quire codices where each quire is sewn independently.



Fig. 8: Chain-like pattern on the spine of an Ethiopic codex, Grottaferrata, Biblioteca statale del Monumento Nazionale di Grottaferrata, Crypt. Aet. 7.



Fig. 9: Chain-like pattern on the spine of a Coptic codex. Cologny, Fondation Martin Bodmer, P.Bodmer XVI (CLM 35).

In the Coptic binding of single-quire codices, the quire is attached directly to the cover by means of tackets.⁷⁹ The bindings of the Gnostic codices discovered in 1945 near the village of Nag Hammadi are probably the most famous examples. 80 All but one of the eleven codices preserving the binding consist of a single quire attached directly to the cover with two leather tackets. Each lace passes through two holes pierced in the centrefold, and the leather cover is lined

⁷⁹ For a list of single-quire codices, see Turner 1977, 58–61. The presence of single-quire codices in Ethiopian manuscript culture is mentioned, for example, in Nosnitsin 2016, 82 and Balicka-Witakowska et al. 2015, 171.

⁸⁰ The bibliography on the Nag Hammadi codices and their discovery is vast. As a starting point for the study of the bindings, see Miller and Spitzmueller 2018; Robinson 1975; and Szirmai 1999, 7-14.

with layers of papyrus sheets. These bindings appear to be finely crafted artefacts, as indicated also by the presence of decorations drawn in ink and blind-tooled on their covers.

Tackets can serve as temporary devices while the manuscript waits to receive a permanent binding. For example, in the Ethiopian manuscript tradition, the quires are formed by holding the leaves of the quires together by means of tackets, piercing the quires at the head and tail, which are cut and removed as the codex receives the definitive binding. Petersen has noted that Coptic quires may have been similarly prepared for their definitive sewing. He has observed that the quires of codices M581 (CLM 232), M595 (CLM 243), and M604 (CLM 254) at the Morgan Library and Museum in New York feature two different sets of sewing holes, where one could have served as a temporary sewing of the quires. Between the could have served as a temporary sewing of the quires.

However, these simple structures may also have been definitive, and in this case, they are provided with protective material as a cover. In the Ethiopian tradition, a single or a few quires can be secured directly to a parchment or leather cover. The quires can be attached to it by means of tackets, passing through matching holes in the centrefold and the cover, and passing over the head and/or tail of the guires.83 Otherwise, the guires can be attached to the cover with quick sewing, like running stitches.⁸⁴ Furthermore, in the Coptic tradition, there are examples of economic bindings that, despite not being temporary, make use of quick sewing techniques and less expensive materials, often reused. This is the case, for example, of the booklet P. Heid. Inv. Kopt. 686 in the Heidelberger Papyrussammlung, which contains the praise of the Archangel Michael and rituals for protection on a parchment palimpsest.85 It is part of a kind of booklet produced and used by practitioners who used to travel from village to village, making their income performing 'magical', oracular rituals. The binding consists of two loops of leather that directly pierce the leaves at four points, two at the head and two at the tail, to fix them to the cover. The simple nature of the binding indicates that the book was not intended for display.

⁸¹ For a description of assembling the quires and further bibliography, see Balicka-Witakowska et al. 2015, 159.

⁸² Petersen 2021, 16.

⁸³ See, for example, London, British Library, EAP 286/1/1/114, https://eap.bl.uk/archive-file/EAP286-1-1-114 (accessed on 1 March 2023).

⁸⁴ See, for example, London, British Library, EAP 526/1/89, https://eap.bl.uk/archive-file/EAP526-1-89 (accessed on 1 March 2023).

⁸⁵ See Heidelberg, Universität Heidelberg, Heidelberger Papyrussammlung, P. Heid. Inv. Kopt. 686, https://doi.org/10.11588/diglit.39754.

5 Final remarks

This article started by noting that the term 'Coptic' is often used to refer to the Ethiopian sewing technique. The misleading use of the term stems from the fact that historical Ethiopian bindings have characteristics that correspond to modern Coptic-style book structures: namely, the board attachment is an integral part of chain-stitch sewing. However, these modern structures may not be conceived as historically accurate, but only as bindings that meet specific aesthetic standards. For this reason, modern bindings created for aesthetic purposes must be considered separately from reproductions of historical bindings. Furthermore, historical Ethiopian and Coptic bindings are different, therefore, to avoid misleading interpretations, it would be better to speak separately of modern bindings inspired by the Ethiopian or the Coptic technique.86

Yet the term 'Coptic' is also used in some catalogues to describe the Ethiopian sewing technique. This inappropriate label has its roots in an outdated idea of the similarity between Coptic and Ethiopian binding that has been assimilated by technical jargon and persists to some extent in the literature. Indeed, in the early days of bookbinding studies, distinguished scholars supported the theory of similarity between ancient Coptic and modern Ethiopian binding traditions. The theory was particularly plausible given the existence of points of contact between the sewing techniques, the apparent stability of Ethiopian bookbinding, and the fact that Ethiopian book production was linked to a religious sphere that formally depended on the Coptic Church until the midtwentieth century.

The Coptic binding technique was considered the origin of Ethiopian bookbinding and all other traditions. This Coptic influence would extend as far as northern Europe.87 Quite significant in this regard is Geoffrey D. Hobson's statement on Coptic bindings:

⁸⁶ As proposed in the video tutorial Ethiopian Two-Needle Binding // Adventures in Bookbinding, which was uploaded on YouTube on 19 February 2022. The author, aware of the terminological problem, accurately states that he will show the making of 'a modern binding based on the traditional Ethiopian binding', often named 'two-needle Coptic binding'. He then explains why he thinks that 'this is not the best name to use and unfair on the Ethiopian binding tradition'. See https://youtu.be/Nvxvq6AlWvY (accessed on 1 March 2023).

⁸⁷ For the Coptic influence on the eighth-century gospel found in the coffin of Saint Cuthbert, see van Regemorter 1949 and Powell 1956.

The interest justly claimed by their antiquity is greatly increased by the fact that they are the source of all other decorated bindings, whether European or Asiatic.⁸⁸

However, it should be noted that the Coptic binding technique has been credited as the forerunner of all other binding traditions because Egypt, with its favourable climatic conditions, provided specimens of early bindings that have not been preserved elsewhere. Georgios Boudalis has clarified that the influence of Coptic bindings must be reconsidered in light of the presence of physical, literary, and iconographic evidence that compensates for the absence of late antique bindings in areas outside of Egypt. Furthermore, based mainly on the iconographic evidence, Boudalis argues that the characteristics of the bindings believed to corroborate the influence of the Coptic technique are not specific to this tradition, but were rather shared throughout the Mediterranean basin and far beyond.⁸⁹

Moreover, a comparative analysis of Coptic and Ethiopian bindings cannot disregard the fact that Ethiopian manuscripts dated before the thirteenth century are rare, and even those preserved were often reworked and repaired. Furthermore, evidence shows that the theory under which Ethiopian bindings remained unchanged for centuries must be reconsidered, and the stability of Ethiopian binding techniques over time cannot be taken for granted. Therefore, modern manuscript production in Ethiopia cannot be used to reconstruct the earliest binding technique, since it is impossible to determine the extent to which it has been preserved today.

The most obvious point of contact between Coptic and Ethiopian binding technique is found in structures with four sewing stations sewn with independent threads. When the sewing takes place on two pairs of stations, the resulting fold pattern is periodic in both Ethiopian binding and Coptic. However, the Coptic sewing technique differs from the Ethiopian in that only one thread length runs between the pairs of sewing stations.

Furthermore, in the Coptic tradition, there is evidence of structures sewn all-along on four sewing stations with one thread length between the stations, and it is possible to switch between continuous and periodic fold patterns with-

⁸⁸ Hobson 1938, 206.

⁸⁹ See Boudalis 2017. However, it might be imprecise to use the suggested term 'Early Christian bindings' to refer to late antique binding as a whole, since it is unlikely that the very same decorative and binding techniques were shared by the variety of societies that populated the Mediterranean basin. Instead, they likely all adopted the general characteristics depicted in the iconography, but detailed them in their own way. Moreover, it is not certain that all bindings had a 'Christian' origin.

in the same codex – characteristics that are utterly unrelated to the Ethiopian binding technique.

To conclude, the comparative analysis of the sewing technique shows that Coptic and Ethiopian sewing technique belong to distinct traditions. Therefore, it seems improper and misleading to use the term 'Coptic chain-stich' to describe the Ethiopian sewing. It would be more accurate to speak of Coptic and Ethiopian chain-stitch as two separate entities, also admitting that many aspects of both traditions remain obscure to this day and await dedicated research, which may, however, be impeded by the state of preservation of the original specimens.

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