

The Technique of Islamic Bookbinding

Islamic Manuscripts and Books

Christoph Rauch (*Staatsbibliothek zu Berlin*)
Arnoud Vrolijk (*Leiden University*)

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The Technique of Islamic Bookbinding

Methods, Materials and Regional Varieties

SECOND REVISED EDITION

By

Karin Scheper



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Cover illustration: UBL Or. 1218, a Qur'an in maghribi script, dated 1718. Photo by Karin Scheper.
The damage at head and tail of the full leather binding reveals part of the construction: the leather spine-lining and tiedowns of the endband are visible.

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One who seeks this art should have quick understanding, good observation, dexterity of the hand, and be certain without being hasty. The latter is a good manner of getting along and it has the elegance of attracting others of grace and good character.

TAMIM IBN AL-MUIZZ IBN BADIS, CA. 1025 CE, 'Twelfth chapter on the art of binding books in leather and the use of all its tools until it is finished by the book-binder,' in *Mediaeval Arabic bookmaking and its relation to early chemistry and pharmacology*, translated by Martin Levey, 42.

• • •

The intelligent ones will understand this with simple directions. For others loud shouting will be necessary. Another group will need cursing but not the stick. A stick will be necessary for the last group.

AHMAD B. MUHAMMAD AL-SUFYANI, 1619 CE, 'Art of bookbinding and of gilding,' in *Mediaeval Arabic bookmaking and its relation to early chemistry and pharmacology*, translated by Martin Levey, 5.

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Preface to the Second Revised Edition

The first edition of *The Technique of Islamic Bookbinding* appeared in 2015. The fact that it sold out within three years encourages me to think that it met the needs of various groups of professionals working with Islamic manuscripts, for which I am grateful. Until then, the material and technical aspects of bound volumes had not been addressed in any detail; nor was it obvious that so much information could be gleaned from the artefacts as material witnesses. *The Technique of Islamic Bookbinding* also proposed a controlled technical vocabulary, an absolute prerequisite when discussing the physical objects and describing them in such a way that the distinctive features and characteristic elements receive individual attention. These terms proved to be useful in training and teaching, in cataloguing and digitisation projects, and also to conservators working with manuscripts from the Islamic world.

A growing interest in the field of Islamic manuscript studies has since stimulated further research. In this revised and updated second edition of *The Technique of Islamic Bookbinding* I have much profited from the results of several new and interesting studies. In addition, I had the privilege of conducting a more in-depth study of Islamic endband techniques and I had the opportunity to survey the Yemeni manuscripts in the Leiden University Libraries collections, which hopefully led to some useful observations. More prominently, in this second edition the terms and definitions have been revised, following the substantial update of *Terminology for the Conservation and Description of Islamic Manuscripts*, compiled by Paul Hepworth and myself, prior to its official launch on the new web address [<http://hepworthscheper.com/terminology.html>].

In the past few years the Islamic book has gained a more prominent position in the field of book and paper conservation. At international conferences, manuscripts from the Islamic world have found a natural place among the topics of interest. In the West, several conservation training programmes have started to include topics relating to paper and book objects from the Middle East, Africa and Asia. Young professionals and book conservation students are showing a keen interest in this particular area, acknowledging the need to respectfully approach any bookbinding tradition without preconceived ideas, while gaining a foothold in a vast field that offers so much to explore. These developments are as encouraging as they are necessary.

Given the increase in studies on various preservation or conservation aspects of manuscripts from the Islamic world, it is hardly surprising that the

latest contributions concerning the materiality of Islamic manuscripts are made by conservators such as myself. The hands-on work with the physical objects offers unique opportunities to examine the artefacts. Examples of research subjects recently addressed are Andalusí binding structures, Yemeni manuscripts, early Islamic codices and the development of their construction, the practice of interleaving in different parts of the Islamic world and further studies into historic repairs. References to these new studies are included in this edition.

As we are learning from the books and one another, we are jointly building a new framework of knowledge. I look forward to your comments and criticism.

Leiden, June 2018

Acknowledgements

Being trained as a conservator of western manuscripts and printed works, I knew nothing of Islamic manuscripts when I started the conservation workshop in the Leiden University Library (UBL) in 2000. The Oriental manuscripts required my attention nevertheless. A condition assessment of part of the collection helped me to become acquainted with these objects, with their physical particularities and their preservation needs in general. When one works with old books, the senses are always involved. Books have a scent, which tells us something about the materials they are made of and the circumstances they have been kept in. They can be visually attractive, interesting, or rather dull, and they emit sounds too; creaks may caution the user against vulnerable joints and leafing through parchment or paper textblocks produces subtle sound differences. But above all, these objects with their composite materials have a special touch. For me, the tactile quality has been the most intriguing aspect of the Arabic manuscripts in the Oriental collection; they are so very different from western books. The Islamic paper of the older volumes is soft, sometimes almost cloth-like. The rounded corners of textblocks bear witness to intense use; these books were carried around and pocketed and thumbed a lot. The covers, flush with the edges of the textblock, with boards made not of wood or other heavy material but consisting of laminated paper leaves, are light and sometimes even a little limp; thus, they form a unity with the textblock in a surprising way. In a subtle way, the leather used to cover the bindings is different from the leather used on western bindings. The envelope flap which closes around the fore-edge of the textblock and under the front cover, perhaps the most typical feature of these bindings, is a protective element which is very sympathetic with the manuscript; these artefacts have no metal clasps and accompanying nails that leave small holes or corrosion marks in the outer leaves. The use of silk for the decorative endband sewing adds to the attractiveness of the volumes. On the whole, the books are easy to touch and accessible, even the ones affected by old age or those that have been heavily repaired—perhaps those especially. Notwithstanding the inaccessibility of the Arabic writings (at least for me), I felt a strong affinity for the materials and shape of these manuscripts.

The manner in which *real* books—as opposed to their digital equivalents—strongly appeal to our senses is instrumental to one of the most important effects old books have on us when we work with them: we have a sense of being in touch with the past. Through their materiality and physical characteristics books speak to us beyond their intellectual content. The book as a physical

object carries information, provided that one knows how to interpret the message. In the case of the Arabic manuscript collection in the UBL, it was clear that there were an abundance of messages, but a framework was lacking to interpret the information. Though the art-historical developments of Islamic bindings have been studied, the technique of their making and structural composition has been largely ignored. Because of my professional need for a better understanding of these objects—in order to make conservation decisions—and my interest in Islamic manuscripts as artefacts, I decided to use the collection itself to learn about the technique of Islamic bookbinding. Conducting the actual survey was akin to excavating and mining the stacks; it was a privilege to be able to do that.

Though curious and expectant, when I first carried out what I now call a pilot survey, I did not realise how much new information a material assessment would generate. From the initial results it was quite clear, however, what a potential wealth of information was sitting on the shelves. The idea to expand the survey to include all UBL's manuscripts in Arabic script and conduct this study as a doctoral thesis was fully and unhesitantly supported by Arnoud Vrolijk, curator of the collections' oriental manuscripts and rare books, and Paul Hoftijzer, professor of book history at the University of Leiden. Their guidance contributed to the development of my work in many ways, and the value of their confidence in the efficaciousness of this work cannot be underestimated. Our work meetings were a huge pleasure as well; I remain thankful to them both. My gratitude also extends to the reading committee members, François Déroche, Nicholas Pickwoad, Harm Beukers, Willem van der Molen, and Jan Schmidt, for their questions, comments, and advice.

From the outset, this study was supported and encouraged by Paul Hepworth, who generously shared his expertise and accepted to take on an unofficial editorial role; I am greatly indebted to him. Any mistakes that remain are my own responsibility, of course. Paul and I worked on the development of the *Terminology for the conservation and description of Islamic manuscripts* during the same years my thesis took shape, and since the use of terminology is unavoidable when writing about Islamic manuscripts, the *Terminology* proved an indispensable tool for this study. However, without Nicholas Pickwoad, who has extensive experience in defining book vocabulary, the glossary of this book would not have been what it is now. I am grateful for his suggestions and the inspiring discussions we have had.

Many people helped to get the work on its way. I much appreciate the enjoyable discussions I had with colleagues and friends, either close by or far away, among whom are Gabriëlle Beentjes, Femke Prinsen, Wineke Meeuws, Mandana Barkeshli, Annabel Teh Gallop, Amélie Couvrat Desvergnès, Kathryn

Schwartz, Meredith Quinn, Herre de Vries, and Luitgard Mols. My thanks also go to Eryn Kropf, Teresa Espejo Arias, Marie-Geneviève Guesdon, Adam Gacek, Jan Just Witkam, and Jake Benson, who responded to my questions so graciously. I thank Laura Parodi, Neill McManus for sharing some of his findings, and all those I met through TIMA and COMSt projects; often the conversations we had helped to shape my ideas.

I received warm support from my library colleagues, especially those linked to the Special Collections, who left me to work undisturbed when I assessed the manuscripts in the vault on my non-office day, all those Wednesdays. The library granted me unlimited access to the stacks which was a gift in itself, and the two collection curators, Marie-Odette Scalliet and Arnoud Vrolijk, provided counsel, enthusiasm, and knowledge. In addition, I would like to thank LUCAS, for the support that enabled me to take a two-month leave in the final stage of writing my thesis; this proved to be very productive as it allowed me to fully focus. My conservation colleagues in the workshop offered practical backing and further stimulated my study by showing genuine interest and asking many questions. In addition, I am deeply indebted to Femke Prinsen, for her remarkable computer skills and her readiness to help.

My husband, Erik Geleijns, supported this undertaking from the very beginning. When I started this project our daughters, Judith and Elize, were already old enough to not really mind that I spent most of my evenings and many weekends behind the computer, and the three of them have seen the process through with good humour, for which I am immensely thankful.

Introduction

Books as Material Culture

Although the manuscript in codex form originated in the Middle East, the study of the Islamic manuscript as a physical object has its foundations in the western world. The field of book history covers the making, dissemination, and reception of books, and the development of scripts and printing. Within this field, the study of the technical and material aspects of bookbinding constitutes a separate part. As decorative objects, bindings have been studied since the nineteenth century. It was, however, only in the second half of the twentieth century that the history of the technique of bookbinding developed as a discipline in its own right. Instead of focussing on the higher end of the book trade, which was inherent to the approach of art historians, it widened its scope to include the whole spectrum of book production, and, in addition, the construction of books became a topic of interest. The general focus, however, was on the development of the western book.

Modestly bound and even plain books came to be recognised as objects of importance since they represent a large part of all book production. Economic motives have always been an important factor in the book trade, and all levels of the binding trade are significant when studying the means of economising. By the same token, the materials used, the structure of the binding, and particular marks of craftsmanship came to be valued as informants on a book's history. Instrumental to the growing awareness of this aspect of the history of the book is the development and establishment of a related field of expertise: book conservation. Since book conservators have access to parts of the structure that remain concealed from others, their contribution to the knowledge of the physical book is crucial. Over the last decades the exchange of information between scholars and conservators has intensified greatly and this has encouraged discussion between these specialists, which has in turn stimulated and contributed to the study of the physical aspects of books.

The awareness and recognition that a manuscript or printed book also carries information beyond its text is relatively new, and has added an interesting dimension to the study of books. The study of the materiality and technical aspects of a book is also known as book archaeology. The construction and the materials used to make the artefact can reveal valuable data about the historical and social context of a particular text and the book as an object. By examining the physical book, we may bring to light information that could not have been found in any other way, for example, on the item's provenance. In other

cases, material evidence may corroborate clues already found through different methods, thus supporting theories that otherwise may have remained inconclusive.

Nowadays, many scholars involved in the study of manuscripts and printed books, both western and Oriental, acknowledge that a book is not just a carrier of text, but also a material informant. However, in contrast to the field of western book archaeology, the technical study of Islamic manuscripts is still in a preliminary phase. In the field of Islamic manuscripts, research has also gradually widened in scope from philological and palaeographical studies to the design and ornamentation of calligraphy and bindings. As in the western bookbinding tradition, interest in the materials and techniques, that were applied to produce the artefacts, arose at a later stage. It is this aspect of Islamic manuscripts with which present study is concerned.

The Technique of Islamic Bookbinding

It is customary to use the term 'Islamic' for objects of art and artefacts produced in the Islamic world which are made by or for Muslim peoples, whether the items themselves function in a religious, socio-cultural or political context. Thus, in this study, the phrase 'Islamic manuscript' indicates a clear cultural origin. The book arts have long held a prominent position in Islamic culture; this is true over a wide range of territories and thus the manuscript tradition relates to a vast geographic area and timeframe, in which diverse ethnic groups adopted Islam. For this reason alone, we may safely assume that there are several quite distinctive local traditions.

While it is perfectly clear to most people, even non-experts, that the material form of the western codex is characterised by diversity, it is often thought that such variety cannot be found in Islamic bookbinding, which must be a more conservative, if not static, tradition. It is true that many Islamic manuscripts share visual characteristics and binding features, and there is, certainly, a predominant outward appearance; however, the assumption that the bulk of these manuscripts were made according to a uniform procedure, does not suffice. There are simply too many variations, and anomalies, to justify such a conclusion. In order to gain a better understanding of the breadth of the Islamic manuscript tradition, and more specifically the heterogeneous techniques of Islamic bookbinding, the construction of these artefacts must be observed and analysed more closely.

A Biased Opinion

Another misperception is the supposed weakness of the Islamic codex. Again, when a comparison with 'the western book' is made, the binding structure of Islamic books is deemed to be inferior. This comparison not only falls short, as there is no such thing as *the* western book structure, but more importantly, the composite structure of the predominant Islamic book is often misunderstood. Its binding is commonly described as a *case-binding*, which implies that the binding was made separately from the textblock, and was only attached to it by means of adhesive on the spine. Additionally, the unsupported link-stitch sewing on two sewing stations, which was common for the production of the Islamic textblock, is generally judged to be an inferior sewing method. This overall depreciative image of the Islamic bookbinding tradition has led to the rebinding of many volumes, and has also resulted in a range of misjudgements in conservation treatment. Even with the best intentions, faulty interpretations may lead to alterations and 'improvements' that interfere with the original artefact, and are often harmful to its functioning.

While working with the Oriental Collections in the Leiden University Library (UBL) and examining objects before and during conservation treatment, I noted that many Islamic manuscripts themselves refuted these general assumptions. The dominant link-stitch sewing appeared to be part of a composite structure, involving a method of lining and endband application that together resulted in a construction that was both functional and durable. In addition, though I could define a consistent, archetypal binding format, I observed a variety of original sewing methods. Moreover, the characterisation of the Islamic binding as a case-binding was contradicted by many volumes. These observations prompted me to undertake a comprehensive assessment and technical analysis of all of Leiden's Islamic manuscripts.

Understanding in Order to Preserve

The importance of recognising the diversities within the tradition is twofold. A better understanding of developments in the bookbinding practice and the diffusion of the methods used supports other studies in the field of Islamic manuscripts or Islamic culture in general. However, in order to learn and benefit from the material information of a binding, manuscripts must be preserved in their original form. Needless to say, many manuscripts have already been

resewn, rebound, repaired, or ruthlessly restored. In the light of this loss, it is all the more important to safeguard those manuscripts that still retain their original structure and cover, to the best extent possible. The responsibility for this falls within the domain of professional book conservators, because they are the specialists who preserve these valuable objects with all their particular characteristics. But in order to do so, they must be aware of these features and understand their importance. One of my aims in this study is to inform those who preserve and conserve Islamic manuscripts; directly, by informing conservation specialists about the multiplicity of structures and techniques one can encounter when working with Islamic manuscripts, and indirectly, by creating an awareness that underpins the development of preservation strategies for this particular heritage.

Understanding the structure of a book is a prerequisite for any conservation treatment. When the material structure is poorly understood and decisions are based on assumptions, the impact of any intervention is a potential risk, and could lead to irreversible damage to the material evidence. The book as an artefact should be considered a container of archaeological material evidence. We cannot preserve such information embodied in an object if we do not know what that evidence looks like or what it is composed of. It is essential to recognise the type of structure and the materials used, and to be aware of their strength and vulnerabilities. Understanding the book structure as a composite artefact also promotes the development of treatment solutions. More specifically, I hope that an increased knowledge about the Islamic bookbinding tradition will enhance the integrity of western conservation specialists with regard to the cultural importance of these manuscripts; it may help them respect the structures of these artefacts so that they are less inclined to impose western structures on them.

To conservation professionals working in the Islamic world, this study provides arguments to reevaluate their cultural heritage, as it questions the negative western opinion of the Islamic book structure. In addition, it invites these conservators to reconsider some of the western conservation techniques that they implement in their practice. As most of the preservation guidelines were introduced from the west, western misperceptions about Islamic bookbinding have pervaded their conservation approach. Greater knowledge of the manuscripts' materiality may contribute to better-informed decision-making with regard to preservation. The preservation of Islamic manuscript collections may be further stimulated when the intrinsic value of the materiality of the artefacts is made known to the institutional bodies involved in setting out preservation policies and allocating budgets.

A Codicological Framework

Research into the materiality of manuscripts belongs to the field of codicology, the study of the codex's physical form.¹ Codicology aims to provide information on the context in which a book is produced.² The analysis of materials and techniques used can shed light on the history of the period and the circumstances in which a specific artefact is made. However, in order to date and localise a manuscript with the aid of material characteristics, we must have a reference framework. Such a framework contains characteristics of textblock and binding elements, structural components, and the materials or techniques applied which are linked to a certain area or period. For the Islamic bookbinding tradition, we have only part of the necessary knowledge on these characteristics. Studies on the decorative aspects, for example, provide useful tools to classify certain manuscripts or bindings, but the applicability of these art-historical features is limited. Indeed, they are mainly useful in classifying the 'upmarket' part of manuscript production, while the bulk of manuscripts were not produced in court ateliers or similar milieux, and for these volumes, which were the majority, the stylistic and decorative qualities offer fewer leads. Analytical techniques have made it possible to investigate paper fibres and ink components, adding essential information to the framework. However, the applicability of technological analysis is limited for several reasons, which will be further discussed in chapter 1. The art-historical and technological studies on the one hand, and book archaeology on the other, complement each other.

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- 1 A clear-cut definition is lacking; the *Oxford English Dictionary* offers "the study of manuscripts and their interrelationships" but nothing more specific. The European project COMSt (Comparative Oriental Manuscript Studies) states that "Whilst codicology involves the study of the material and physical history of codices and, in more practical terms, the study of codex production in all relevant contexts, including attempts to identify scriptoria, modalities of circulation, economic aspects, etc., palaeography deals with the peculiarities of writing, its general development and dating, as well as the social aspects involved in the practice of writing." (COMSt brochure, 2009, http://www1.uni-hamburg.de/COMST/ESF_COMSt.pdf p. 4, accessed 8 June 2017). This seems to confirm the general acceptance that codicology does include the study of written features such as marginalia and ownership inscriptions, the physical aspects of decoration, and the study of the binding structure and binding materials.
 - 2 In fact, in the lemma 'Codicology,' François Déroche points to the study of the materiality as a codicologist's main task: "The codicologist's first task is to analyse all the materials and techniques used to make a manuscript and to date the various techniques and even to locate them geographically. This involves the collection of coherent sets of documents, some of them dated, that shed light on one another." François Déroche, 'Codicology,' in *Encyclopaedia of Islam*, THREE, ed. Kate Fleet, Gudrun Krämer, Denis Matringe, John Nawas, Everett Rowson. Consulted online on 8 June 2017, <http://dx.doi.org/10.1163/1573-3912_ei3_COM_24409>.

My position as a conservator allowed me to thoroughly examine the materiality of the manuscripts, literally on the inside, since the structures of damaged books are often exposed. Thus, manuscripts in need of remedial treatment invariably offered information. Secondly, the skills and expertise of a conservator enabled me to recognise former intervention treatments and to distinguish between western and 'local' repairs. Finally, by using similar materials and techniques as those of the original craftsman, I reconstructed the diverse structures I encountered. In the process of making book models, very much through trial and error, my insight into the materiality was defined. Retracing the actions of a bookbinder, closely following his steps and decisions, appeared to be the only way to verify certain aspects of the historic sources on Islamic bookbinding, and test my understanding of the exact procedures an original binder might have followed.

Physical Examination of the Leiden Collections

Without sufficiently detailed written documentation about the use of particular techniques and materials in certain periods or regions, information of the historic bookbinding practice can only be retrieved from the manuscripts themselves. We must bear in mind, however, that bindings are not always directly related to the manuscripts they protect. Boards can be reused and manuscripts re sewn. Therefore, an expert eye is needed to first establish if there are indications of rebinding or any other alterations to the manuscript's structure or binding, that might diffuse the analysis. Unfortunately, Islamic bindings are seldom ever signed by their makers, although the colophon at the end of a text may reveal a date or place of completion. Those manuscripts that are dated can inform us about the binding traditions in a certain period; when their origin can also be verified, specific techniques or materials can be mapped. It is important, however, to realise that such data only functions as a stepping-stone: the binding may not have been applied directly or even in the same place. Therefore, the results of such analysis should be presented with a certain caution, though, in general, the larger the corpus of systematically examined material with verifiable data, the more reliable the outcome will be. When a survey can be conducted on a large collection—with a wide range of manuscripts—it may be possible to define the dissemination and development of a bookbinding tradition over time. The expanse of the Islamic world and its long history necessitates that a large number of manuscripts be examined before such a framework can be built.

Four hundred years of Arabic studies at Leiden University have resulted in a rich and internationally well-known collection of approximately 6,000 Islamic

manuscript volumes.³ The oldest collections were assembled by the well-known scholar Josephus Justus Scaliger (1540–1609), who, although he never travelled in the Middle East, bequeathed an important collection of Oriental manuscripts to the University of Leiden, and Jacobus Golius (1596–1667), who travelled in the Maghrib and Levant. Levinus Warner (ca. 1618–1665), who worked and lived in Istanbul for twenty years, acquired around one thousand Arabic manuscripts on behalf of Leiden University. These early collections contained a wide variety of texts, including treatises on mathematics, astronomy, medicine, geography, history, botany, and literature, and some of these manuscripts were already hundreds of years old when they were acquired. With the arrival of Warner's manuscripts, three years after his death, Leiden became one of the most important European centres for the study of Oriental texts.

In the following centuries, new acquisitions were added to the Oriental collections with varying frequency. Also, as the Islamic world expanded, the origin of the manuscripts could be retraced to a wider region. Although the majority of the manuscripts acquired originated from the heart of the Ottoman Empire, peripheral regions such as Central Asia and the Balkans, and North and West Africa, are also represented, as is the Arabian Peninsula, Persia, and the Indian subcontinent. In addition, the library has a substantial number of Islamic manuscripts produced in Southeast Asia.

The Leiden Oriental collections can be typified as a scholarly collection. Few manuscripts were collected because of their splendour and beauty, rather most volumes were used: they were consulted, transported, annotated, and sometimes repaired or rebound before they arrived in the Leiden collections. As a result, these items are physical witnesses of a variety of cultures and users, over a period of several centuries. This signifies the importance of the Leiden Oriental collections as a valuable source for a book archaeological study.

The Context

In chapter 1, I explore the current state of learning with regard to the materiality of the Islamic book, and demonstrate that our knowledge of Islamic binding structures is still in need of fundamental research. Some of the newly identified binding structures have been published in conservation journals, but none of these characteristics that are so important for our understanding of the technique of Islamic bookbinding are found in standard reference books. As the secondary literature analysis in chapter 3 shows, we still lack a framework

3 The history of Arabic studies and the subsequent growth of the Leiden Oriental collections is outlined by A. Vrolijk and R. van Leeuwen, *Arabic studies in the Netherlands* (2014).

to locate and date bindings. In some cases, there is a more or less limited idea of the origin of techniques used, based on findings that emerged during conservation or cataloguing projects; this sort of empirical understanding is important, but must be verified. A structured research specifically designed to examine physical aspects in relation to their origin has not yet been undertaken. The present research will fill part of that gap, and provide at least some of the building blocks for the codicological framework. It will shed light on the developments in the manuscript production and diffusion of the techniques used, which are of interest to scholars in the field of codicology, provenance research, manuscript trade, or the manufacturing of Islamic manuscripts in general. The results can be further used for the examination of manuscripts elsewhere, preserved in other collections, thereby enlarging the framework.

This research is also relevant for conservators working with Islamic manuscripts. It may help conservators trained in the western tradition to step out of their usual reference frame (that of the history of western bookbinding techniques), while conservators from an Islamic cultural background may be stimulated to recognise the distinctive aspects of the objects they are so familiar with. Regardless of the present location of the manuscripts, conservators need a sound knowledge of the manner in which the books were produced. Understanding of, and respect for, the manuscript's physical form is essential to ensure accurate documentation and a well-considered intervention treatment, the purpose of which should always be to preserve all the information a manuscript has to offer.

The Anatomy of the Islamic Codex

My assessment involved the close examination of over one thousand original sewing structures and bindings, and provided information on Islamic bookbinding techniques and materials used over a period of seven centuries and throughout the Islamic world. This generated many aspects of this manuscript culture, hitherto unknown or at least unreported. It brought to light a striking number of different constructions and characteristic features. For the first time, all these varieties were grouped and described; representative specimens were photographed. For certain aspects, such as sewing structures, I added drawings, since a simple line drawing enables readers to understand the sometimes not so photogenic sewing systems. All characteristics, particularities and differences bear witness to the richness of the Islamic bookbinding tradition, and can be found in chapter 2. I have organised the features according to the regular sequence of binding operations, as this is not only the most natural way of presenting the methods and characteristics, but it also promotes the

understanding of the structure of the book for those readers who lack the technical background. Additionally, this systematic presentation facilitates easy reference for those readers who want to compare the technical descriptions as presented in the literature analysis in chapter 3, with the images of the structural components in chapter 2.

Comparative Study of the Literature

History has left us five historic treatises on bookbinding in the Islamic world, and these are analysed first, before I explore the secondary literature on materiality and structure. Although these historic sources are well known among scholars working with Islamic manuscripts, a detailed comparison of the five works has never been made. In addition, my perspective as a craftsperson made it possible to put the historic sources to a practical test. This hands-on research, which involved the testing of technical possibilities and practical work procedures, is a novel approach.

The secondary literature is not a coherent group of publications. Very few books deal with the making of Islamic manuscripts as composite artefacts; information is often limited to references to the structure in paragraphs, or subchapters of catalogues or books on other topics. Therefore, I do not discuss these secondary sources chronologically, as I do the historic treatises, rather, they are grouped according to their scope. Starting with general reference works so as to outline the broadly accepted characterisation of the Islamic book, I give a prominent place to fundamental studies in Islamic bookmaking. The basis was laid by Bosch, Carswell, and Petherbridge.⁴ Further developments in the field are presented in two outstanding works on Islamic codicology, one by François Déroche and another by Adam Gacek.⁵ These detailed studies are augmented by smaller contributions, which are often subchapters in studies with a different focus. They are arranged chronologically, with a few exceptions, for example, to group the output of a single author (as in the case of Gacek), or when the importance of a particular publication required closer attention.

Some interesting details can be distilled from the observations recorded by conservation specialists. Such information only became available in the last two decades of the twentieth century. A development is noticeable in the

4 G.K. Bosch, J. Carswell, and G. Petherbridge, *Islamic bindings and bookmaking* (1981).

5 F. Déroche, *Manuel de codicologie des manuscrits en écriture arabe* (2000); English translation by Deke Dusinberre and David Radzinowicz, *Islamic codicology: An introduction to the study of manuscripts in Arabic script* (2006); A. Gacek, *Arabic manuscripts: A vademecum for readers* (2009).

approach of conservators, and therefore these contributions are arranged in pre-twenty-first-century and twenty-first-century material.

The way Islamic manuscripts as book structures or artefacts are generally perceived, however, is perhaps best represented by the cursory sentences on the making or characterisation of Islamic manuscript structures as found in several reference works, or in the subchapters of books dealing with stylistic aspects of Islamic book design. It appears that the 'Islamic manuscript' is often misrepresented or dismissed as a beautifully designed but weak object, its composition merely a case structure that does not really suffice as a protective and supportive cover. This general assumption is all the more interesting, since it does not corroborate the technical details provided by historical treatises, nor by the results of a thorough examination of many original manuscript structures. From the approach and attitude of conservation specialists, it is clear that this perception is widespread. While the reasons for the misconception are explored in chapter 2 (on the anatomy of the Islamic manuscript) the last paragraphs in the literature analysis illustrate its detrimental consequences: reports from western conservators clearly show how often they feel inclined to 'improve' the structure of Islamic bindings, thereby turning them into hybrid objects that no longer reflect the approach of their original manufacturers.

Surveying the Collections

Examining the physical aspects of many bindings is a time-consuming task, and undertaking a study such as the present one requires a well-considered but at the same time pragmatic approach. The actual survey forms the nucleus of the study, and decisions made with regard to the inclusion or exclusion of binding elements therefore resonate throughout the results. As a consequence, one could be tempted to include as many elements, in as much detail as possible, lest the omission of certain particulars be regretted later on. However, such an approach would be a pitfall that considerably slackens the research. On the other hand, pruning the survey too much results in loose facts and an insufficient basis by which to establish relations between the different composite parts or methods. Finding a compromise between an approach that is too pragmatic and one that is too careful led me to exclude certain details of binding characteristics and a fair number of textblock elements. For example, I did not measure the exact thickness of the boards, nor did I record the layout of the text panel or the colour palette applied of each manuscript. An account for these decisions, as well as an explanation of the database that was designed for the purpose of the survey are given in chapter 4, preceding the quantitative results of the assessment.

Whereas the results of the physical assessment of the manuscripts generated quantifiable data of predominant methods and materials, they also identified less frequently used techniques. The value of these findings was further increased by linking them to the available data on provenance, date, and place of origin; of the manuscripts with replacement sewings that, for that reason, could not be qualified in this way, the data was not treated and processed similarly. The outcome of this diachronic approach is found in chapter 5. Bearing in mind the restrictions posed by the formation and focus of the Leiden Oriental collections, these results are only a starting point for classifying Islamic binding techniques. Nevertheless, certain lines of development and trends came to light, pointing out avenues of interest for further study; these are addressed in chapter 6, which includes a summary and conclusions.

Terminology

In this study, the term *manuscript* refers to a codex; other, unbound manuscript materials such as letters or archival papers fall outside the scope of the present study. By the term manuscript I also denote a single physical entity, a volume. The item can easily consist of two or more texts, and in fact often does. However, for the purpose of this study it would complicate matters if such composite volumes were not referred to as one manuscript.

The bibliographical data is largely based on Jan Just Witkam's *Inventory* (2006–2016), and the catalogue of Turkish manuscripts by Jan Schmidt.⁶ All dates are according to the Common Era (CE) calendar.

A codex is a complex artefact, and in order to describe its physical details, the use of terminology is indispensable. The technique of Islamic bookbindings warrants its own vocabulary. Indeed, Islamic manuscript structures and bindings have their own characteristics, which are unknown in books made in other cultures. In addition, some terms used to describe western bindings proved to be inappropriate for Islamic bindings. Furthermore, even for relatively well-informed manuscript scholars, the differences in nuances between certain terms may be unexpectedly detailed, yet crucial for a good understanding of the functionality or composition of the objects described. This is further explained in chapter 2, where many of the terms are introduced as well. For easy reference, a glossary is found in appendix 1.

⁶ J.J. Witkam, *Inventory of the Oriental manuscripts in Leiden University Library*. Online at www.islamicmanuscripts.info/inventories/leiden/index.html (last accessed 6 June 2017); J. Schmidt, *Catalogue of Turkish manuscripts in the Library of Leiden University and other collections in the Netherlands*, volumes 1, 2, and 3 (2000, 2002, 2006); and the additional *Catalogue of Turkish manuscripts in the library of Leiden University and other collections in the Netherlands: Minor collections*, volume 4 (2012).

Materiality Matters

A Detailed Sketch of the Current State of Knowledge and Outline of the Research

The Information Value of Binding Structures

General Observations

Although in general a binding mainly serves to protect the manuscript pages from handling, improper storage, and intensive use, its design and manufacture can provide important information about ownership, historic circumstances, or use.¹ In several fields of scholarship the relation between the content and the binding may be an issue, and the materiality of the book offers information that helps us understand that relationship. For example, collectors who choose to have their books rebound according to fashionable standards or had their coat of arms gold-tooled on the covers of an existing binding, left a distinct mark on the book that may prove valuable for provenance research. Even in the case of a rebinding, traces can often be found that hint at the former—original—binding. In the fold of the gatherings, tiny holes may reveal the former sewing stations, and the amount, shape or position of such holes can provide clues as to what sort of sewing structure was applied originally and whether sewing supports were used or not. Other traces can be found in the outer textblock leaves. Even when the former covers are gone, indentations and sometimes discolouration of the outer pages caused by the relatively bulky mass of once existent fastenings also point to the materials of the original covers. Where western bindings are concerned, such fastenings would have been metallic clasps—usually on wooden boards—or leather or cloth straps, more often found on pasteboard. In the case of Islamic bindings, the traditional ‘fastening’ is a pentagonal shaped envelope flap which is attached to a fore-edge

1 In the western world, at least until the eighteenth century, it was customary for textblocks, with the exception of categories such as almanacs and specific publications such as large atlases, to be traded unbound. The gatherings were sold unsewn or a (provisional) sewing structure was provided to prevent the book from becoming disarrayed during the retail process. A cover was provided once the book was sold, when the buyer commissioned a binding according to his taste and budget. See N. Pickwoad, ‘Onward and downward’ (1994), 61–68. Thus, bindings reflect the intention of these first owners, either to impress others with their assets and to display their wealth and status, or to provide protection for the content. The sewing structure may provide further clues as to the trade and dissemination of texts.

flap, made as an extension of the back board. When the book is closed the envelope flap lays underneath the front cover, leaving some empty space along the edges of its front edge where the paper is left vulnerable to ingress by dust and insects, causing very specific deterioration. Such hints, together with slight discoloration caused by the leather turn-ins along the flap's edges, may make it possible to retrace the shape of a flap that is no longer there.

To understand how a book was bound and what materials were used may be important for several reasons. Apart from craftsmanship, tradition, personal preferences, and aesthetics, economics has always been an important factor influencing book production. Thus, the choice to use more expensive materials or cheaper or more readily available alternatives can provide clues to the circumstances or wishes of either the owner or the craftsman. Even when the binder was a moderately skilled craftsman who did not aspire to produce highly elaborate bindings with costly materials, or rather precisely because of that, many bindings carry a significant amount of information visible to those who know how to look for certain characteristics and details. Thus, the history of a specific item may be deduced or information retrieved about former ownership. On a larger scale, insight into the development of bookbinding in a certain tradition or region may shed light on the dissemination and transition of techniques and the mobility of peoples.

Paradoxically, the very function of the binding renders it susceptible to poor handling, unfavourable storage conditions, and improper use. Extensive damage or deterioration of the binding materials may have inclined someone at a certain point in time to repair or even replace the original binding, and possibly also the sewing structure. Of course, such action makes the new binding part of the manuscript's history, but at the same time, some important information contained in the former binding may be lost forever. Without written documentation, we may never know if a particular item was rebound because of severe damage that would reflect intensive use or a calamity caused by water or fire, or if, indeed, a new binding was provided based on the aesthetic wishes or whims of a certain owner in a particular time. Thus, a heavily repaired binding—even a shaggy, damaged book—may carry more information and be much preferred to a clean rebinding. Any textblock and its binding are always somehow related, even when they seem to be mismatched or to come from different worlds. The crux is to comprehend the connection between a bookbinding and the manuscript it covers.

Recent Developments in Western Book History

Most scholars in the field of codicology and philology are not binding experts. For want of a profound understanding of binding techniques and knowledge

of the availability, properties, or usability of certain materials, they mainly rely on clues provided by stylistic and art-historical elements in order to locate bindings in a certain period or geographical area. Of course, such decorative elements can be informative and the qualification of a binding as luxurious, or plain and simple, may be indicative as to former ownership and use of a specific item. However, as noted above, further information can be retrieved from the manuscript's construction and binding materials. When book conservation matured as a profession in the last quarter of the twentieth century, it became apparent that conservation specialists could provide essential information on this aspect of the binding, as they see the most intimate parts of the book's structure when it is laid open on the work bench in front of them. Furthermore, conservators had already developed a routine of recording what they encountered, often in text and image, since conservation treatments are preceded by the making of condition reports. However, the facts and details recorded for conservation purposes did not (and still do not) always satisfy the needs of codicologists, since not every book requires an exhaustive report and conservators focus on the damage and problems related to the object's condition, especially when they need to prioritise. It was therefore essential that conservators themselves realised the broader significance of their documentation, and that they increased the output of their specialist knowledge.² Thus, a wider group of book scholars could benefit more efficiently from the conservator's opportunity to examine the materiality of the books treated. It seems that both conservators and codicologists have started to realise that often, although the degree of complexity differs from case to case, specialist input from various fields is required to interpret the diverse aspects of the material data. In order to build a more comprehensive codicological framework, a joint effort is necessary.

2 It was not until the 1980s that writing condition reports and treatment documentation became generally accepted or even expected. Both private commissioners and employers did not automatically value such treatment records, nor did they always consent to pay for the time needed to assemble them. The need to record the object's condition prior to treatment and to document treatment decisions grew as the profession developed. Initially, the documentation served to support the daily practice of conservators, while the value of the reports for other specialists regarding the state of the object was of minor importance. To more fully accommodate and exploit this 'secondary use' and improve access to conservation reports, the set-up of many documentation systems still leaves room for improvement. I also believe we still need to encourage conservators to reach out to their peers and beyond, and to publish about their work; see: K. Scheper, 'Hands-on research' (2017), 109–115.

In the field of western book research, this process has taken place over the past few decades, particularly from the 1980s onward.³ The materiality of the book as a subject of study has gained more attention and developed accordingly. But long before an awareness of the importance of binding structures evolved, other physical aspects of the western book were studied. Historical paper research, starting with the study of watermarks, was carried out from the beginning of the twentieth century.⁴ Although introduced more than one hundred years after the first occurrence of paper in Europe around 1150, the use of watermarks was embraced quickly and very generally as a means to distinguish the products of different papermakers.⁵ Along with mapping out different types of watermarks, paper research involves the study of the visible imprints of paper moulds and descriptions of the paper itself. These studies provide resources for determining the history of individual types or pieces of paper produced in Europe, primarily during the Middle Ages and the early modern period, as used for books, archival documents, or prints. Even though an exact match of a certain paper with one in the databanks is rare, quite accurate comparisons can be made. Needless to say, using this discipline to to classify, date, and locate the paper of textblocks profoundly added to the tools of codicologists, cataloguers, and bibliographers.

Other specialists examined the design and styles of the separate tools used to stamp leather or parchment bindings in order to classify bookbindings.⁶

3 Concerted action can be seen in symposia for bibliographers and conservators-restorers. For example, on the conference entitled *The conservation of library and archive materials and the graphic arts*, held in Cambridge in 1980, see M. Foot, 'The binding historian and the book conservator' (1984), 77. International symposia of interest to both conservators and curators took place in the United Kingdom in 1982 (Institute of Paper Conservation) and in The Hague in 1983 (5. *Internationalen Graphischen Restauratorentag*, IADA). Cooperation is also illustrated by publications like L.M. Gimbrère and P.F.J. Obbema, 'Restaurator und Wissenschaftler' (1985), 52–62; and H. Bansa, 'Die Protokollführung in der Buchrestaurierung. Ein Mittel der Zusammenarbeit zwischen Buchrestaurator und Codicologen' (1988), 118–125.

4 C.M. Briquet was the first to undertake the examination of watermarked paper; he started collecting watermarks in the early twentieth century. His *Les filigranes* (1907) and *Opuscula* (1955) are standard reference works. Another landmark publication is W.A. Churchill's *Watermarks in paper in Holland, England, France, etc.* (1935). Recent developments illustrate the enduring relevance of this type of research, as is evident from databanks on the web, such as Bernstein: The memory of paper, at www.memoryofpaper.eu:8080/BernsteinPortal/appl_start_disp (accessed 8 June 2017); and Watermarks in Incunabula printed in the Low Countries (WILC), at watermark.kb.nl/ (accessed 8 June 2017).

5 D. Hunter, *Papermaking* (1978, unabridged reprint of the second edition of 1947), 260–261.

6 Early examples are E.P. Goldschmidt, *Gothic and Renaissance bookbindings* (1928), and G.D. Hobson, *Blind stamped panels in the English book-trade, ca. 1485–1555* (1944). One of the most recent contributions is by J. Storm van Leeuwen, *Dutch decorated bookbinding in the eighteenth century* (2006).

Although this subject has not yet been exhaustively researched, the knowledge it generates supports codicological studies to a certain extent. We must realise, however, that only a relatively small percentage of all books from the period of hand-made books were distinctively decorated or tooled with stamps that are identifiable and attributable to a certain bindery. Therefore, the study of book-binding design as a branch of art history is a rather inefficient way to accurately date and locate books in general, since the majority of books were more plainly tooled and lack distinctive stylistic features. The study of book structures and seemingly small manufacturing details, however, offers a much richer gamut of information, since every book—from the most modest or clumsiest to the highly elaborate luxurious bound textblock—provides physical characteristics and binding elements that are distinctive and gradable.

The examination of the materiality of the book as a separate discipline is now also referred to as *book archaeology*. For the western book, studies go back at least to the early 1980s, the period in which the interchange between book historians and conservators intensified. Mirjam Foot presented a paper entitled ‘The binding historian and the book conservator’ at the Institute of Paper Conservation in January 1982.⁷ In the edited and somewhat expanded publication of that talk, she stipulated the necessity for the two professionals—the binding historian and the book conservator—to share their expertise and discuss their views (for the benefit of the study of the physical book). Foot elaborated on the subject of the importance of the physicality of the book with the publication of her collected papers, *Studies in the history of bookbinding* and *The history of bookbinding as a mirror of society*.

Nicholas Pickwoad is another acknowledged authority on the subject. He has been instrumental in the propagation of the idea that, apart from a book’s textual content, the details of its construction and the materials with which it is bound provide valuable information. From this it follows that, since the materials and structure of the book (the text leaves and binding) are inseparable components and unique for each individual book, the preservation of the text alone is not equivalent to conservation.⁸ Pickwoad’s publications are directed to collection keepers and specialists in the field of conservation and preservation, as are his lecture courses on the subject. David Pearson, who has lectured and published on aspects of book history and recently emphasised

7 M. Foot, 29 January 1982, published in *The Paper Conservator*, VIII (1984), 77–83.

8 This statement is extremely important because it is not solely directed to conservation practitioners, but to their commissioners and institutions as well. Preservation requires the commitment of all those involved and responsible, to make the effort and, quite literally, invest in the conservation of books; N. Pickwoad, ‘The development of the concept of artefactual conservation’ (1997), 86.

the importance of materiality, is another advocate for the book as an artefact.⁹ The significance of material characteristics is now more widely recognised, as is shown by two events in 2009: a conference on the topic organised by the International Federation of Library Associations,¹⁰ and the installation of the BookNET Research Cluster, a network for the technological study of the book and manuscript as artefacts.¹¹

The study of the materiality of books obtained practical form when Janos Szirmai set a standard in the examination and description of the physical characteristics of books with *The archaeology of medieval bookbinding*.¹² He emphasised once more the importance of being aware that the book's physical structure is vital, both for its function and for the information it contains. Material characteristics are often the only means of verifying how books were made, and therefore this evidence, preserved within the books themselves, must be safeguarded. His message and the weight of the implicit responsibility was felt clearly, and as a consequence, many conservators and curators now observe books in a different way, not solely as carriers of text, but as carriers of information in a much broader sense.

Book Archaeology and Digitisation

The development of book archaeology coincided with another major influence that changed the perception of books: digitisation. For the survival of *the book* in its physical form in general, the effect of accessible, and ever increasing digital collections is probably crucial, since that development makes us aware of 'the other value' that an original book offers. Digitisation as a means for dissemination of the intellectual content is a blessing; many texts have been made available for countless users around the world at any time of day. This improvement in and of itself need not be discussed. However, in many libraries

9 D. Pearson, *Books as history: The importance of books beyond their texts* (2008).

10 The proceedings of the conference *Early printed books as material objects: Principles, problems, perspectives* (Munich, 19–21 August, 2009) were published in the series IFLA publications, no. 149, see Bettina Wagner, and Marcia Reed (eds.), *Early printed books as material objects* (2010).

11 This Research Cluster is one of thirteen clusters funded by the Arts & Humanities Research Council/Engineering and Physical Science Research Council (AHRC/EP SRC) Science and Heritage Programme, set up in 2009 to explore the potential for research into historical documents as physical artefacts and to increase the valuation of the physical nature of the book; see www.heritagescience.ac.uk/Research_Projects/projects/Cluster/Pollard (accessed 8 June 2017). The cluster's activities resulted in a publication in 2011: S. Neate et al. (eds.), *The technological study of books and manuscripts as artefacts: Research questions and analytical solutions* (2011).

12 J.A. Szirmai, *The archaeology of medieval bookbinding* (1999).

and similar institutions the future of the 'paper book' is a matter of contention. Questions have risen, such as, 'Why should books be kept and money be spent on shelving, preservation, and maintaining accessibility when digital formats are available?' This growing awareness that the physical book is not the same as the digital surrogate, but has additional value as an artefact and contains more information than can be represented in the digitised images, is extremely important for this discussion. It may and ultimately should change policy-making on a high level and thus have an impact on the preservation of physical collections as a whole.

At a different level, which concerns conservators and curators directly, the acceptance of the artefactual function and value of the book affects the decision-making related to individual objects. Indeed, when printed works or manuscripts are available digitally, the need for physical consultation diminishes, but does not vanish. What is more, *when* the original is requested there may also be a special need to examine the object itself, in its physical form; this implies that the researcher wants the object in its most untouched state. If a user wants to verify something the digital image cannot supply, he needs the physical form of the book to be undisturbed. As larger parts of our written and printed heritage are digitised, and the value of the originals gradually shifts from content to historical artefact, there will be repercussions for conservation strategies as we know them. Moderate damage to an otherwise stable object does not pose a problem for the examination of the materials and the structure it bears; this new use of the book requires commensurate preservation decisions. Indeed, for this type of research, any remedial treatment might change the accessibility of the original material object. Consequently, conservation treatment must be reconsidered as a means to preserve books. What purpose does it serve? Is the aim to guarantee accessibility and use, will the book continue to be used frequently, or will the function of the book as a physical object change, to become more like that of a museum object?¹³

Although developments are not yet so advanced that conservation specialists are faced with these questions on a daily basis, it is clear that conservators should anticipate these changes. This may result in alterations to daily practices, and affect the benchwork of conservators as well as their partaking in book archaeological studies; the involvement of conservators in analytical assessments of book structures certainly seems to be growing. As Mirjam Foot phrased it:

13 These questions are further discussed by N. Pickwoad, 'Library or museum?' (2011).

Conservators and binders who have studied medieval and post-medieval book structures ... have made an invaluable contribution to the knowledge of librarians and binding historians. Their daily practical work increases their experience in a way that leaves 'theoretical' historians gasping with envy. Any binder, any restorer, any conservator has one tremendous advantage over any librarian or book historian.¹⁴

The responsibility of conservators to safeguard these objects, preserve their integrity, and to carefully and accurately record what they find, is evident. The shift in approach towards the book as a physical object may prove vital for the preservation of our written and early printed heritage.

Preservation Issues

As attention to the physical book has increased over the last couple of decades, western book conservators have become progressively more aware of their role in extending the lifespan of these objects of cultural heritage and the importance of knowing what to preserve and record. The general treatment objective is to protect the book against further damage, while altering it as little as necessary, and as little as possible. The inclination to restore the object 'back' to its original condition has been abandoned.¹⁵ Accordingly, methods of treatment have changed with this shift in attitude. Book conservators needed a wider palette of techniques, varying from different options for minimal interference to more thorough yet ethical treatments. A good conservator masters a broad repertoire of techniques and makes choices depending on the value of the book and its place and function within a collection. But in fact, these changes mainly apply to western collections and western conservators. Why is that?

The Present Situation of the Book Archaeology of Islamic Manuscripts

Disadvantages in Developments

To answer the question why the recent changes in book preservation ethics and the techniques of book conservation appear to be confined to the west, we have

14 M. Foot, 'Preserving books and their history' (1987), in the collection of essays *Studies in the history of bookbinding* (1993), 434.

15 Many reports and articles on conservation treatments bear witness to this development; the change in attitude is summarised in K. Scheper, 'Considering book conservation: Developments in materials, techniques, and approaches' (2010), 32–33.

to consider the situation in the field of Islamic book studies. One of the explanations for the differences in development is simply that the knowledge about the materiality of western books is much more advanced than the knowledge about the materiality of other book cultures. Since the recognition of the value of the physical aspects of books generated in the western scholarly world, the western written and printed heritage was naturally the point of focus, not only because of the direct connection to western cultural history, but also because these collections far exceed the number of Oriental collections (in the west). As the secondary literature analysis in chapter 3 shows, most studies concerning the physical Islamic book are carried out by western researchers, and notwithstanding their best intentions, there is a tendency to subsume the history of Islamic manuscripts under the scope of book history and production as they know it, and this is a western frame of reference.¹⁶ Although these contributions to the field of Islamic book scholarship are important, additional studies from scholars native to the field would be very welcome. The situation in the Islamic world, however, has not stimulated circumstances for comparable research. Unfortunately, developments in conservation and preservation are even less advanced. Political turmoil and poor economic circumstances over the last sixty years (the period in which the study of the history of bookbinding in the western world expanded) has impeded such developments and thus, there is no conservation tradition comparable to that in the West.

The Position of Book Archaeology and the Consequences for Preservation

The fact that there is a vast amount of material to preserve and climatic conditions in large parts of the Islamic world are not ideal for maintaining book collections certainly influences the general view on stewardship. High temperatures accelerate degradation processes and stimulate biological activity, while high relative humidity (one of the problems in Southeast Asia) increases the growth of mould and degradation processes like iron-gall ink damage. Insect damage is the most common problem, next to damage caused by intensive use. Preservation programmes therefore require a broad approach, and must address climate control, the improvement of storage conditions in general (through boxing or similar protective measures), and active conservation treatments. Additionally, the proper handling of the items should be an

16 Some of the literature discussed in chapter 3 illustrates that the western point of reference unfavourably influences the perception of non-western book structures. Instead of judging the structures on their own merits, often comparisons are made in which western book structures are the benchmark for qualifying the 'other' characteristics.

integral part of preservation measures; this includes the use of reading supports and cradles for exhibition purposes. The success of any preservation programme depends on this combination of factors; disinfecting and repairing manuscripts only to return them to inappropriate storage rooms will, ultimately, prove useless.

Considering the scope of preservation-related actions and investments needed to safeguard the manuscript heritage in the Islamic world, it is not surprising that choices have to be made and approaches differ from place to place. Choices are dependent on the available level of knowledge, access to materials, technical equipment and tools, and, naturally, financial means. The perception of the manuscripts themselves and the way their condition and importance is judged, however, is decisive in decision-making processes. How are manuscripts valued? Are manuscripts carriers of text, or are they transmitters of more than that? And if they are valued as artefacts, as representatives of a culture and material witnesses of a tradition, is it feasible to preserve them as such? Given the large number of manuscripts in need of treatment or better storage conditions, the approach favoured seems to be mass treatment, which means that the interest of individual manuscripts is sacrificed, or at least at risk. Making conservation decisions means operating in an area of tension between access and preservation. It is therefore understandable, on the one hand, that priority is given to improve accessibility and focus on content, or facilitate digitisation. Nevertheless, it is important to stress the significance of the additional information that manuscripts as objects offer, and to realise that this information will be lost forever if certain decisions are made.

So far in this respect, developments in the Islamic world have evolved unevenly. In some institutions, the approach is to preserve both content and the artefact, and efforts have been made to set up training programmes for conservators.¹⁷ There are also examples of conservation programmes in which the

¹⁷ Though far from an exhaustive overview, fairly recent examples of conservation projects include that of the Mevlana museum (Konya), the National Library in Ankara, and a large preservation programme in the National Library in Cairo. Such projects are sometimes combined with training programmes, like the 'cultural assistance project' in Kairouan which started in 1985. For details of that education programme, see R. Ketzner, 'A conservation project in Kairouan' (1991). Much more recently, a conservation and training project was set up in Mauretania, see A. Giacomello et al., *Sauvegarde des bibliothèques du désert: Matériaux didactiques* (2009), and in Nigeria, see M. Biddle, 'Recent preservation and conservation activities for northern Nigerian manuscripts in Arabic script' (2012). An example of a conservation programme which combines cataloging and digitisation is *Le Programme Zabīd*, see A. Regourd, 'Stratégies de préservation/conservation dans le cadre du Programme Zabīd (Yémen)' (2011). Over the past few years, education courses in several disciplines, including book and paper, were initiated in Erbil (Iraq), by

primary aim is to preserve the textual content, not the manuscript as an object. This may result in rather drastic interventions, in which many manuscripts are dismantled in order to wash and leaf-cast the folios. Such paper treatments interfere with the paper structure, the page format, and the chemical substances of the paper fibres and pigments (apart from the risk that they disperse and be washed away), thus prohibiting future analysis. In these procedures, many original binding structures are disposed of, often without proper documentation of the manuscript's condition and structure prior to the intervention.¹⁸ To protect the textblocks, after the paper treatments are carried out they are re sewn and rebound in what could be called a standard library binding with features of an Islamic binding like the envelope flap.¹⁹ But, since the Islamic bookbinding tradition has eroded in large parts of the Islamic world, new bindings are often hybrid structures influenced by modern western binding techniques.²⁰ Such treatments alter the manuscripts thoroughly and forever shut the door to a material assessment of the 'restored' items. A variety of such destructive measures is a reality in several places in the Islamic world. This

the Iraqi Institute for the Conservation of Antiquities and Heritage. The consequences of the scarcity of regular conservation training programmes are addressed by P. Ngulube, 'The Achilles heel of the preservation of documentary materials in Sub Saharan Africa' (2007), 159–168. In 2017, at an IADA conference in Oslo, Paul Hepworth and Karin Scheper presented a new educational model for Islamic manuscript conservation which covers a two-year programme that can also be taught in modules, see www.hepworthscheper.com/curriculum-design-for-conservators-of-islamic-manuscripts.html (accessed 24 June 2017).

- 18 Several restoration departments in various centres approach the conservation of printed works and manuscripts in this manner and the method of leaf-casting and laminating is, unfortunately, an ongoing process.
- 19 Typical Islamic binding features are explained briefly in 'The predominant Islamic manuscript type' below and more thoroughly in chapter 2.
- 20 Today, the products of many bookbinders are evidence of this practice: covers often extend the edges of the textblock and the spine may be rounded, and doublures are frequently replaced by Western style endleaves. J. Pedersen mentioned the decline of the profession in 1946: "in our day bookbinding has gone the way of all other handicraft arts of Islam; mere pathetic remnants of its former glory have survived." J. Pedersen, *The Arabic book* (1984), 112. See also H.E. Wulff, *The traditional crafts of Persia* (1966), 236–238. Wulff's account of the bookbinding practice describes the situation in the 1930s. The process involved sewing cords or bands at a bookbinding frame, the application of animal glue on the spine, the application of the endbands with glue (instead of sewing), and finally making the case, and its subsequent application. While Wulff refers to the historic treatises of Ibn Badis and al-Sufyani, he also states that "the craft's present situation in Persia shows that it has not changed much since the Middle ages." (p. 237). However, what he describes is, clearly, not the traditional method of bookbinding. In fact, it reflects the change in bookbinding that resulted from European influence.

situation will not improve if the awareness of the book's physical value is not understood by the professionals involved.²¹

The absence of thorough knowledge about the particulars of the physical Islamic book structure will have devastating implications for their preservation as physical objects and the potential to study the material aspects of these artefacts. This is true for manuscripts in western institutions and for those kept in libraries or private collections or still circulating in the Islamic world. Although Islamic manuscripts in the care of western conservators will be treated with consideration and according to ethical standards, the lack of essential specific knowledge about structure or other physical aspects may lead, nonetheless, to a loss of information. Characteristics are falsely interpreted quite easily, especially since the damage may obscure a clear view of the original construction, and some treatment methods based on western binding structures interfere with the features of Islamic binding. Moreover, it appears that western conservators tend to perceive the original Islamic manuscript structure as inadequate and weak. Therefore, the structure is often changed, incorporating cloth in the sewing structure or adding sewing positions. The minimal intervention approach that is preferred for the western written and printed heritage, does not always seem to apply to Islamic manuscripts. Instead, there is a tendency to 'improve' these objects.²²

In the Islamic world, those involved in the care of manuscripts probably accept, quite naturally, the material aspects and appearance of the manuscripts, without explicitly observing their characteristics and particularities. Without a deeper understanding of the importance of those physical characteristics, the preservation of these manuscripts, including their bindings and structural characteristics, is not guaranteed. To minimise the risk of loss of information, we must be perceptive and have a thorough understanding of the physical object. Indeed, when the value of the distinctive differences in individual book-making is overlooked, there may seem to be little reason to spend much time, effort, and money on the preservation of the items. Damaged bindings are then

21 In addition, most of the destructive restoration treatments originally developed over thirty years ago have long since lost their significance or urgency; this is especially the case for 'mass treatment methods' such as paper de-acidification and the disinfection of manuscripts. Preferable alternatives are now available, and issues such as paper quality and mould or insect infestation are better understood; this diminishes the immediate threat of certain problems and, for example, has proven the ineffectiveness of preventive disinfection. See, for example, Chr. Meier and K. Petersen, 'Behandlungsmethoden von Schimmelpilzen auf Archiv- und Bibliotheksgut,' in *Schimmelpilze auf Papier. Ein Handbuch für Restauratoren* (2006), 118–163; P. Calivini and A. Gorassini, 'On the rate of paper degradation' (2006), 275–290.

22 This approach is discussed in chapter 3.

much more likely to be discarded and replaced.²³ Even when they are spared, the selected repair techniques are likely to serve the purpose of accessibility and will not necessarily respect the characteristic elements of the book's structure and binding. In short, the loss of information is bound to be massive.

Obstacles in the Study of Islamic Bookmaking

Decoration

Orientalists have been studying Islamic manuscripts for hundreds of years; by comparison, it has only very recently been acknowledged that a better understanding of the physical manuscript may inform other aspects of the history of the book and its production, distribution, and consumption. It follows that the awareness of the need to preserve these manuscripts as the artefacts that they are, is also relatively new. It is now gradually becoming more widely accepted that specialist knowledge is necessary to preserve these manuscripts. Yet, although the subject is receiving more attention, we are at the beginning, and still lack in-depth studies.

Traditionally, studies of bindings focussed on aesthetic and art historical aspects and as a consequence, these studies were directed exclusively at the elaborately tooled and luxurious bindings. Although over the centuries, as geographical borders have changed and political instability has caused a transfer of peoples, it has been possible to place certain binding designs in an art historical or cultural context.²⁴ Bindings have been categorised according to decorative patterns and styles, or techniques. Quite often these categories are related to periods of the reign of specific peoples, which also involves a certain geographical region, like the Mamluk period (Mamluk binding decorations show strong geometric designs, finely tooled, with gold and sometimes the use of blue pigments), or the Safavid period (two techniques are associated with this culture: leather filigree or fretwork, and lacquered covers).

23 It is, however, a misapprehension to think that a conservation treatment is always expensive and decidedly more costly than rebinding. An additional reason for rebinding old manuscripts, instead of preserving the original bindings, is that sometimes the newness and shine of a rebinding is preferred to the tattered and thumbbed look of an old binding.

24 For an overview of these studies, see G. Bosch et al., *Islamic bindings and bookmaking*, 1–2, who summarise the contributions from Paul Adam (1890) to Max Weisweiler (1962). J. Pedersen, *The Arabic book* (1984) also gives an overview of the decorative aspects and its innovation, but because the English translation of the original (1946) was published after *Islamic bindings*, it was not mentioned by Bosch et al.

Much more detailed research has been carried out by Max Weisweiler who classified the specific decorative schemes of the finely tooled bindings from the Mamluk period, also described as mediaeval Islamic bookbindings.²⁵ Weisweiler included a description of a great many tools, but unfortunately did not include images. François Déroche elaborated on these principles, and initiated a classification system for the panel stamps used from early Ottoman times onwards.²⁶ Déroche is very much aware that more research is needed to be able to date and locate the use of certain stamps, motifs, or the decoration schemes as a whole, but he stipulates that it is apparent, even from the work done thus far, that regional differences exist.²⁷

Important as these studies are, it must also be understood that the decorative aspects only function as an indicator in the said codicological framework to a limited extent. Firstly, a comparatively small part of the total number of bound manuscripts is decorated extensively or in a sophisticated way, such that the decorative schemes allow for reliable dating or locating. Many of the luxurious bindings from the Ottoman period were produced in court workshops, and although book production in these workshops was influential with regard to aesthetic preferences and technical possibilities of decorative techniques at certain times, many more manuscripts were produced outside the courts and the majority of those were decorated more simply and sparingly. Thus, a large part of all manuscripts produced is disregarded in art-historical studies. Also, since the court styles spread through society, artisans were itinerant and tools for decoration circulated widely, even the more elaborate bindings made for higher social classes developed a certain uniformity. The study of stamped bindings is further complicated by imitations; the spread of styles and tools inspired more common craftsmen to imitate the stamps and decorative schemes. Moreover, the custom of reusing old covers for other manuscripts impairs our ability to date or locate manuscripts by their cover design.

The bulk of manuscripts were made in commercial workshops and by individual book craft practitioners. These manuscripts, created for mosques, *madrasas*, intellectuals, and the upper middle-class, provide an interesting means for us to study other aspects of the book trade or the culture; we can see the interaction between bookbinders, the exchange of techniques or transmission of methods, and the economic motives that must have played a part. It is not easy to categorise many of these manuscripts by their bindings, because, although splendid and luxurious books were made outside the court ateliers

25 M. Weisweiler, *Der islamische Bucheinband des Mittelalters* (1962).

26 F. Déroche, *Islamic codicology* (2006), 300–309.

27 *Ibid.*, 300.

as well, the bindings were usually less distinctively decorated. The tooling may be more conservative or even very plain, using the cheapest materials. Nevertheless, several traditions in styles and usage of materials are discernible, and techniques to construct these bindings may have varied from region to region, while remaining susceptible to change over time. This is significant, because changes in the bookbinding tradition reflect the changes and developments of techniques, and the availability of materials and cultural expansion or exchange. A solid understanding of binding characteristics and variations in structures can therefore contribute to a better understanding of book production and trade as a whole, but in order to acquire that knowledge we must look further than the decorative aspects alone.

Ink

As manuscripts are composite objects, technical analysis of the different materials they are made with may shed light on their origin. Pigments, for example, may be indigenous to some places, and rare in others. And although their use was mainly dictated by availability and cost, combinations of pigments may be common in certain traditions, while other cultures use a different palette. When sufficient information on a large enough and representative sample of manuscripts can be found, such analysis may help us date and even locate where manuscripts were made. Recently, several projects have been carried out, in which Raman technology and other spectrometric methods and microscopic analysis were used to examine the inks and pigments.²⁸ However, results of the research projects undertaken so far are too limited to draw even tentative conclusions with respect to a larger framework. On the whole, chemical analysis of the writing media and examination of the paint

28 See the results of two of these projects: T.D. Chaplin et al., 'Raman spectroscopic analysis of selected astronomical and cartographic folios from the early 13th century Islamic "Book of Curiosities of the Sciences and Marvels for the Eyes"' (2006) and L. Burgio et al., 'Pigment analysis by Raman microscopy of the non-figurative illumination in 16th- to 18th-century Islamic manuscripts' (2008). See also T. Espejo Arias et al., 'A study about colourants in the Arabic manuscript collection of the Sacromonte Abbey, Granada, Spain' (2008). A wider range of non-invasive techniques was used in a study of Moroccan manuscripts, see A. El-Bakkali et al., 'Assessment of a multi-technical non-invasive approach for the typology of inks, dyes and pigments' (2014). Recently, a comparative study was conducted in Kairouan, on Qur'anic manuscripts on parchment from the ninth to eleventh century; see P. Roger-Puyo and S. Boucetta, 'Les matériaux de l'écrit et des décors dans des manuscrits islamique provenant du Maghreb' (2015). Pigment analysis may also serve the study of one object's history rather than add to a framework of traditional methods, see, for example, O. Hahn, 'Scientific investigation of carbon inks: an analytical challenge' (2017).

layers is time-consuming, costly, and requires high tech equipment.²⁹ Also, only the more elaborately illuminated manuscripts offer possibly useful clues, since modest and scholarly manuscripts were simply written in black ink or a brownish black ink. Carbon black ink was the most common writing substance throughout the larger part of the manuscript period and in most geographical regions, although in the first centuries of Islam, iron gall ink appears to have been the preferred medium to write Qur'anic texts.³⁰ In later times, iron gall ink was also used, but less frequently. Moreover, scribes used inks that were a combination of the two ink types.³¹ Red ink was regularly used too, but the identification of these pigments does not prove to be particularly informative since the reds were obtained from a variety of widely available substances.³² Examination of the paper, used as the writing support, appears to be a more useful material to assess.

Paper

Although parchment was used to produce manuscripts in the earliest centuries of Islam, shortly after paper was introduced in the Arab world in the eighth century, it became the predominant writing material.³³ It is generally assumed that the paper substrate does not predate the writing of a manuscript by many years; it is possible, but not probable, that a scribe would use much older stacks of paper supplies.³⁴ Therefore, when the colophon provides a date or even a location, it also gives an indication for the origin of the paper, from this it follows that manuscripts written on similar paper may have been produced around the same time or place. Unfortunately, Arab paper is extremely difficult to date and locate, since it is not watermarked. Watermark research has been the axis

29 An overview of the current possibilities is provided by S. Neate et al. (eds.), *The technological study of books and manuscripts as artefacts* (2011). The use of non-invasive analysis of media in manuscripts for the purpose of dating the objects is reviewed by K. Nesměrák and I. Němková, 'Dating of historical manuscripts using spectrometric methods' (2012).

30 Because of the tannins, iron gall inks (also referred to as metallo-tannate or iron-tannate inks) are chemically more stable on parchment and are therefore more permanent, while soot ink remains sensitive to moisture and was therefore more liable to smudging or even removal, particularly on parchment.

31 The historic sources give a large number of different recipes for soot inks, iron gall inks, and mixed inks, which contain a combination of the ingredients. Visual analysis of manuscripts corroborates the use of such mixed inks over the centuries.

32 Common organic and mineral sources for red ink or dye include Brazil wood, cochineal, vermillion, and minium.

33 J. Bloom, *Paper before print* (2001), 47, 106–108; P.F. Tschudin, *Grundzüge der Papiergeschichte* (2002), 87–90.

34 F. Déroche, *Islamic codicology* (2006), 50.

of western paper research, and the examination of watermarks in paper sheets in an undated manuscript often provides the necessary clues to date and localise its production. Western papermakers began to use watermarks in their papermaking process quite soon after the introduction of papermaking in the south of Europe and they continued to do so thereafter. Other paper characteristics, such as the unevenness or proportions of the sieve, the number of chain lines and the transparency of the paper or the flocculence of the fibres are also important to establish paper quality, but watermarks are particularly useful to locate and date its production. The date of the paper production then marks the earliest possible date for the production of a particular printed work or manuscript in which the paper is found. However, in the lands where papermaking originated, there was no tradition to mark the moulds with the aim to leave an identifying mark in the paper sheet; nor did such a practice develop subsequently in Islamic lands.³⁵ Consequently, the study of Far Eastern and Middle Eastern paper production must rely on other characteristics, such as paper format, the fibres used, and the visible imprints of mould characteristics, such as the chain lines and laid lines.³⁶ With visual assessment alone, this type of research is quite limited, and because more sophisticated research to identify paper based on chemical and technical analysis is both costly and not widely accessible, we must accept that the use of Islamic paper for research into Islamic codicology will remain restricted for some time.

However, although Islamic paper does not provide straightforward clues for dating or locating manuscripts, many Islamic manuscripts were written on paper produced in Europe.³⁷ Since these papers are recognisable by their

35 In both Japan and China, as well as in the Islamic world, paper moulds were made of bamboo, oiled flax or grass reeds or similar vegetable fibres. These moulds were flexible and it is generally assumed that they could not have contained a metal shape to produce the watermark image as the rigid paper moulds did in Europe. European papermakers used moulds made of copper or brass wire, onto which the three-dimensional shapes were knotted, so as to leave the watermark impression in the paper and distinguish the paper of one papermill from that of another. In a recent study, Jean-Louis Estève nonetheless demonstrates that technically it is possible to mark vegetal paper moulds with vegetal shapes which would produce a watermark. See J.-L. Estève, 'Relire Oriol Valls i Subirà' (2015), 257–258.

36 D. Baker, 'Arab paper making' (1992) 31. See also H. Loveday, *Islamic paper: A study of the ancient craft* (2001); Loveday suggests a protocol for paper classification in chapter 5 and summarises the characteristics of Persian papers and Syro-Egyptian papers in chapter 6.

37 The Arabs introduced papermaking technology to southern Europe in the eleventh century when they established papermills in Spain; Islamic papers were imported into the Byzantine Empire as well as other areas in Europe. However, from the fourteenth century onwards the paper trade changed direction. First Italian, then French, and other European papers were imported by the Islamic world, eventually causing a decline in

watermarks and mould structure, are these western papers then not informative for codicologists? It is true that from the fourteenth century onwards watermarked paper made in Europe was used, first in the Maghrib and later also in the Ottoman Empire. But, since this paper was obviously imported from different regions in Europe, it is difficult to determine how much time passed between the production of a particular paper in the West and its arrival in the Islamic world. Therefore, the clues provided by this paper do not identify the origin of a written manuscript with certainty, but they do give a terminus post quem for the manuscript written on them. Additionally, the study of this western watermarked paper sheds light on trade routes and contacts between the two regions and thus provides interesting information in a different respect.³⁸

Textblock

As a material informant, the sewing structure of the manuscript is the next important aspect. Some caution is needed with regard to the reliability of this part of the book as an indicator for codicologists; it is quite possible that gatherings were not sewn immediately after the book was written. Several factors may have influenced the amount of time that passed between the production of the text and the actual binding of the book. However, we can assume that for most books the gatherings were bound relatively soon after they were written, given the cost of paper and writing and the wish to render such a product into a useful object and protect it with a proper binding.

A second reservation should be made with regard to the authenticity of the sewing encountered. It is not always easy to establish if the present sewing is the original one; traces of other sewing stations can be hidden underneath the present thread, or former holes may have been reused. Heavily trimmed margins, that may have sliced through text written in those margins, might hint at a rebinding, at which time the textblock would have been resewn as well. Other evidence, such as paper repairs in the gathering fold underneath the present sewing thread or remnants of old thread, may more clearly indicate a

the Islamic paper industry. G. Bosch et al., *Islamic bindings and bookmaking* (1981), 32–33. See also F. Déroche, *Islamic codicology* (2006), 57; J. Bloom, *Paper before print* (2001), 86 and 212; P.F. Tschudin, *Grundzüge der Papiergeschichte* (2002), 91. On the use of western paper in Southeast Asia, see R. Jones, 'European and Asian papers in Malay manuscripts; a provisional assessment' (1993), 477–485.

38 As an example, the 'Centre Français d'archéologie et de sciences sociales' initiated a preservation project in Yemen (*Le Programme Zabid*, mentioned above) in which one of the objectives was to survey the watermarks in private manuscript collections. See A. Regourd, *Catalogue cumulé des bibliothèques de manuscrits de Zabid, fascicule 1—Les papiers filigranés* (2006).

second or third sewing. However, when it can be established that the sewing structure appears to be the original one *and* there are ways to date or locate the manuscript, either by information retrieved in the colophon or elsewhere in the text, characteristics of the sewing structure may be used as building blocks in the framework of material aspects. Many such building elements are needed to produce a reliable framework in this way, but it can be done.

Thirdly, the binding itself can be regarded as a container that offers many clues, though the trustworthiness of the indications it provides should be explored with caution. This is especially true for Islamic manuscripts, since the rebinding of damaged items was, and is, common practice and the reuse of old boards—whether or not adjusted to the size of the manuscript—is customary.³⁹ Therefore, we must be careful to demonstrate direct connections between provenance information and binding decoration or materials and the techniques used. However, once the authenticity of a binding has been established, every physical detail may play a part in the framework. On the other hand, even when an examination shows that a binding is not the manuscript's original one, the information from the material aspects of that binding may still be valuable. These material aspects could reveal the period or location in which the manuscript was repaired or rebound, and this may signify, for example, a transition in ownership or a transition in the location of a certain owner; and such clues are important to codicologists.

Linking Physical Analysis, Catalogue Data, and Literature

A Brief Outline of the Primary and Secondary Literature

In order to derive a typology from the autopsy of original manuscripts, it is useful, if not necessary, to compare the particulars found in the manuscript with descriptions in the historic sources on the making of Islamic manuscripts. In addition, there is a need to see if more recent publications corroborate the findings. The literary sources, both historic and modern, are examined in detail in chapter 3. However, at this point, a short introduction to these sources is useful to explain the set-up of the assessment and the aims of the research.

39 The manuscript culture in the Islamic world is exceptional since printing only came into use in the eighteenth century. As a consequence of this late arrival of printing, the manuscript book was the vehicle for transmitting knowledge for many more centuries than it was in the West; this not only explains the enormous number of manuscripts produced, but also their intensive use; there were no printed substitutes for these items. This accounts for the damage many manuscripts suffered, and must also have meant that binders were pressured to reuse materials when possible.

On the making of Islamic manuscripts, we know of five historical sources in Arabic that describe the techniques and materials used from the eleventh to the seventeenth century.⁴⁰ Apart from those, one historical source in Indo-Persian script is known, although this is a more recent source dating to the early nineteenth century.⁴¹

The Arabic treatises are sufficiently detailed to help one understand general techniques for book production; however, the absence of a structured account prevents a thorough understanding of the process and all its details or variations. These works could never have served as a manual for bookbinders. Nevertheless, the study of individual manuscripts during conservation treatments in the UBL has shown that Islamic bindings generally correspond to the historical descriptions. This is noteworthy, since it points to an remarkable consistency in the Islamic bookbinding tradition over a vast area (from North Africa to the Indonesian archipelago) and an extensive period of time.

As explained, the first western studies of book-historical aspects of Islamic manuscripts date from the late nineteenth century, and initially the material aspects were examined from the perspective of art history. Over the course of the twentieth century, the scope of publications widened from aesthetics, design, and art-historical features of the bindings to the structure and the materials used to produce Islamic manuscripts. Martin Levey, Gulnar Bosch, Adam Gacek, and François Déroche have made important contributions in

40 Ibn Badis, 'Umdat al-kuttab wa-uddat dhawi al-albab,' translated in M. Levey, *Mediaeval Arabic bookmaking and its relation to early chemistry and pharmacology* (1962), 6–50; A. Gacek, 'Arabic bookmaking and terminology as portrayed by Bakr al-Ishbīlī in his 'Kitāb al-taysīr fī šinā'at al-tasfīr' (1990–1991); A. Gacek, 'Ibn Abī Hamīdah's didactic poem for bookbinders' (1992); A. Gacek, 'Instructions on the art of bookbinding attributed to the Rasulid ruler of Yemen al-Malik al-Muzaffar' (1997); al-Sufyani, *Art de la reliure et de la dorure*, ed. P. Ricard (1925), translated in M. Levey, *Mediaeval Arabic bookmaking and its relation to early chemistry and pharmacology* (1962), 51–55. Recently, a previously unknown and even older treatise came to light with a title that suggests it covers bookbinding as well; however, it contains information on inks and the preparation of paper and some tools, but nothing on sewing and binding. See M. Zaki, 'Early Arabic bookmaking techniques as described by al-Rāzī in his recently rediscovered *Zīnat al-Katabah*' (2011). As this treatise lacks any information on bookbinding, it is not included in the current list. Although unknown treatises may lay hidden, waiting to be discovered, so far, we have to make do with the five texts listed.

41 *Resāle-ye jeld-sāzi* (1812), partly translated and explained in Y. Porter, *Peinture et arts du livre. Essai sur la littérature technique indo-persane* (1992). As the text of this historic source is such a late one, I have not analysed it in the first part of chapter 3 with the other historic sources. Instead, I elaborate on it in chapter 3, where Porter's study is discussed. This seems all the more logical as the text is only accessible through his interpretation, which in some ways hampers its clarity.

this respect. The technical details on bookbinding provided by these scholars is discussed in chapter 3. In short, Levey and Gacek made the Arabic texts accessible in English; Bosch devoted a chapter to structure and techniques, using two of the primary sources as a point of departure in a catalogue that accompanied an exhibition on Islamic manuscripts. Déroche wrote a general introduction to the codicology of Arabic and Islamic manuscripts, in which he also presented a subdivision for the outer form of the book into three categories. Thus, the basis for the subject as a defined field of study was established. Furthermore, over the last few decades, several publications on the preservation of Islamic manuscripts have followed, providing a new angle from which we can reflect on the structures and materials.⁴²

From the more recent literature, it appears that the Islamic binding is often perceived as a case-binding structure, meaning that the binding is prepared as a separate entity and only then applied to the textblock. However, during treatment and close examination of Islamic manuscripts in the UBL over the last ten years, it appears that many of these manuscripts have rather different structures. In fact, in many cases, the definition of a case-binding does not accord with the manuscripts examined, and the term seems inappropriate for most—if not all—Islamic manuscripts. The structures I have encountered are, however, consistent with the descriptions in the five historic sources. Consequently, an intriguing question arises: why is the structure of the Islamic manuscript currently falsely perceived as a case-binding structure? Moreover, instead of one archetypal construction, we can distinguish several distinctive techniques, and we may assume that certain methods or materials that were used point to specific regions of production. Chapter 2 deals with the different structures and provides details and illustrations.

The Predominant Islamic Manuscript Type

Islamic manuscripts are quite easily recognised by their outer form; we usually think of a leather or partial leather binding with an envelope-shaped flap extending from the back board. The boards are flush to the textblock, the gatherings are sewn without supports and the spine is flat. When the endbands have a chevron-like pattern they are generally said to be typically Islamic.

In his *Islamic codicology*, a book that has become a standard for this field of research, François Déroche distinguishes three main categories of bindings.⁴³ The first is the ‘binding-cum-case’ or box-binding, which only occurs in the early Islamic period (eighth to tenth centuries). Only a few examples have

⁴² An overview of this literature is provided in chapter 3.

⁴³ F. Déroche, *Islamic codicology* (2006), 256–262 and 286–290.

survived; this type appears to have been used exclusively for Qur'ans, and more specifically, for those in an oblong format.⁴⁴ As this type belongs to the earliest bindings (the oldest examples date to the eighth and ninth centuries), unfortunately very little original material has survived, and these are merely fragments of bindings.⁴⁵ Only one historical source (Bakr al-Ishbili, d. 1231) indirectly refers to the box-binding; this source describes the possible use of wooden boards for bookbinding, and these are associated with the box-binding. This in itself is remarkable because it suggests that this type of binding was still produced in the twelfth or thirteenth century, when al-Ishbili was writing. I do not discuss this type of binding because of its rather isolated position in the Islamic bookbinding tradition and because the box-binding is not represented in the UBL Oriental collections.

While the first category indicated by Déroche, the box-binding, is clearly a separate group, the second and third types are rather closely related. The second category, the one roughly sketched at the beginning of this section, is regarded as the archetypal Islamic book. The third type is similar in structure but lacks the fore-edge flap and envelope flap; however, it contains the characteristics such as that the boards are flush with the textblock and the use of the link-stitch sewing without supports. Déroche's typology does not include stylistic aspects of the bindings, so the basis for these three groups is confined to basic binding elements. The structural elements such as sewing and board attachment or the materials used are not explicitly mentioned.

From the material evidence, we know that binding techniques belonging to Type Two and Type Three have been used from the thirteenth century onwards, at the least. Written evidence, however, points to an earlier introduction of these types, for they are mentioned in the oldest historical treatise (Ibn Badis, d. 1065). It is worthwhile to have a closer look at the division between manuscripts with and without a fore-edge flap and envelope flap, the feature that separates Type Two and Type Three. Since the envelope flap is such a distinctive characteristic of Islamic style bindings, it is the obvious binding element to record. But the absence of a fore-edge flap and envelope flap (or traces of such flaps) in and of itself does not mean a binding is not Islamic. Indeed, that is why the third category is introduced. Clearly other evidence, such as sewing structure, type of endbanding, whether or not boards are flush with the textblock, and the decorative scheme is then decisive for classification. It is significant to note that many distinctive characteristics are

44 A. Gacek, *Arabic manuscripts: A vademecum* (2009), 24; in the course of the tenth century, the codex format changed into a vertical format.

45 M. di Bella, 'An attempt at a reconstruction of early Islamic bookbinding' (2011), 99–102.

found in details other than the presence or absence of flaps. Details such as the application of the leather covering material, the presence or absence of boards, variations in endband finishing, and the constitution of the spine-lining are further distinctions that occur in both Types Two and Three. Therefore, it seems necessary to use a finer system of classification, one that gives greater weight to structural characteristics and binding elements that reveal 'the hand of the binder.' For example, initial research made clear that there is a practice to produce unsewn textblocks, contained within wrapper bindings with an envelope flap. The outer appearance of such volumes does not differ from bound manuscripts with an envelope flap.⁴⁶ With the current subdivision, both types would be grouped in Type Two. However, it seems prudent to single out the unsewn manuscripts with wrapper bindings as a specific group, rather than to put them together with the sewn textblocks; the very fact that they remained unsewn and were clearly and deliberately produced like this seems to indicate a specific use, albeit we have not yet identified that use. The best way to investigate this practice is, of course, by first identifying many such artefacts and then examining corresponding factors.

The Need for a Typology

To sum up, we can state that this specific discipline, the study of the materiality of Islamic manuscripts, is still in its infancy. The lack of refined knowledge of the use of different techniques and methods, and, in addition, of the materials used, is evident. Rich and diverse collections like the UBL collection confront us with the limited tools we have to describe and classify them. Given the large region in which Islamic manuscripts were produced and the timeframe in which the tradition developed, it is not too far-fetched to presume that certain varieties of the archetype or certain materials and methods—apart from decorative schemes—may be related to local traditions of book production. It is my hypothesis that careful examination of many specimens will supply enough information to refine the typology of Islamic manuscript structures. There is certainly a need for such a typology, one that will provide material for the codicological framework and new anchors for further research on binding.

A thorough understanding of the differences in structures is also needed for preservation purposes. Only when conservation specialists working with Islamic manuscripts have a solid understanding of the techniques and

46 During the pilot survey and a separate boxing programme for the Islamic manuscript collection in the UBL, both carried out in 2010, over twenty wrapper bindings were registered. Findings were published in K. Scheper, 'Refining the classification of Islamic manuscript structures' (2011).

materials used to manufacture these manuscripts, can they assure accurate documentation and well-considered intervention. Awareness of the differences in structures and characteristics is essential for the preservation of binding elements that may help to classify manuscripts. Although many techniques and treatments used for the preservation of western written and printed heritage are, to a large extent, applicable to Islamic manuscript collections, there is a definite need for treatments specific to this other book tradition. Moreover, the very structure of Islamic manuscripts poses particular technical and ethical issues that can only be addressed properly when the conservator involved has a sound knowledge of how these manuscripts were produced. It is good to keep in mind that until just a few decades ago, conservators overlooked (and consequently removed, covered, or destroyed) all sorts of non-textual information hidden in the construction and physical appearance of western books, simply because at the time they did not know that these details were important. It is equally possible that information gleaned from Islamic bindings could prove valuable for Islamic manuscript research and this might be disturbed during treatments.⁴⁷

Point of Departure for the Survey

The present research focuses on the physical and technical characteristics of the sewing structures and the bindings in relation to the origin of the manuscripts, with the aim of increasing our understanding of this particular book-binding tradition and developing a typology. Analytical examination of a large corpus—in casu the Oriental Collection of Leiden University Library—offers objective facts and data that can then be related to catalogue information, so as to link dates and locations to the data. Thus, it might become possible to not only establish a typology, but also to put dates and places to the different types and structures identified.

This study addresses the following research questions: How can the classification of the Islamic manuscript structures best be refined, what are the main techniques used to manufacture Islamic manuscripts, and how are these

47 For example, manuscripts with “wrapper bindings,” covers that were intentionally not attached to the textblock, are prone to interference. With these manuscripts, the textblock remained unsewn, the protective cover was just wrapped around it (for a thorough description, see chapter 2, ‘Unsewn manuscripts with wrapper bindings’ and figs. 70–71). The scope of this practice is unknown, and many such manuscripts may have been sewn later on, in ‘repair’ treatments, during the process of which the loose covers were subsequently attached. N. Baydar confirms that such interventions are not only a potential risk, but a reality, see her ‘Newly identified techniques in the production of Islamic manuscripts’ (2010), 70.

bindings best characterised? Additionally, what distinctive characteristics are indicative of the origin of manuscripts, both in time and place? In other words, is there a strong suggestion or solid evidence of local traditions in the vast geographical area of the Islamic world and the long time during which this manuscript tradition has existed? And lastly, can a connection be established between the type of structure or material chosen by the binder and the subject of the text that the binding is protecting?

In order to answer these questions, I have approached the research as follows. The starting point was the analysis of the historic sources, while the autopsy of the selected Islamic manuscripts was carried out at the same time. The technical information from the sources was used as a mirror for the data generated by the physical survey. This survey of *structure and composition* includes all Islamic manuscripts in codex form in the UBL collection, both those with their original bindings and those with later, but indigenous rebindings. Repaired manuscripts were included when there was enough authentic material in their structures to provide evidence of the method by which they were made. A database was designed for the purpose of recording each assessed manuscript and for the subsequent cross-searching of the data. Then, with the aid of existing catalogues and inventories, the database entries were supplemented with the available provenance information, the language in which a manuscript was written, and its subject. Gaps in the catalogue data were filled by individual assessment with the assistance of the collection's curator, Dr. Arnoud J.M. Vrolijk, in so far as possible. Subsequently, I explored the information thus generated and all fields in the database were used to cross-search for related data. This has resulted in different groups and categories, which can or cannot be mapped, placed on a timeline, or linked to distinct cultural groups or traditions.

Selection and Justification of the Corpus

The Islamic Collections in Leiden

Early in the seventeenth century the first important collection was left to the library by the scholar Josephus Justus Scaliger (1540–1609). Scaliger's legacy comprised about forty manuscripts in Middle Eastern languages; this meant that the university library became one of the best equipped libraries with regard to Oriental studies at the time in northern Europe.⁴⁸ Not much later, in 1626, Leiden University acquired ten Middle Eastern manuscripts from the

48 A. Vrolijk and K. van Ommen (eds.), *All my books in foreign tongues* (2009), 17.

estate of Franciscus Raphelengius (1539–97). Together they form the core collection of Leiden Orientalia (Cod. Or. 212–268). Jacobus Golius (1596–1667), the second professor of Arabic at Leiden, managed to collect 211 Middle Eastern manuscripts for the university during his travels in Morocco and the Ottoman Empire in the 1620s (Cod. Or. 1–211).⁴⁹ His manuscript collection is particularly rich in Islamic science. From 1669 to 1674 the library received its most important collection from Levinus Warner (1619–65), a student of Jacobus Golius and resident of the Dutch Republic to the Sublime Porte. During his stay in Istanbul, from 1645 until his death, he collected an impressive number of manuscripts; his private library of Middle Eastern manuscripts consisted of approximately 930 volumes, which he bequeathed to his *alma mater* (Cod. Or. 269–1199).⁵⁰ Thus, at the end of the seventeenth century, the library's Oriental collections had a solid basis, comprising works on science, local histories, biographies, dictionaries, literature, and religious texts. Over the next centuries, the UBL acquired many more manuscripts, although the eighteenth century was a quiet period in terms of acquisition.⁵¹ From the nineteenth century on, however, the number on Oriental manuscripts increased once more. For example, in 1883, a collection of more than 660 manuscripts from the Medinese scholar Amin b. Hasan al-Halawani al-Madani (d. 1898) was acquired through the efforts of Michaël Jan de Goeje (1836–1909, Cod. Or. 2363–3025 and 8409),⁵² and in 1936 Christiaan Snouck Hurgronje (1857–1936), the Dutch orientalist and advisor on Native Affairs to the colonial government of the Netherlands East Indies, left his entire private library and archive to the library.⁵³ Apart from Snouck Hurgronje's collection, the Dutch colonial presence in the East Indies (now Indonesia) accounts for most of the growth of the collection in the nineteenth and first half of the twentieth century. Next to the aforementioned sizeable acquisitions, of course, smaller collections or even single items were bequeathed or purchased over the centuries.

The items in the Oriental collections in the UBL all have a classmark starting with the abbreviation *Or.* (for Oriental), irrespective of language or origin. Since 1864, when the first substantial collection of materials in Southeast

49 G.W.J. Drewes, 'The legatum Warnerianum of Leiden University Library' (1970), 4–5.

50 Ibid., 5–6, 16. See also A. Vrolijk, J. Schmidt, and K. Scheper, *Turcksche boucken* (2012).

51 The effects of it are reflected in the results presented in chapter 5; in several charts, the fewer number of eighteenth-century manuscripts, in comparison to the numbers from the seventeenth or nineteenth century, is noteworthy. This acquisition scarcity is described in A. Vrolijk and R. van Leeuwen, *Arabic studies in the Netherlands* (2014), 82.

52 Ibid., 113.

53 For more information on the collection, see the Leiden University page online, at www.library.universiteitleiden.nl/special-collections (accessed 10 January 2018).

Asian languages entered the library, all accessions received a supplementary shelfmark according to roughly defined linguistic or regional categories. Thus, the majority of the Islamic manuscripts relevant for this study are shelved in the 'Middle Eastern' collections, and have an *Ar.* number (for 'codex Arabicus'). Almost all of these are in the Arabic script and are written in the 'classical' Islamic languages: Arabic, Persian, and Ottoman Turkish. The 'Middle East' in this context (as one of the four sections of the library's oriental collections) is a rather broad notion and the name designates a cultural area rather than a geographical one; manuscripts from Central Asia and even the western part of China are part of it as well.⁵⁴ Moreover, and perhaps confusingly, a relatively small group of Southeast Asian manuscripts in Arabic, such as Qur'ans from Aceh, have been, traditionally, classified with *Ar.* numbers. Generally speaking, this part of the Oriental collections comprises approximately 6,000 manuscripts and forms the pool from which most of the samples were selected (1,056 volumes, 18 per cent of the total 'Middle Eastern' collection). Additionally, since the Islamic world extends to Indonesia, and because Leiden University Library houses the largest collection of Southeast Asian manuscripts outside Indonesia and Malaysia (approx. 16,500 items), I decided to include some items from the Southeast Asia collections in this study; these manuscripts have a shelfmark preceded by *Mal.* (for Malay). Instead of assessing every volume in the section, as I did with the Middle Eastern section, I made a preliminary selection, based on the criteria used for the survey. First I selected manuscripts with bindings that met those criteria, then, from this group, I only selected those that were written in Arabic script, as this indicates their place in the Islamic heritage. This resulted in a relatively small group of 29 items; the examination of their physical characteristics first and foremost substantiated the findings related to the assessment of the Southeast Asian manuscripts in the Middle Eastern section (see also chapter 4, 'The Malay collection'). As noteworthy variations can be found in the structures and bindings of manuscripts from this part of the Islamic world, and given the strength of the collection in this area, it proved interesting to examine and further verify the development and spread of the bookbinding tradition in this region, which is geographically so remote from the heartland of Islam.

54 The other three areas are South and Southeast Asia, predominantly from the Indonesian archipelago; the Japanese and Chinese collections; and the Hebraica, Judaica, and Semitics, manuscripts in Semitic languages other than Arabic and smaller collections in languages such as Armenian.

Criteria for Selecting Bindings

Several aspects of a book offer relevant clues as to whether a binding is original to the manuscript. An examination of the manuscript structure may reveal traces of a previous sewing, such as a former sewing station or the remnants of thread in colours or texture that are dissimilar to the present sewing thread. Paper repairs in the gutter are equally indicative of a second sewing and re-binding (fig. 1). Partially folded front edges of some of the leaves may also point to a re-binding. When a manuscript is freshly written, it can be assumed that the annotations or glosses in the margins are not so close to the edge that the binder must take special precaution to safeguard them, for he would only have to cut a small part of the edges to finish the textblock. However, when a manuscript needed resewing—because of substantial damage to the structure or the re-assembly of several manuscripts—one can assume that the edges of the textblock were no longer pristine. A second trimming of the edges could cause losses to annotations in the margins. To prevent this, some binders undertook to prepare each annotated leaf by cutting the paper perpendicular to the front edge, just above and below the inscription, and then folding this part of the front edge inward towards the spine-fold (figs. 2, 3). Thus, when the edges of the textblock were trimmed, these particular parts of the paper were spared. However, their presence does not prove re-binding; the textblock may have circulated without a binding, and when it was eventually bound, the binder may have decided to cut the edges to take away traces of use and dirt.



FIGURE 1 Or. 1570. The paper repairs at the head and tail, underneath the tiedowns of the primary endband sewing, indicate that the textblock is re-sewn.



FIGURE 2 Or. 2747. A re sewn manuscript; several leaves have two parallel cuts in the front edge of the paper, made by the binder in order to prevent the trimming of the text written in the margin.



FIGURE 3 Or. 2747. Detail of the same margins as in fig. 2, the parts of the paper margin that were folded towards the centre now unfolded, so that the annotations are visible.



FIGURE 4 *Or. 428. The discolouration on the outer textblock leaf (r) cannot have been produced by the paper doublure (l), therefore it indicates that the manuscript was formerly bound in a binding with leather doublures, which were probably block-stamped.*

The presence of double spine-lining strips or additional inner joints or doublures is also suspicious, as these point to a rebinding or at least a thorough repair. Alternatively, discolourations that cannot be explained by the present materials may reveal characteristics of a former binding, such as the brownish stain pattern caused by leather doublures (fig. 4). The leather spine often offers clues that indicate interference. Some of these clues are quite easy to detect, such as the application of clumsy patches of repair leather or a complete rebacking in different leather. But when the repairs have been conducted with great skill and precision, a well-trained eye and meticulous examination of the manuscript is required, in addition to technical knowledge of bookbinding techniques.

Other characteristics may lead one to immediately suspect that the covers do not belong to a certain textblock. Since the covers of Islamic manuscripts are usually flush with the edges of the textblock, boards that protrude beyond the edges are a clear sign that the manuscript and covers have been assembled and that the boards initially belonged to a different—and larger—manuscript. Sometimes boards were manipulated or adjusted to make them even with the dimension of the textblock. Covers that were too small may have been extended with strips of board; neatly shaved strips of leather may disguise this

intervention. Conversely, existing covers may quite bluntly have been cut to fit a smaller textblock, thus revealing the intervention (fig. 5). The imbalance thus created in the binding design is a clear sign, whereas boards that are carefully adjusted to fit another manuscript may be harder to recognise. In other cases, a divergent tooling pattern on the flap or on one of the boards may hint that the existing binding parts were reused (fig. 6). However, it is sometimes difficult to establish whether the adjusted boards were used for the original (that is, first) sewing of the manuscript involved, or if they replace now missing covers. Therefore, the alterations and reuse of materials complicate the dating and locating of the manuscript.

Obviously, to build a framework, manuscripts with authentic bindings that are contemporary with the manuscript and clearly reveal their origin in the colophons, are preferable. However, if the survey were confined to those criteria alone, the sample would be very limited, as many manuscripts were re-sewn locally while still in circulation in the Islamic world, or they lack a date or place of origin. Therefore, the scope of the survey was widened to include manuscripts containing original Islamic bindings, regardless of whether these bindings seem to be contemporary with the manuscript, and notwithstanding the lack of a written indication, in the textblock, as to the origin. For the purpose of this research, the fact that a manuscript was re-sewn or repaired did not necessarily disqualify the item from the survey. The criterion was that the intervention be ‘local’ or ‘native,’ that is (in this context), carried out in the Islamic world.⁵⁵ The term *native repair* was coined by Evyn Kropf, who defined it as “executed by craftsmen or laypersons from the Islamic tradition.”⁵⁶

55 Since the basic materials used to produce codices in the Orient differ from those used to make western books, this distinction can be made on the basis of visual observation. For example, repairs carried out with coloured silk thread or goat leather are generally found to be executed by an Oriental binder. Fifteen years of working experience with western bindings—both manuscripts and early printed books—provided me with a substantial familiarity with western repairs, their materials, and techniques; it has also taught me that, in general, binders are inclined to use the same methods and materials they would use to produce a new binding, without paying much attention to the authentic structure or materials. As a consequence, western repairs of Oriental manuscripts are fairly easy to distinguish: neither the techniques used nor the materials applied match the Islamic bookmaking tradition. And in those sporadic cases that a western binder attempted to reproduce a flap, the interference betrays itself, usually from the rigidity of the new board or the angularity of the corners of this board, or because the boards are square and not flush with the textblock. Furthermore, the grain pattern of the leather used in the West does not conform to the tactile characteristics of leather used in the Islamic world, and, although a western bookbinder may have tried to imitate the decoration pattern, the tools at his disposal are recognisably different. Most conspicuous are bindings whose covers were reattached the wrong way around, so that the flap is attached to the right-hand cover.

56 E. Kropf, ‘Historical repair, recycling, and recovering phenomena in the Islamic bindings of the University of Michigan Library’ (2013), 13.



FIGURE 5 *Or. 26.679. Back cover; the tail edge was trimmed to fit the manuscript, but the board was originally made for a larger manuscript.*



FIGURE 6 *Or. 1512. The front and back cover have different tooling patterns, both spine and fore-edge flap are repaired with leather patches, and the envelope flap is covered in yet a different kind of leather.*

When a manuscript was locally resewn and given a new binding, the information about techniques and use of material is still relevant; but, for purposes of the primary objective of this research, I then disregarded the information in the colophon, since the second binding was evidently produced in a different period, and possibly in a different region. However, the information provided by such bindings was recorded and included in the general results on the use of the different techniques and materials. Of course, in such cases, I could not draw any conclusions about the connection between the origin and its binding characteristics.

Bindings or constructions with evident repairs were a slightly different case; the usefulness of such bindings depended on the extent of the intervention. When the repairs did not prohibit the analysis of the construction, the items were included in the survey. However, those parts of the binding that had been interfered with or covered by the repairs to such an extent that their original appearance was no longer visible, were not included in the statistics. The decision to include repaired bindings in the research led to a positive side effect; namely, it shed some light on the ways binders preferred to repair manuscripts. Although the survey in itself does not focus on repair methods, notes were taken of remarkable techniques and material characteristics of the repairs; these are discussed in chapter 6. With regard to the ratio of the findings, however, some caution is advised, as the information generated is not necessarily representative of the overall bookbinding and repair practice in the Islamic world.⁵⁷

The survey itself focussed on 'objective' data on the construction of manuscripts: varieties in the materials and the techniques used. However, occasionally I remarked on art-historical aspects or other characteristics, such as the quality of craftsmanship. Although there is a considerable subjective element to the designation of these qualities, they are of interest for the book-historical

57 Inevitably, the results are affected by the decision to include only those bindings that contain most of their original structure. Luxurious items will have survived the centuries differently from low-profile bindings, but it is hard to establish how exactly that influences their representation in the survey. It seems quite possible that high-market manuscripts were not intensively used and that, as a consequence, they suffered less mechanical damage, whereas books from the other end of the market were used intensively. It also seems likely that the latter were repaired to maintain their functionality, repetitively when necessary, rather than being rebound. Accordingly, their outer form and structure may have been altered in such a way that they were not selected for the survey; thus, the lower part of the market may be under-represented. On the other hand, the more prestigious the binding, the greater the chance that, when repair was required, only the beautiful boards were preserved, while the structure and spine were replaced in order to make the binding 'neat' again; this could result in their not being selected.

framework as they shed some light on specific choices that were made, whether for economic or other reasons. Furthermore, sometimes these aesthetic elements helped to 'group' certain bindings. When some of the bindings in a specific group were dated or located, while others lacked such data, the clustering was useful, as the dated or otherwise identified volumes provided information on the possible origin of the manuscripts of unknown provenance.

Possibilities and Restrictions

I designed a survey form for the autopsy of the manuscripts and in order to assemble the results in a database.⁵⁸ All the Islamic manuscripts I selected were examined, every variety in structure I encountered was registered and the materials from which the bindings were constituted were investigated and recorded in detail. As explained, the objective was not only to study the materiality of the manuscripts, but also to relate these facts to the origin of the artefacts in order to work towards a typology of Islamic manuscript structures and binding characteristics. The UBL collections offer a unique opportunity to do this; firstly, because the collections were acquired over a period of approximately 350 years and from a broad range of locations in the Islamic world. Therefore, the collections are extremely rich in terms of varieties of specimens from different eras and regions. Secondly, because the collection has seen only modest use, many of the manuscripts have retained their original bindings.

In comparison with some other western institutes with Islamic manuscript collections, intervention in the physical condition of the manuscripts has been relatively limited in the UBL. A conservation workshop was only set up in October 2000; in the decades prior to that date, treatments were only carried out occasionally. Unfortunately, during periods when there was a larger budget to deal with heavily damaged manuscripts, the knowledge to do so properly was deficient.⁵⁹ Also, not long after acquiring the core collections, quite drastic measures were taken to rebind a significant number of manuscripts in plain calfskin bindings, sewn on supports, and with all the characteristics of proper western bindings. The original bindings once protecting these manuscripts were lost forever.⁶⁰ Various manuscripts acquired in more recent times have

58 The database programme Filemaker Pro 10.0v1 was used.

59 In the 1960s and early 1970s nearly fifty manuscripts were dismantled, re sewn, and bound in plain linen case-bindings. Apparently, a sense of the intrinsic value of the original covers led to the decision to keep those covers (stacked in a cardboard box), with the classmarks of the manuscripts belonging to them written in ballpoint on the inside of the front cover.

60 Unfortunately, an account of this rebinding campaign could not be found in the university's archives.

rather different limitations with respect to this research. Since many of these items were in circulation for a long period of time, and not the best of circumstances, the materials have deteriorated and intensive use or old age has taken its toll on the constructions. Often these bindings were repaired, sometimes over and over again, and even though these occasionally rather unorthodox methods of repair are highly interesting in and of themselves, they do obscure the original structures to such an extent that these bindings no longer bear witness to their initial production. As a consequence, a considerable number of the manuscripts in Leiden have been interfered with too much to provide information as to their original constructions. However, a significant number have retained their original bindings and structures, or were altered only slightly. This is the part of the collection that was selected for the physical examination. In the Arabic collection, I examined 1,056 volumes; from the Malay collection, I selected 29 manuscripts in Arabic script.

The Oriental collections in the UBL are very much a 'users' collection,' which in this case refers not so much to the current use of the manuscripts, but to the fact that the collected manuscripts were meant to be used, that is, they were not produced to reflect the commissioner's status, wealth or wisdom, although manuscripts of art-historical importance are present. But generally, they are and were objects of study, made to be used and not to impress. The materiality of the manuscripts reflects that use; the paper is not necessarily of the highest quality, the bindings are functional and modestly decorated. Consequently, the collected manuscripts do not represent the complete spectrum in a balanced way. The core collections were bequeathed by scholars who collected manuscripts for their intellectual value. Also, the religious disputes in the seventeenth century impelled the university to acquire material in order to promote the study of Arabic as a language related to Hebrew. But these manuscripts were not collected for religious purposes alone; a further aim was to obtain manuscripts to support the study of both the religious and secular aspects of the Islamic world, since this part of the world had become an important political and commercial player. Therefore, in addition to Arabic, Persian and Turkic languages were also considered essential. These considerations resulted in the acquisition of many religious and academic tracts covering a broad range of learning. Although there are manuscripts with fine illuminations and richly elaborated covers, the number of luxurious bindings is relatively small. Consequently, in terms of the statistics, the results of the study are limited in a certain respect; the percentages of techniques and materials used cannot be projected on other collections of different composition.

Notwithstanding this shortcoming, the core collections have been preserved for three centuries or more; the original bindings of these manuscripts are

preserved in advantageous circumstances, compared to many that remained in the Islamic world. The UBL collection provides us with the possibility to examine a substantial number of old manuscripts in their first or second binding. Additionally, the acquisition of manuscripts has continued steadily and until today manuscripts are brought into the collection from across the Islamic world. In sum, the collection comes close to representing the essence of what is produced in the Islamic manuscript tradition, albeit some subjects or aspects of the book arts are less well represented.

The Anatomy of the Islamic Manuscript

A Detailed Overview of the Different Methods of Construction

Vocabulary and Images as Tools

Terminology

With the exception of the simplest one-gathering structure covered with a paper wrapper, all bookbinding constructions are rather complex, and some terminology is unavoidable even to describe the simplest structure. It is therefore necessary to use a common vocabulary, irrespective of the exact context in which books are described; a common vocabulary is relevant for cataloguing, for writing condition reports and conservation treatment reports, and for texts accompanying exhibited items and catalogue texts.

Terms to describe Islamic manuscripts originated in several languages, of which Arabic, Persian, and Turkish are the most prominent. This complicates the matter of vocabulary. Moreover, even the terminology in the primary Arabic sources is not unequivocal and leaves room for interpretation. Adam Gacek points out these differences in vocabulary and the fact that it has fallen out of use in modern Arabic works on bookbinding.¹

Some of the binding elements are characteristically Oriental, such that they do not occur in western binding structures or decorative schemes. Hence, not every term has an equivalent in English. However, since English has become the vehicle for international communication in this field, a more pressing need for a common vocabulary has arisen. For want of such a terminology, many have resorted to terms widely used for western books. Such terms originate from western primary sources on bookbinding or were developed to facilitate the description of western bookbinding. Therefore, some of these borrowed terms have such strong connotations of techniques or decorative forms typical of western bindings that they are not useful or suitable for describing Islamic manuscripts.

1 See A. Gacek, 'Arabic bookmaking and terminology' (1990–1991), 106–107; and 'Ibn Abī Hamidah's didactic poem for bookbinders' (1992), 41–43. Furthermore, in his glossary, Gacek gives the different Arabic terms for the envelope flap to illustrate the existence of synonyms: "we find *udhn* (Andalusia, North Africa), *marji* (Morocco), *lisān* (central Arab lands), *miqlab* (Levant, Iraq), *raddah* (Levant), and *sāqīṭah* (Yemen)"; A. Gacek, *The Arabic manuscript tradition. A glossary of technical terms and bibliography* (2001), xv.



FIGURE 7 Or. 206. A *çaharkuşe*, or partial leather binding. All board edges are covered with leather; the board panels are covered with dyed paper and leather onlays, with blind tooled medallions.

We can see this, for example, in discussions of the covering schemes of leather and partial leather bindings. In the early centuries of Islamic bookbinding, full leather bindings were the most common, but from the sixteenth century onwards, and perhaps even earlier, binders started to combine leather with other materials like paper or textiles. The majority of these partial leather bindings have leather strips on all the board edges, a leather spine, and a leather fore-edge flap, although sometimes leather strips on the front edge of the flap or the horizontal edges are omitted (figs. 7–9).

To describe such bindings, the term *half leather* should be avoided, because it brings to mind the western half leather binding which has a very different layout, with a leather spine and leather corners. That design is almost never found on partial leather bindings in the Islamic bookbinding tradition. In contemporary Turkish bookbinding, the term *çaharkuşe* (and in the shortened form, *çarkuşe*) is used, from the Persian *chahâr* ('four'), and *gûsheh* ('corner'),



FIGURE 8 *Or. 872. A partial leather binding, without a leather strip covering the edges of the envelope flap. The boards are covered with marbled paper, for the covering of the envelope flap two pieces were used.*



FIGURE 9 *Or. 795 (1635, Damascus). A partial leather binding without leather strips covering the head and tail edges. The fore-edge of the front board is covered with a strip of leather; however, the fore-edge of the envelope flap is not; instead, the paper covering is turned-in.*

to mean four-cornered, or quadrangular. The term is found in *Türk hattatları* ('Turkish calligraphers'), a work by Şevket Rado: "Cildin kenarları deri ile kaplanmış ve ortası 'ebrî' denilen kâğıtla örtülmüşse, bu cilde 'çarkuşe cilt' ... denilmiştir." [If the edges of a binding were covered with leather, and the area in between was covered with the paper called *ebrî* ('marbled'), this binding was called 'four-cornered.']*² The use of the term *çaharkuşe* is also quite common in the Union catalogue of manuscripts in Turkey, *Türkiye yazmaları toplu kataloğu*, but it is apparently used to refer to the leather edges only, not as a term for this particular type of binding.³ It appears to be absent in other twentieth-century Turkish catalogues, and in recent reference works such as Duncan Haldane's *Islamic bookbindings in the V&A* and in a work that features quite a few *çaharkuşe* bindings with textile panels, *Turkish bookbinding in the 15th century*, by Julian Raby and Zeren Tanındı.⁴ In dictionaries, it appears that neither Steingass (Persian) nor Redhouse (Ottoman Turkish) mentioned it as a technical term connected with bookbinding.⁵ However, Adam Gacek affirmed the term *çaharkuşe cild* for bindings with spine and edges covered in leather.⁶ It is also mentioned by the Turkish conservator Nil Baydar in an overview of binding types.⁷ In the case of this specific term, a direct English translation would not be accurate: 'four cornered' is precisely what these bindings are not. A descriptive phrase such as 'leather frame binding' is an option, and 'leather-edged binding' has been used,⁸ though I prefer 'partial leather binding,' as the horizontal edges of many bindings with this type of covering are not covered with leather. As a consequence, in those bindings the leather does not actually form a frame, nor are the boards fully edged.

2 S. Rado, *Türk hattatları* (1984), 162.

3 S. Bayoğlu, *Türkiye yazmaları toplu kataloğu* (1979–2002). I am thankful to Arnoud Vrolijk for exploring these Turkish sources and kindly making the translation.

4 D. Haldane, *Islamic bookbindings in the Victoria and Albert Museum* (1983); J. Raby and Z. Tanındı, *Turkish bookbinding in the 15th century* (1993).

5 F. Steingass, *A comprehensive Persian-English dictionary* (1977); J.W. Redhouse, *A Turkish and English lexicon* (1978).

6 A. Gacek, *Arabic manuscripts: A vademecum* (2009), 27 and 118–119 deal with 'half-bound books.' Although it is true that in the eighteenth and nineteenth centuries books were frequently covered in partial leather, according to the survey findings the occurrence of *çaharkuşe* bindings were already significant in the sixteenth century; see chart 6, chapter 5.

7 N. Baydar, 'Conservation aspects of Ottoman period manuscripts' (2005), 194, 206.

8 In his description of the occurrence of a similar covering style in eighteenth-century England, Nicholas Pickwoad introduced the comparison to a frame. In England, parchment was first used and later on also leather, to cover the spine, fore-edges and head and tail (Pickwoad uses 'foredges') "to create a frame filled in with marbled or coloured paper," see 'Bookbinding in the eighteenth century' (2009), 274, 280. Jake Benson uses the phrase 'leather-edged,' see 'Satisfying an appetite for books' (2015), 367–369.

Another example of the inappropriateness of western terminology is the use of the term ‘cap’ or ‘endcap.’⁹ This points to a technique used in western bookbinding, where caps are formed when the leather covering material at the head and tail of the spine is turned in, not only over the board edges but also on the spine itself.¹⁰ By contrast, in the Islamic binding tradition, the leather at the head and tail of the spine is not turned in, but either extends beyond the endbands or is cut flush with the board edges (figs. 10–12).¹¹ Therefore, the term cap is not appropriate and when a glossary for conservators of Islamic manuscripts was compiled (as elaborated below), the term ‘tab’ was introduced to describe the typical Islamic spine-endings with extending pieces of leather.¹²

A further problem arises from the fact that some terms are used differently in related fields; this causes much confusion. For example, to conservators, the term ‘textblock,’ indicates the whole volume without its binding, while art historians usually use the term to indicate just the part of the page that actually contains text, without the margins, the part which conservators would call the text panel or text area.¹³ Misunderstandings also originate from the inaccurate use of certain terms. This is illustrated by Paul Hepworth:

... In a condition problem familiar to scholars of Islamic manuscripts, the green paint used in the framing lines around the text or miniatures in numerous Islamic manuscripts causes breaks and losses in the support below the paint. Such green paint is often referred to as Verdigris ... in

9 The term ‘endcap’ is employed in the much used and reproduced “diagram giving the terminology for the constituent parts of Islamic books in codex form” in G. Bosch et al., *Islamic bindings and bookmaking* (1981), 38, which is also included in the present study, chapter 3.

10 M.T. Roberts and D. Etherington, *Bookbinding and the conservation of books* (1982), 130: “headcap: The leather covering at the head and tail of the spine of a book, formed by turning the leather on the spine over the head and tail and shaping it”; B.C. Middleton, *The restoration of leather bindings* (1998), 26: “headcap: The visible portion of the fold of leather where it turns in at the head and tail of the spine”; J. Greenfield, *ABC of bookbinding* (1998), 36: “headcap: The leather turned in and shaped at the head and tail of the spine”; W.K. Gnirrep, J.P. Gumbert, J.A. Szirmai, *Kneep en binding* (1992), 85: “kapje: De omgezette rand van de rugbekleding (met ruginslag)” [cap: The folded edge of the covering spine with turn-in].

11 The only exception is found in Indonesian bindings, where turn-in leather spine endings are fairly common. This is further discussed in chapter 5.

12 The term is included in the ‘Terminology for the conservation and description of Islamic manuscripts’ (see <http://hepworthscheper.com/terminology>), and has been used in several publications since 2011.

13 An example of this other use of ‘textblock’ can be found in A. Teh Gallop, ‘An Acehese style of manuscript illumination’ (2004), 197.



FIGURE 10 *Or. 2089. A full leather binding, with a tab extending at the head of the spine.*

conservation reports. This designation seems to be a carry-over from the conservation of western manuscripts, since verdigris is a green paint used in miniatures in these manuscripts where it causes the described damage. Moreover, the manufacture of verdigris is also described in Western



FIGURE 11 *Or. 1210. A full leather binding made with the two-piece technique, detail of the tabbed spine.*



FIGURE 12 *Or. 1070. A full leather binding; the leather of the spine-end at the head shows a straight cut edge.*

primary sources, so its use in the West is well documented. Accordingly, it must have seemed logical to assume that damaging green paint in Islamic manuscripts was also verdigris. However, verdigris is the name given to paint made specifically from copper acetate. In the past 15 years or so, analysis of paint has become much more sophisticated and informed and many green paints have been found that do contain copper and do cause damage to the support but are not necessarily copper acetate. A piece of copper buried in camel dung over which vinegar is poured would undergo complex chemical reactions different from copper treated with yoghurt. Yet these are two recipes for preparing the green pigment used in Islamic manuscripts listed in primary sources. Consequently, in writing condition reports, the impulse to give a definite name to some material should be resisted unless analysis has actually been carried out to warrant the use of that name. It is more accurate and consistent with what is known at present to say that a copper-containing green pigment caused the damage observed in a manuscript than that this green paint is necessarily verdigris.¹⁴

The importance of identifying materials correctly for conservation purposes may be evident (to avoid the choice of an ineffective treatment), but for codicologists relying on these technical descriptions of paper, inks, and binding structures, a precise description is just as crucial. Indeed, when conclusions are based on characteristics described with terminology that can be explained in different ways, they are not reliable. In order to promote clear, accurate, and consistent communication, an illustrated terminology was developed initially as a tool for conservators, but over time, the project evolved as an instrument for effective communication with a wider applicability.¹⁵ Every descriptive term used in the present study is found in this list of terminology. An alphabetical list of the terms and their definitions that are frequently used in this book is included in appendix 1, *Glossary*.

14 P. Hepworth and N. Baydar, 'Islamic manuscript conservation and its vocabulary,' online at www.islamicmanuscript.org/files/2007_BAYDARHEPWORTH_NilPaul_Vocabulary.pdf (accessed 8 June 2017).

15 P. Hepworth and K. Scheper, *Terminology for the conservation and description of Islamic manuscripts*, an illustrated and multi-lingual glossary of which at present only the English version is available online: www.hepworthscheper.com/terminology.html (accessed 3 June 2017). It is the authors' intention to add to the glossary translations in Arabic, Persian, and Turkish (with the possibility to add other languages as well). The terminology is not static and remains a work in progress, to be expanded or amended when alterations are deemed necessary.

Illustrations

The illustrations in this chapter serve to clarify and enhance the technical descriptions. Because there are several ways to construct the predominant manuscript type, and the structural differences are precisely the characteristics we are looking for, multiple drawings of the predominant manuscript type with slight, but important, dissimilarities are needed. The outward appearance falls into two categories: full and partial leather bindings. The full leather bindings, however, are further divided into two groups based on clear technical differences. This results in a group of bindings covered with one piece of leather, and bindings covered with two pieces of leather that overlap on the spine (figs. 13–16). The technical distinction, its rationale, and the importance of these techniques to our understanding of the making of Islamic bindings are further discussed below, in ‘Covering and board attachment.’

Apart from the method used to apply the covering material, the construction of a manuscript is defined by its sewing structure and spine-lining. This idea will be set forth below, in ‘Techniques used to construct the textblock.’ Technically, a division can be made based on the function of the extending sides of the spine-lining. These flanges are often used to strengthen the board attachment, in which case the parts of the lining that extend are pasted on the inside of the boards (although there are a few exceptions, when the lining extensions are adhered onto the outside of the boards) (figs. 20, 21, 23). However, a substantial number of books have flanges that are pasted onto the outer leaves, in which case they do not support the board attachment (fig. 24). The choice of material—leather or cloth—appears to play a role in this phenomenon. The difference is elaborated in ‘The dual function of the spine-lining’; the technical and structural differences in board attachment are explicated in ‘Covering and board attachment.’ To introduce the basic terminology, however, drawings of the different covering schemes and drawings of the diverse use of the spine-lining extensions are given below (figs. 13, 14, 17–24).

Techniques Used to Construct the Textblock

Link-stitch Sewing

Typically, the gatherings consist of four or five bifolios, but of course a range of variations is possible. We find gatherings with more or fewer bifolios, with additional bifolios tipped on single folios or guarded leaves. Regardless of their composition, they are sewn in such a way that they result in a compact, flat, and straight textblock with a minimum of swelling in the spine. Unsupported sewing structures predominate in the Islamic binding tradition, and a link-stitch

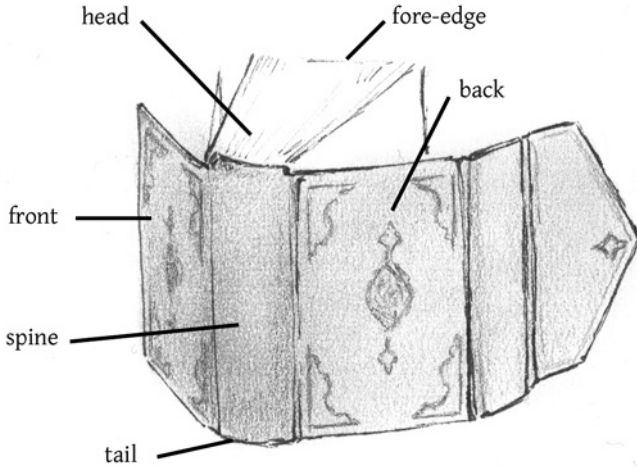


FIGURE 13 A full leather binding made with one piece of leather, showing both covers and the fore-edge and envelope flap to illustrate the vocabulary regarding positions.

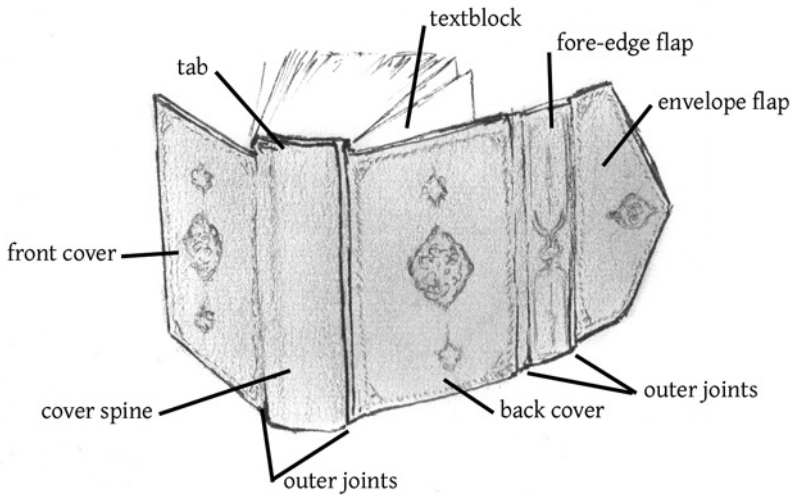


FIGURE 14 A full leather binding made with two pieces of leather, illustrating the basic components. Evidence for the usage of the two-piece technique is found on the spine, where the two pieces overlap; the seam runs parallel to the joint. The two layers may also be discernible in the tab.

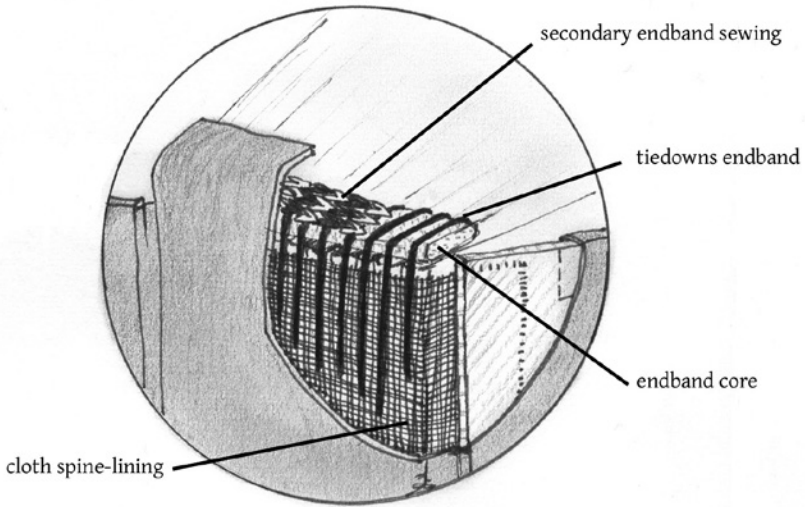


FIGURE 15 *Detail of the spine of a full leather binding made in one piece. Visible are the cloth spine-lining with flanges, the warp threads of the primary endband and part of the secondary endband.*

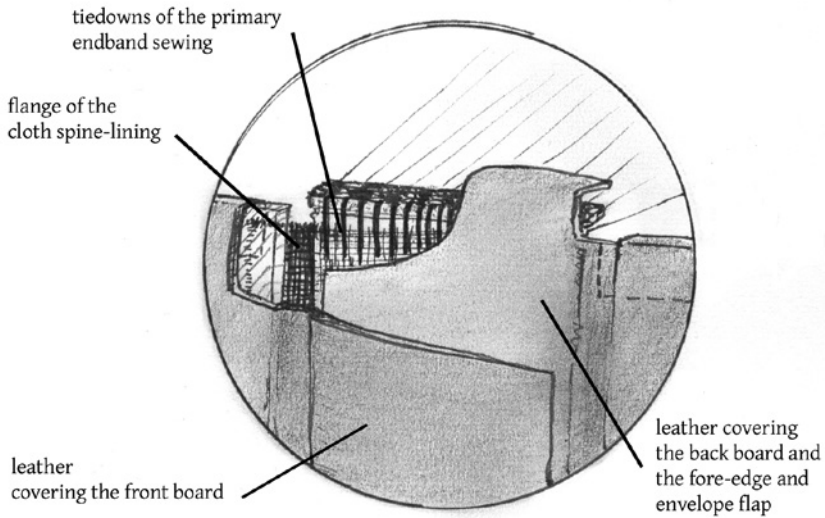


FIGURE 16 *Detail of the head of the spine of a full leather binding for which the two-piece technique is used.*

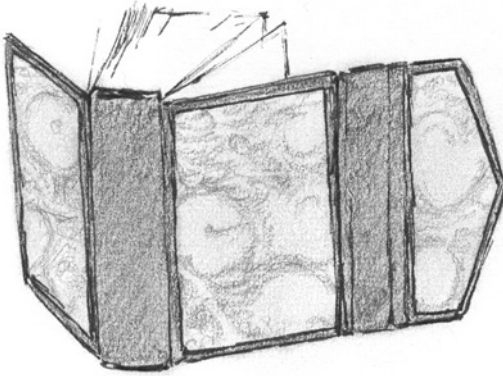


FIGURE 17 *A çaharkuşe, or partial leather binding. Spine and fore-edge flap are covered with leather and in this case all board edges are covered with separate strips of leather, thinly pared. The central panels are covered with paper.*

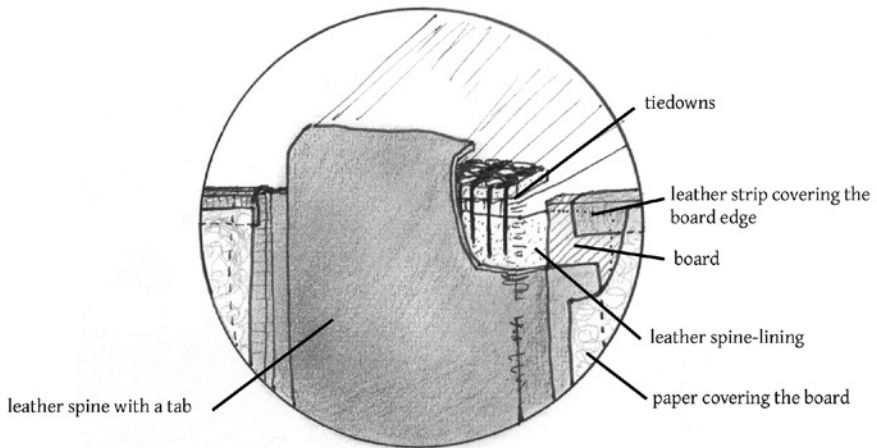


FIGURE 18 *Detail of the spine of a partial leather binding. It shows a leather spine-lining with flanges (used as board attachment), the warp threads and part of the secondary endband, plus the strips of leather on the board edges and decorative paper covering material.*

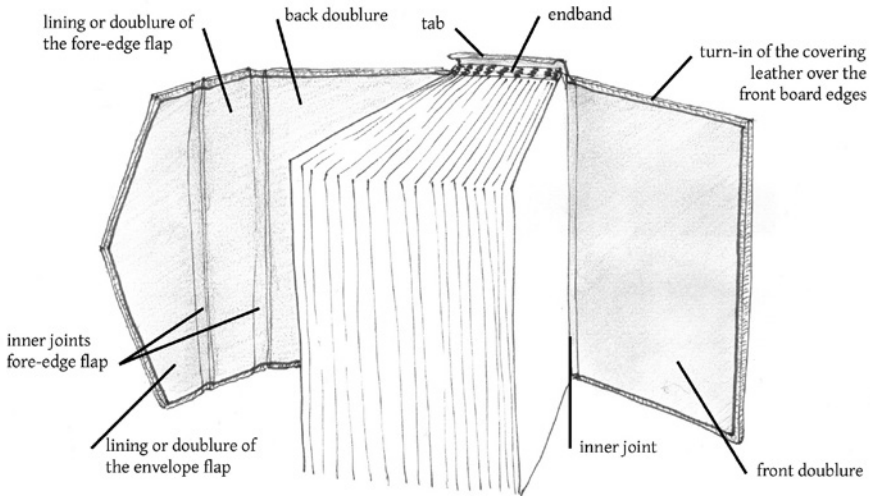


FIGURE 19 *Inside of a binding with a leather textblock spine-lining of which the extended sides are attached to the inside of the boards. Usually, this structure combines the lining flanges with a separate doublure, using matching pieces of leather. Less common is a leather spine-lining with extending sides that actually form the doublures. Details are given in fig. 20 and fig. 21.*

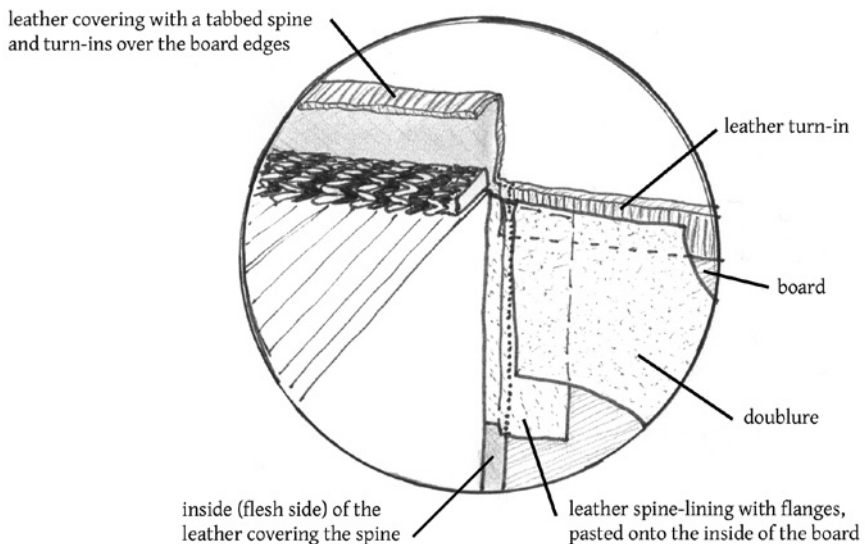


FIGURE 20 *Detail of the spine and inner joint of a manuscript with a leather spine-lining, which is used for board attachment and forms the inner joint. When the doublure consists of leather as well the seam between the two components is often very subtle and hard to distinguish.*

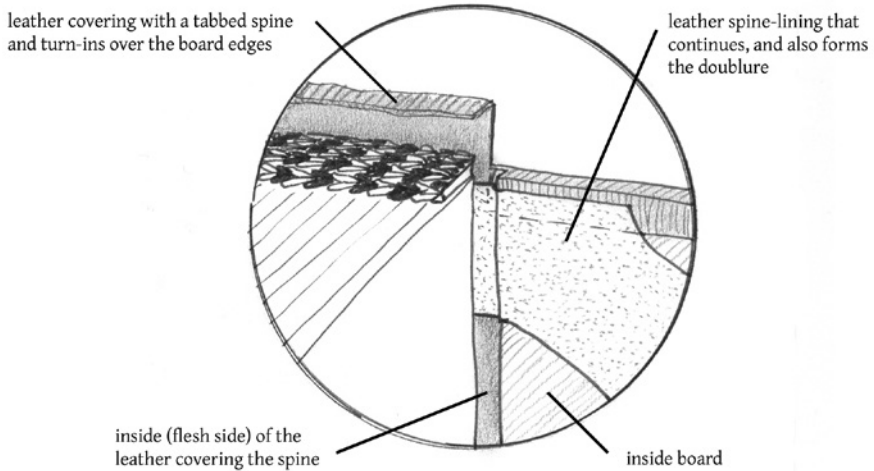


FIGURE 21 *Detail of the spine and inner joint of a manuscript with a leather spine-lining that is also used as doublure. It does not necessarily indicate that this lining-doublure consists of one piece of leather. Two pieces may have been used, overlapping or abutting on the textblock spine.*

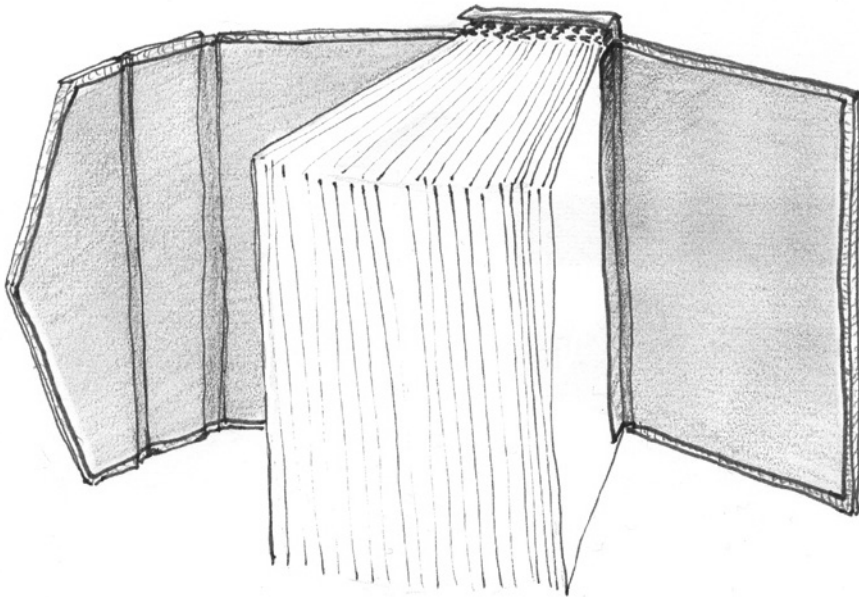


FIGURE 22 *Interior of a binding with a cloth textblock spine-lining. The inner joint is covered with either a stub from the doublure, a separate strip of leather or paper, or it may be covered by the outer leaf of the textblock or a tipped-on endpaper. It is not always easy to detect the board attachment structure of this type. The flanges were mostly adhered onto the inside of the boards but they may also have been pasted onto the outer textblock leaves. Details are given in figs. 23 and 24.*

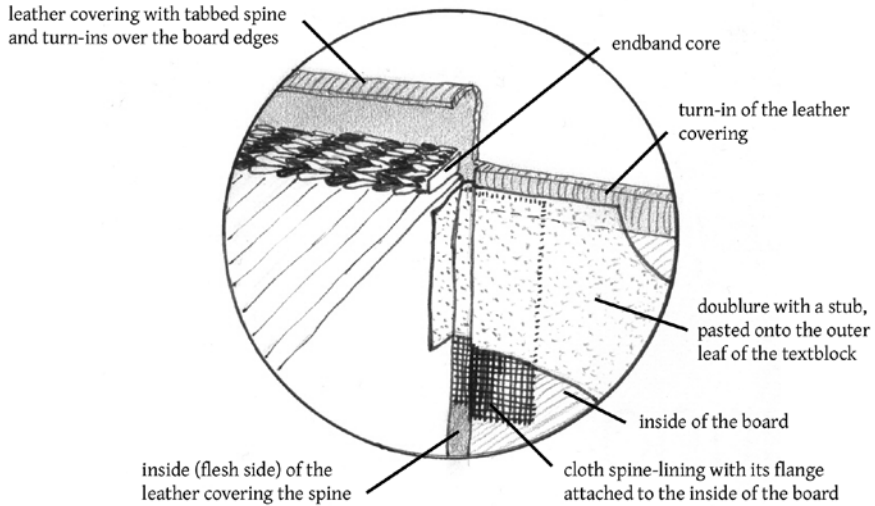


FIGURE 23 *Detail of the head of the spine and inner joint of a manuscript with a cloth textblock spine-lining, which is used for the board attachment. These functional inner joints are covered with the stub from the doublure (or, in other cases, with a separate strip of paper or leather as the inner joint, or a stubbed leaf tipped on as endleaf with the stub adhered in the joint).*

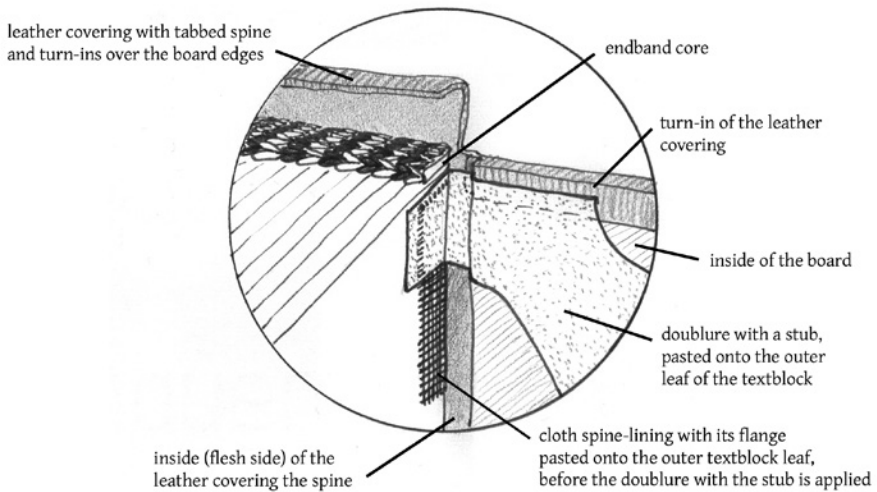


FIGURE 24 *Detail of the spine and inner joint of a manuscript with a cloth textblock spine-lining, which is not used for board attachment. Instead, the flanges are pasted onto the outer leaves of the textblock. The inner joint is covered with the stub from the doublure (or, in other cases, with a separate strip of paper or leather as the inner joint).*

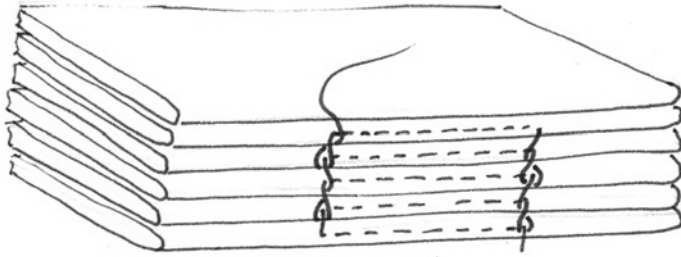


FIGURE 25 *A link-stitch on two stations. The thread exits one gathering in order to pass to the next, it is then taken behind the point of exit in the previous gathering, thus forming a chain of linkages.*



FIGURE 26 *Or. 849 (1658). The opening shows the thread (in blue) of a link-stitch on two stations (the threads at the head and tail are the primary endband tiedowns).*

sewing on two stations with a thin thread is by far the commonest sewing structure encountered (figs. 25–27).¹⁶

This link-stitch usually passes over approximately one-third of the spine-fold in the middle of the gathering, although exceptions are regularly found. Some

16 The ‘Language of Bindings’ prefers the label ‘chainstitch’ over link-stitch, see online: www.ligatus.org.uk/lob/search?search_api_views_fulltext=link-stitch&=Search (accessed 16 June 2017). However, since link-stitch is such an established term in the literature on Islamic manuscripts, we have opted not to use Ligatus’s preferred label.

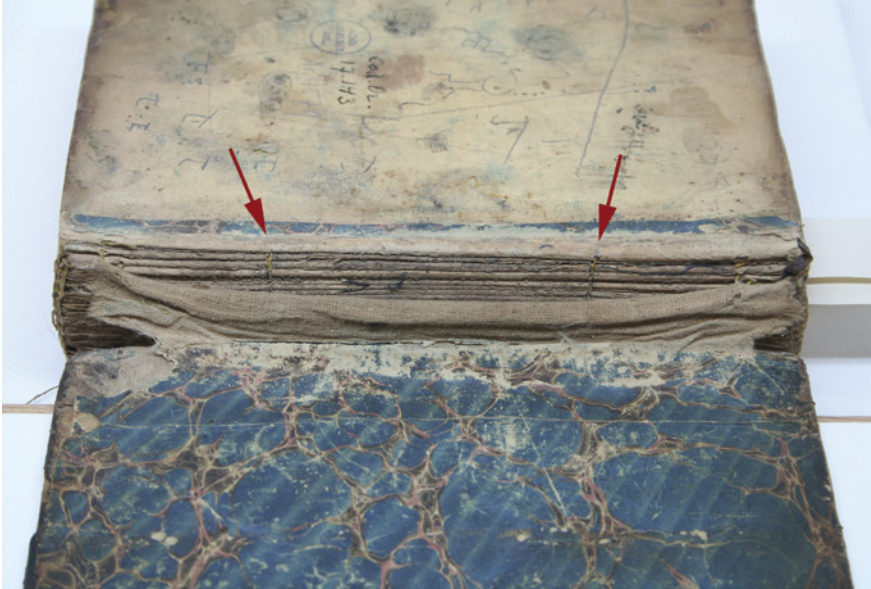


FIGURE 27 *Or. 17.143. A link-stitch on two stations seen on the spine, visible because the cloth spine-lining has become detached.*

manuscripts have remarkably long or very short link-stitches; these anomalies are not necessarily related to the exceptional size of a book. Variation is also encountered in the choice of sewing thread. Whereas the thread is predominately thin and often a coloured silk, some binders favoured, or were compelled to use, a thread of different quality, thickness, or other material such as linen or cotton.¹⁷ Undyed thread is very common as well. It has been suggested that the colour of sewing thread may be related to the subject matter of the text. According to David Jacobs and Barbara Rogers, green thread was used for works on the life of the Prophet, and texts on Islamic law were supposedly sewn with red thread.¹⁸ However, the basis for this statement remains unclear. Neither data on the number of manuscripts studied, nor on any diverging colours to this scheme were provided. Other secondary sources mention yellow or blue and pink thread as the most prevalent colours.¹⁹ The survey results

17 Apart from personal preference, there are factors that influence the choice such as availability and costs. In chapter 5, I address the usage of materials and their relation to origin and timeframe, and the possible explanations for the differences.

18 D. Jacobs and B. Rodgers, 'Developments in the conservation of Oriental (Islamic) manuscripts at the India Office Library, London' (1990), 117.

19 See N. Baydar, 'Structural features and conservation problems of Turkish manuscripts and suggestions for solutions' (2002), 7; and S. Pugliese, 'Islamic bookbindings in the



FIGURE 28 Or. 8907 (1602). The manuscript is sewn with both green and red threads, which alternate throughout the volume. This opening, f. 20b–21a, shows the knot with which a new length of thread is fastened.

from the present study do not support the theory of Jacobs and Rogers, nor do the suggestions that other colours may be dominant. On the contrary, apart from the wide palette of colours encountered, the evidence suggests a rather indiscriminate usage of colours, as many textblocks were sewn with two, or more, differently coloured threads (figs. 28, 29).

Sporadic deviations from this preferred sewing structure are found in a variety of manuscripts, originating from across the Islamic world. Among these, the closest one related to the link-stitch sewn on two stations is a link-stitch sewn on more than two stations. We most often encounter a structure using four stations. Naturally, a sewing structure on four stations allows for more variation than the link-stitch on two stations. According to the survey results, the Islamic bookbinding tradition has its own typical version of this type of

manuscript collection of the Marciana National Library in Venice' (2010), 53. Ana Beny and Kristine Rose Beers observed two prevalent colour combinations on Andalusian bindings, red and green, and yellow with blue. See A. Beny and K. Rose Beers, 'An Inspiration for Conservation' (2016), 191.

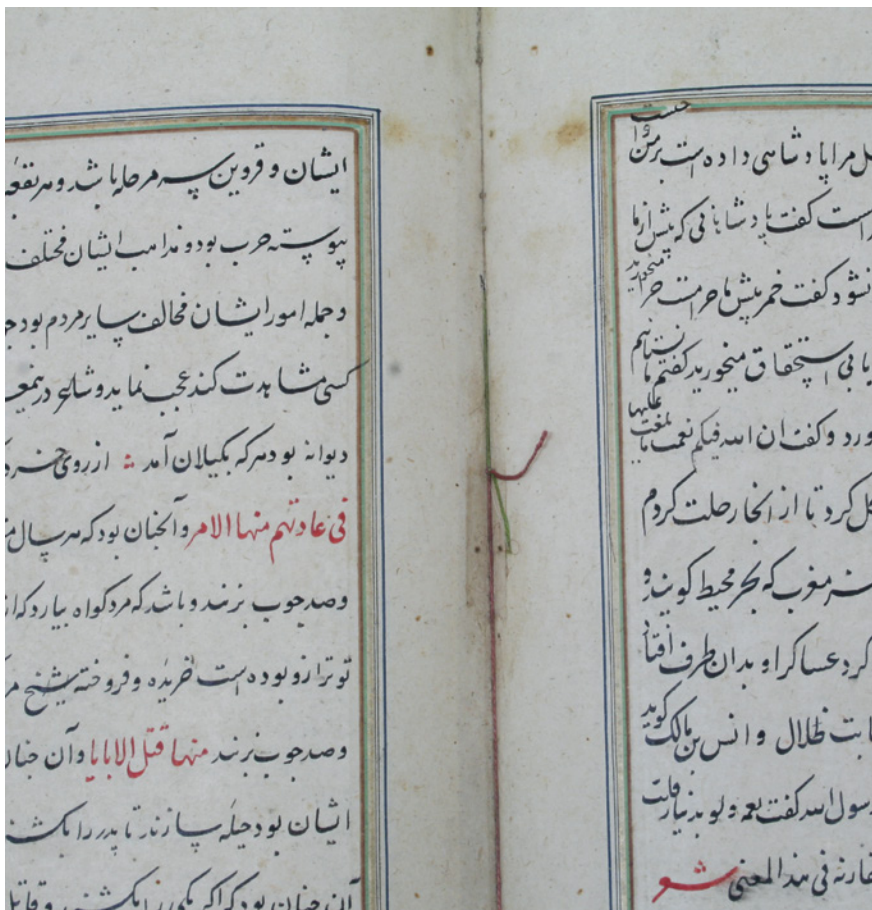


FIGURE 29 Or. 8907. Detail of another opening, the two sewing threads of different colour, knotted together.

sewing, in which the thread does not pass continuously on the inside of the gathering, but exits through the second sewing station to pass on the spine side of the gathering, where it makes a loop around the thread from the preceding sewing tour, thus forming an extra connection. The thread then returns to the inside of the gathering through the third sewing station. The exit in the fourth station and linkage to the thread underneath is similar to the ordinary link-stitch over two positions (figs. 30–32).²⁰

20 This link-stitch on four stations deviates from the ones found in Coptic, Byzantine or Ethiopian codices. In those, the thread passes from station to station within the spine



FIGURE 30 Or. 656 (1562). The opening shows the thread of a link-stitch on four stations.

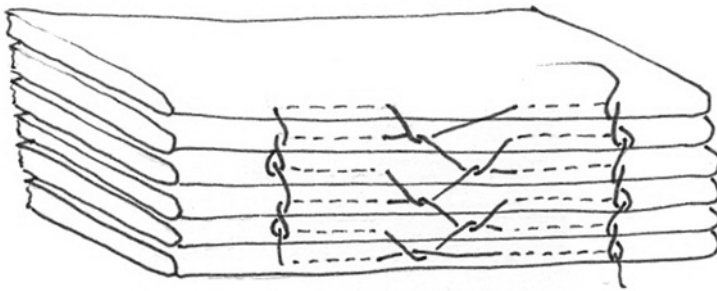


FIGURE 31 Diagram of a link-stitch on four stations.

In other cases, three, five or more sewing stations were used. Technically, they form a different category of link-stitch sewing (figs. 33–37). A link-stitch on three stations does not allow the thread to pass on the spine; the thread exits

fold, which also forms more chain-stitches on the spine, or the gatherings are sewn in two columns with one or two needles. With the latter, Ethiopian method, the inside of the gatherings resembles the Islamic system (where the thread only passes between the first and second station, and again between the third and fourth station), albeit the Ethiopian sewing scheme is discernible because the thread passes inside the gathering twice and also, when the spine of the textblock is accessible, the lack of thread passing between the second and third station is evident. See J.A. Szirmai, *The archaeology of medieval book-binding* (1999), 16–22, 33, 46–47, and 67–69. For comparative drawings, see K. Schepel, 'Preserving the Islamic manuscript as an artefact' (2014), 98–100.



FIGURE 32 *Or. 340. The spine of the textblock demonstrates the passing of the thread between the second and third sewing station.*

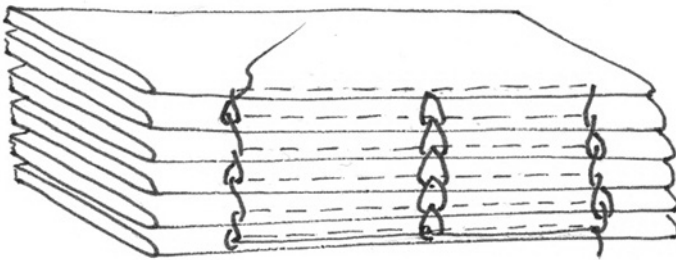


FIGURE 33 *Drawing of a link-stitch sewing structure on three stations.*

and enters again through the middle position, thus making a full chain-stitch. For larger manuscripts, a link-stitch on five stations was sometimes used. Theoretically, it is then possible for the thread to alternate, and pass in the gathering-fold (between the first and second station and again between the third and fourth station) as well as on the spine (between the second and third and again between the fourth and fifth—and reversely in the next gathering), which would be comparable to the link-stitch sewing on four stations as described above. However, in the only kind of structure I have encountered, the thread passes between all five stations on the inside of the fold, comparable to

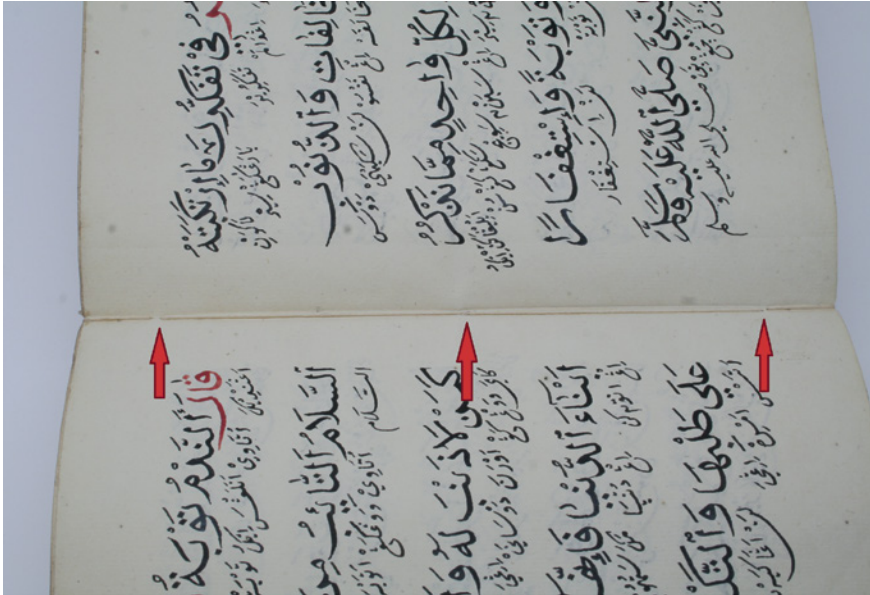


FIGURE 34 Or. 1840 (before 1766, Java (?)). The opening shows the thread of a link-stitch on three stations. The stations are indicated by the arrows.

the link-stitch sewing on three stations, which forms the full chain-stitches on the spine (figs. 35, 36).

Technically, the variant link-stitch on three stations is more stable than a link-stitch on two and even more stable than the one on four stations executed in the Islamic manner. The middle linkage forms a direct and small chain with the thread underneath, whereas in the ‘four-station sewing’ the thread forms a long loop when it crosses the spine on the outer spine-folds, which is rather slack. It is therefore remarkable that in this already superior sewing structure, often an additional effort was made to stabilise the sewing. In many specimens, the thread was pulled behind the preceding stitch in the gathering spine-fold, creating a loop through which the thread then passed, thus forming a knot. This is the most elaborate way of performing a link-stitch sewing (figs. 37, 38, 39). In one instance the sewing structure was even more complicated, and diverged from the tradition method, when the primary endband was sewn at the same time as the textblock sewing. The structure came to light during a conservation treatment (figs. 40–42).²¹ From the full chain-stitches at the outer sewing positions it became clear that the tiedowns are part of

21 Livia Ludovici worked on the volume during her internship in spring 2017.



FIGURE 35 *Or. 6987. A link-stitch on five stations. On the outer stations no chain stitches are formed, the thread exits and passes on to the next gathering directly (red arrows). The position of the stations were marked with ink on the textblock spine (black arrows), though the binder chose to position his sewing differently.*

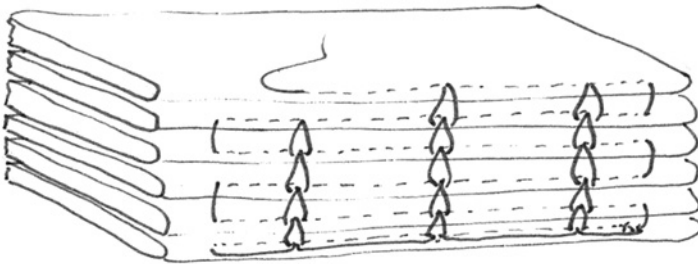


FIGURE 36 *Drawing of a link-stitch sewing on five stations. In this example, the outer stitches do not form a linkage with the sewn gathering underneath.*

the sewing, and the thread must have changed over from one gathering to the other at the position of the endband core. By contrast, some of the link-stitch sewing structures on multiple stations lack a chain-stitch on the outer stations. They have a direct change-over, meaning that the sewing thread is not linked to form a chain with both the preceding and the successive gathering. As these



FIGURE 37 *Or. 8205. The thread inside the gathering passes almost from head to tail. Six stations were used for this link-stitch sewing; the warp threads of the primary endband form the seventh and eighth sewing station.*



FIGURE 38 *Or. 8205. Detail of the thread inside the gathering. After having formed the chain on the spine, the thread enters the gathering again and then passes around itself and forms a knot. Thus, the paper is protected from tearing when the thread is tightened.*

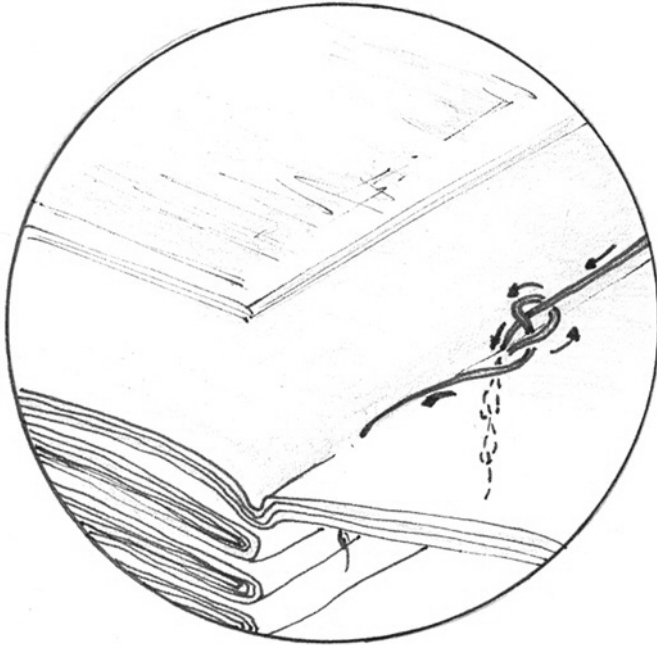


FIGURE 39 *Drawing of the knotted stitch. The knot is formed after the thread linked on the spine and was taken back into the gathering.*



FIGURE 40 *Or. 7261, possibly first half nineteenth century, Southeast Asia. Five chains of the link-stitch sewing are visible on the textblock spine; the outer two stations are full chains, similar to the three in the middle. This is evidence of a structure in which the endband's tiedowns are integrated in the primal sewing of the gatherings: the tiedowns were not sewn separately.*

PHOTO BY LIVIA LUDOVICI.



FIGURE 41 Or. 726i. The sewing thread on the inside displays the knotted stitch, also on the outer stations, indicating the integrated primary endband sewing. PHOTO BY LIVIA LUDOVICI.



FIGURE 42 Or. 726i. Detail of this knotted stitch and the integrated tiedown. PHOTO BY LIVIA LUDOVICI.

outer sewing stations are very close to the endband sewing stations, the loss of connective strength is compensated by the endband sewing (figs. 38, 39). Although not exclusively, most of the manuscripts made with the type of link-stitch sewing using three, five or more stations originate from Southeast Asia.

Stabbed Sewing

Stabbed sewing methods are another unsupported sewing structure that completely diverges from the link-stitch sewing structures. With stabbed structures, the thread (or cord, or leather lace) passes through transversal holes in the textblock, quite close to the spine (figs. 43–47). These sewing methods occur irregularly and throughout the Islamic world. They sometimes appear to be repair sewing structures (fig. 44). They may also be the original sewing structure, although they need not be contemporary with the manuscript.

Stabbed sewings have an advantage over link-stitch sewing structures, in that they can be applied to loose folios; link-stitches can only be made when the gatherings have proper spine-folds. Consequently, stabbed sewing structures are often found in manuscripts containing many loose leaves. Among these are texts with a large number of inserted leaves, such as notes, pieces of scrap paper or other additions on different paper. Stabbed sewing has also been used as a method of repair sewing for damaged manuscripts with torn gathering folds or worm-eaten spines, or, for instance, on composite manuscripts assembled and sewn in a second binding effort. In the latter case, the holes from the original link-stitch sewing may still be visible in the spine-folds (fig. 46). Furthermore, the technique is found on manuscripts originating from North and sub-Saharan Africa where there is a tradition of writing manuscripts on loose leaves or on bifolios forming gatherings that initially remained unsewn.²² However, unbound manuscripts are prone to disorder and damage, so it is not unusual for these texts to have been bound at a later stage. Although a stabbed sewing is a quick way to hold together a stack of loose sheets, the drawback is that a stabbed manuscript does not open as well as a link-stitch sewn book. Passing through the paper some millimetres (up to a centimetre) away from the spine, the thread (or leather lace) connects the pages tightly. As a consequence, text written close to the gutter becomes difficult to access.

22 See, for example, A. Brockett, 'Aspects of the physical transmission of the Qur'an in 19th-century Sudan' (1987), 47 and 53 n.46; K. Johnson, 'An amuletic manuscript: 'Baraka' and 'Nyama' in a Sub-Saharan African prayer manual' (2010), 161–162; Marie-Geneviève Guesdon, "Bookbinding," in *Encyclopaedia of Islam, THREE*, ed. Kate Fleet, Gudrun Krämer, Denis Matringe, John Nawas, Everett Rowson. Consulted online on 8 June 2017 http://dx.doi.org/10.1163/1573-3912_ei3_COM_22883.

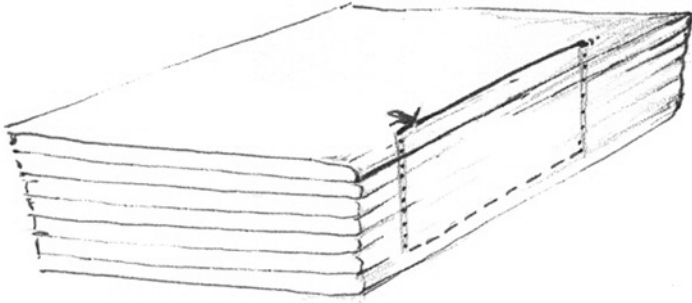


FIGURE 43 *Drawing of a basic stabbing technique, using only two stations.*



FIGURE 44 *Or. 25.428. A manuscript with a stabbed sewing, which was once sewn on two stations; the red arrows point at the former stations of that original link-stitch sewing.*



FIGURE 45 *Or. 25.693 (18n)*. A manuscript with a stabbed sewing, parallel to the spine and using three stabbed holes.

The simplest form of stabbed sewing is a side-sewing technique using two stabbed holes. The sewing becomes more elaborate when more sewing stations are used, or when the side-sewing technique is combined with overcasting, in which case the thread repeatedly passes over the textblock spine and forms a spine-loop. Some of the very thick stabbed manuscripts were bound in two stages. First, manageable sections were stabbed and sewn with relatively thin thread. Then these sections were stabbed once more with a wider punch and thicker thread and thus connected.

Sewing on Supports

Another divergent structure, although certainly not regularly encountered, are manuscripts sewn on supports.²³ The use of sewing supports is highly unusual

23 Obviously, in the present study this category only describes original bindings made by local craftsmen, contemporary with the manuscript; western repair sewings were encountered but excluded.



FIGURE 46 Or. 2749 (1766). A manuscript now sewn with a stabbed sewing (red arrows), perpendicular to the spine. The small holes in the centre (black arrows) bear witness of a former link-stitch on two stations.



FIGURE 47 Or. 2378 (1724). The manuscript does not open well because the stabbed sewing prohibits the leaves from flexing in the spine-fold. The arrows point at the sewing stations.

in manuscripts from the heartland of Islam and Central Asia. In Southeast Asian manuscripts, however, sewing supports appear to have been used rather frequently. I observed two techniques, the one sewn around and the one sewn across (figs. 48–52). The first is a more elaborate technique, in which the thread forms a loop around the support and passes the support on the inside of the gathering twice. It thus causes some extra swelling in the spine but prevents the paper from tearing while it is sewn. The second method is quicker; in this method, the sewing thread moves from head to tail or vice versa in one direction only. It passes the supports on the spine side and causes no swelling, but during this sewing process, fragile paper might tear more easily. In both techniques, all gatherings are sewn all along, meaning that the thread runs the full length of the spine-fold except for the outer ends beyond the chain stitches. Two-on sewing or bypassing, ways to economise because supports are skipped or two gatherings are sewn in one sewing tour, was encountered in the survey only once.²⁴

When surveying the UBL collections, I recorded the use of supports of parchment and tanned leather (in Southeast Asia) and cord (from elsewhere in the Islamic world). The support slips (the outer ends of the support material extending transverse from the spine) were invariably adhered onto the boards in order to strengthen their attachment (fig. 52). In chapter 5, detailed data on the methods used is given, and the question of when or why this method of sewing developed, or was introduced in a specific region, is also explored.

The Primary Endband Sewing

In western practice, over the centuries, the function of the endband was altered from a constructive binding element to a mere decorative feature; by contrast, in the predominant structure of Islamic manuscripts, the endband has always been a key part of the sewing structure. The typical Islamic endband consists of a primary endband sewn over a leather core, and a secondary endband sewing which is woven over the primary endband warps (figs. 53–55). As the link-stitch sewing leaves the textblock relatively unstable, the function of the primary endband sewing is crucial for the structure's stability. But even

24 With two-on sewing two (or more) gatherings are sewn while the thread passes once from head to tail or vice versa, using at least three stations. Bypassing is a technique that saves time because the gatherings are sewn without using all the sewing supports; with each sewing tour an alternating support is skipped. Inevitably, these techniques resulted in less stable structures than the traditionally sewn textblocks. Nevertheless, in western sewing structures from 1550 onwards, such time-saving sewing methods became increasingly common, as a response to the growing output of printing presses. See N. Pickwoad, 'Onward and downward' (1994), 75–78.

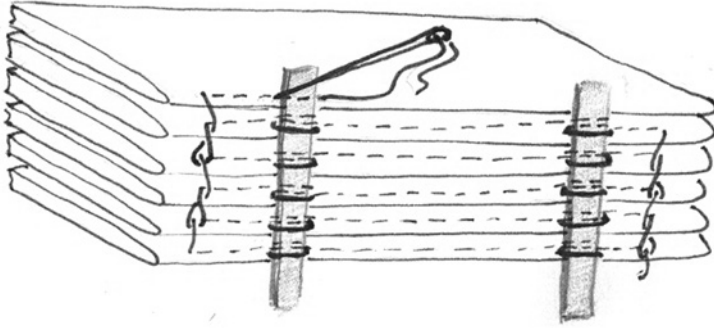


FIGURE 48 *Drawing of a supported sewing structure, with the thread sewn around the supports, using two strips of leather or parchment.*

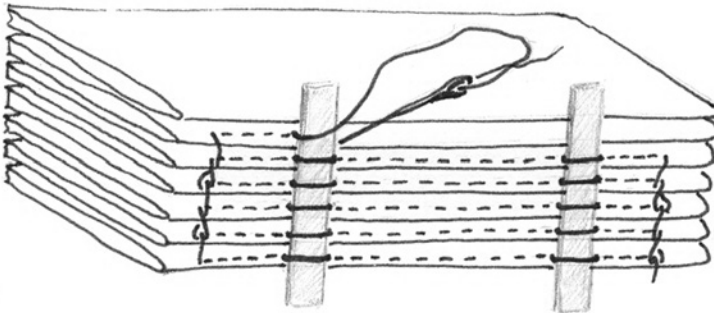


FIGURE 49 *Drawing of a supported sewing structure, with the thread sewn across the supports, using two strips of leather or parchment.*



FIGURE 50 *Or. 6997 (1857). The textblock was sewn on three tanned leather supports, which have deteriorated rather badly.*



FIGURE 51 Or. 2286 (1859). Gathering fold exposing the sewing thread. The gathering is sewn all along, the thread passes on the outside of the supports, so called sewn across.

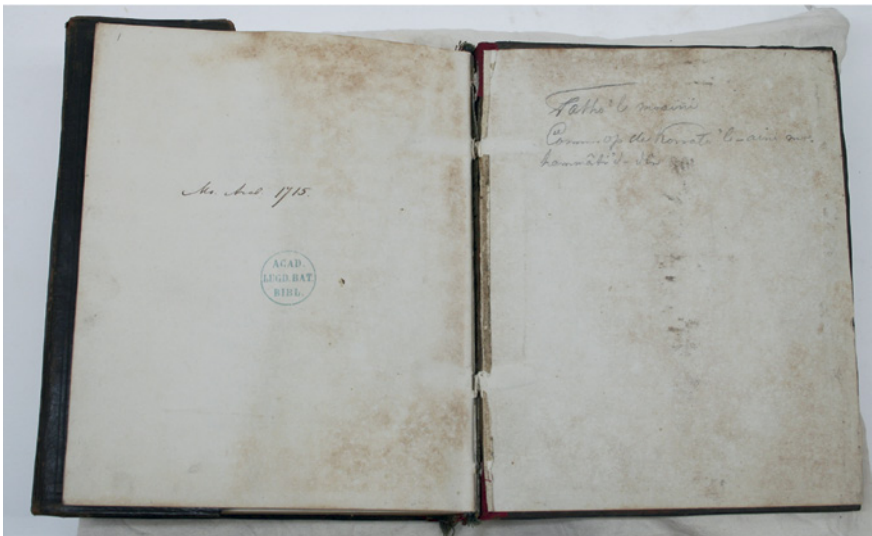


FIGURE 52 Or. 2286 (1859). Inside of the front cover. In the joint the two supports are visible. The support slips are used for board attachment, they are pasted onto the surface of the inside of the board and covered with a doublure or pasted down.

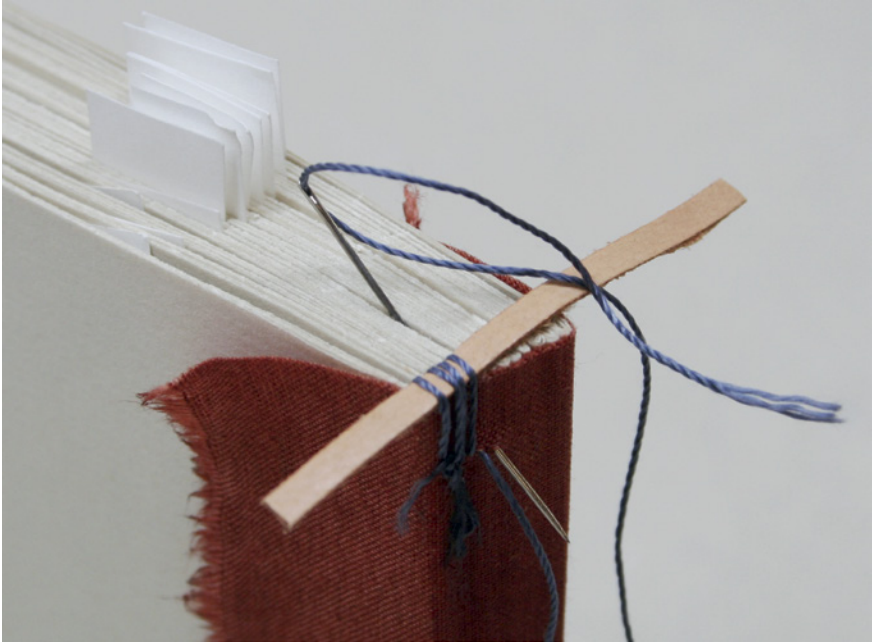


FIGURE 53 *Sewing of the endband on a mock-up: the tiedowns pass over a leather core, and through the middle of each gathering.*



FIGURE 54 *Or. 17.143. The leather spine is missing, thus the cloth lining and the endband's tiedowns at the head and tail are clearly visible.*



FIGURE 55 *Or. 1196. The predominant secondary endband, the chevron type.*

before the primary endband is sewn, the textblock spine is lined with a piece of leather or cloth. This spine-lining is then included in the sewing structure: the anchoring threads of the primary endband pass over an endband core and through each gathering, as well as through the spine-lining. Thus, the anchoring threads provide an additional connection and strength to the outer ends of the textblock spine where such strength is most needed. The application and function of the spine-lining is further discussed below.

The method of manufacturing the endband has been remarkably consistent and this characteristic component should therefore be considered an integral part of the sewing structure; even when different sewing structures were applied, we still find a primary endband that connects all the gatherings to the spine-lining (with the exception of a few stabbed repair sewings with extensive paper damage). A secondary endband with a more decorative function was applied in most cases; the exceptions to this rule were few (figs. 56–58). The thread for the primary sewing is often the same as the one used for the textblock sewing, but a thread of a divergent colour or thickness is also frequently



FIGURE 56 *Or. 1842 (ca. 1770, Banten, Northwest Java). A rather complicated endband weaving (its sewing scheme as yet unresolved although it does appear to consist of a primary and a secondary sewing).*



FIGURE 57 *Or. 1677. A divergent primary endband technique in which the tiedowns are bundled up, either after finishing the whole primary endband sewing, or while the endband is being sewn. There is no secondary sewing.*



FIGURE 58 *Or. 1677. The endband as seen from the spine; it appears to consist of a primary sewing only, the horizontal threads only bundle the tiedowns.*

found. Usually the thread is fastened with a knot in one of the outer gatherings, but different systems with a fastening on the spine side were used as well.

The core was often made of a small strip of leather but may also consist of twisted threads or textile strips or, less commonly, stiff material like bamboo or reed. The reference book on endbands, *Les tranchefiles brodées*, suggests that parchment was an alternative material for endband cores in Islamic bindings, but in the present study, I only found two examples of this (fig. 59).²⁵ In the final result, the endband core is as long as the textblock is wide, but to manufacture an endband a longer core material was initially used. The endband was sewn on it and only after the weaving of the secondary endband was completed were the extending ends of the core cut away. Evidence of this working method is found on a few manuscripts in which one of the endband cores, apparently forgotten, protrudes over the joints (figs. 60, 61). However, in some parts of the Islamic world, it seems that the extensions of the endband cores were kept intentionally; the strips of leather were pasted onto the outer

²⁵ Laffitte and Tarrete, *Les tranchefiles brodées* (1989), 73, 86.



FIGURE 59 *Or. 546 (1224, though resewn). The endband core consists of a tightly rolled up material, possibly parchment.*



FIGURE 60 *Or. 504 (1520, Gallipoli). Detail of an endband at the tail side, which shows a slip of the endband core that was not cut after sewing.*



FIGURE 61 *Or. 11.723. The extending sides of this endband core were not trimmed, they were folded backwards on the spine. Had the cover not become detached, they would not have been visible.*

textblock leaves, or secured on the textblock close to the spine with a thread passing through the leather and a hole stabbed in the textblock (fig. 62).²⁶ On many Indonesian endbands the cores are not trimmed either. And, to make them even more distinctive, these cores are often not made of leather but of colourful cloth or threads that form tufts at the joints (see figs. 117–119 in chapters 4 and 5).²⁷ Lastly, I identified a small group of endbands that diverge from the predominant endband structure because endband cores were not used at all, although the outward appearance of these endbands is very traditional. With this system, the binder used either a horizontal cut in the textblock edge in which a thread was laid—perpendicular to the spine—to secure the

²⁶ Data about these manuscripts is provided in chapter 5.

²⁷ More precise data is provided in chapters 4 and 5.



FIGURE 62 *Or. 6348 (1664). Detail of an endband at the head side. The slip of the leather endband core was intentionally not cut, since part of the endband sewing pierces the leather.*

position of the tiedowns, or a thick and rigid spine-lining was applied through which the tiedowns were sewn. Both methods seem to have been designed to support and sustain the position of the endband. Neither of these methods appear to be easier or quicker or to have other advantages over the traditional use of the leather endband core (fig. 63).

The Dual Function of the Spine-lining

The authors of all the historical sources, except Ibn Abi Hamida, describe the application of a spine-lining as a stage that comes after sewing the gatherings.²⁸

²⁸ Adam Gacek's translation of Ibn Abi Hamida is abbreviated, and as I have not been able to access the text from another source, I cannot draw conclusions about his practices with regard to the spine-lining.



FIGURE 63 *Or. 26n* (1767). An endband sewn without an endband core; across an incision in the textblock lays a thread that functions as a grip for the tiedowns. Its outer ends are pulled through stabbed holes in the lining and textblock (arrow).

Indeed, as a rule, textblock spines appear to be lined.²⁹ The lining material is adhered with a vegetable adhesive and covers the spine from head to tail.³⁰

29 Results from the survey attest to this practice; with only a few exceptions, all spines are lined. See chapter 4.

30 Different kinds of adhesive were used, such as starch made from wheat, rice, or the dried and ground root of the asphodel plant. Gums were used as a binder for pigments, though they could have been applied as adhesive in bookbinding. The historic sources do not specify the usage and particular application of adhesives in detail, but there is fragmentary information. For example, Ibn Badis describes the use of asphodel paste to adhere the paper linings to the textblock spine. See G. Bosch et al., *Islamic bindings and bookmaking* (1981), 49. Pedersen implies that the use of adhesives may vary by region; he cites a tenth-century traveller-bookbinder who mentioned the use of asphodel paste to make

Generally leather or textile was used, sometimes paper served as an additional layer. These spine-linings are crucial to the structure of the manuscript. They have a dual function; they not only stabilise the textblock, but also support the primary endband sewing and prevent the paper gatherings from tearing at the sewing stations of the endband tiedowns, as the lining material covers the full length of the spine. Moreover, the lining usually extends past the width of the textblock spine by several centimetres on each side. These extensions are generally used to strengthen the board attachment, by adhering the flanges onto the inner side of the boards. Although the application and function of both cloth and leather spine-linings are essentially the same, the two materials differ in their subsequent treatment of the flanges and the finishing of the inner joints.

According to the survey data (see chapter 4, 'Spine-lining'), in the majority of cases in which a textile was used, the lining extends over the sides of the textblock spine and these flanges were used to strengthen the attachment to the boards. These cloth joints were then covered by means of the stub from the doublure hinge or an additional inner joint of paper or leather (see also the drawing fig. 23). Alternatively, an additional bifolio could be pasted along the gutter of the outer gatherings of which the outer leaf was applied as a pastedown. As a result, these cloth flanges are not directly visible, unless the joint is damaged (fig. 64). Only rarely do we find visual proof that the textile flanges were pasted onto the outside of the board. When applied in that way, the cloth supports the board attachment but does not cover the inner joint (see fig. 75 below).

Another method encountered far less frequently in this study involved pasting the textile flanges onto the outer folia, then covering the fabric with the doublure stub or an additional strip of paper, or sometimes leather. In cases in which this method was evident, the extending flanges were always cut relatively short (fig. 65, see also the drawing in fig. 24). Obviously, in these instances the flanges do not function as reinforcement for the board attachment; this raises the question of why this manner of working was employed. Perhaps, over time, the frequent delamination of the textile lining from the textblock spine prompted binders to rethink this practice. This delamination process could have been speeded up by frequent use: the spine would have to curve in a hollow and the flexing of the joint would put stress on the attachment of the lining to the textblock. By adhering the flanges onto the outer leaves of the textblock—instead of on the inner boards—at least this tension would

pasteboards or apply doublures in Palestine, whereas he used wheat starch for the same procedures in Yemen. J. Pedersen, *The Arabic book* (1984), 103.



FIGURE 64 *Or. 755 (1612). Damage in the joint of the marbled paper doublure with a stub reveals the cloth flange underneath. As the inner joint is completely torn, it may not be immediately clear that this cloth is the extension of the spine-lining. The arrow points at the cloth. The cloth pattern, visible on the left side of the joint, is only an imprint of the cloth in the layer of paste on the back of the torn marbled paper.*

not occur. Nevertheless, this reasoning does not explain why this particular method only seems to have been used for cloth spine-linings and not leather ones. Leather linings always appear to have been used for board attachments; I did not find examples of leather lining extensions pasted onto the textblock.

Nearly all cloth linings are of a tabby weave. Usually the warp or weave threads follow the direction of the spine, but there are a few rare examples in



FIGURE 65 *Or. 2686 (1844). The extension of the cloth lining was adhered onto the outer leaves of the textblock; it did not function in the board attachment structure. Now that the adhesive with which the leather was pasted onto the textblock spine has lost its strength, the paper joint has split. The remaining stub covers the cloth pasted onto the textblock's outer leaf.*

which the cloth was cut on the bias—a technique that guarantees additional tensile strength in the joint (fig. 66). Many textiles used for spine-linings are undyed, plain (unbleached and undecorated) fabrics. It is understandable that the least expensive cloth was chosen, as the material was used for strength and functionality, and, as noted above, was not meant to show after the binding was finished. Therefore, it is interesting that coloured fabrics, often reddish or blue, are encountered quite regularly, as are blue chequered or striped patterns. Occasionally, I also found a block-stamped design.



FIGURE 66 *Or. 398 (1571). The textile spine-lining was cut and used on the bias. The damage to the leather joints gives visual access to the spine-lining; the arrow points at the threads of this cloth.*

When leather was used to line the textblock, it always extends past the width of the spine and the flanges serve as a structural component like most textile flanges. But, unlike the textile spine-lining, these inner joints were not covered. They were kept visible, and apparently appreciated as a decorative binding element (see also the drawing in fig. 20). When the doublures are made of paper, these inner joints of leather contrast nicely (fig. 67). However, when leather was also used for the doublures, generally a similar piece of leather (in structure and colour), was chosen. From this custom, and the high standards of craftsmanship, it follows that the overlap between the leather spine joints and the doublure is very subtle, and the seam is often hard to detect. This creates the visual effect of a ‘continuous doublure’ (one piece of leather used as the lining and the doublures) (fig. 68). Such ‘continuous’ doublures, which are in fact the flanges of the lining extending all the way to the front edge of both boards (and indeed, often the envelope flap as well), do occur, but are not as common. Technically, they can be made of one or two pieces of leather, in the latter case the pieces overlap on the spine (fig. 69). It is difficult to determine



FIGURE 67 Or. 930. The extending side of the leather spine-lining is pasted onto the inside of the board. A part of it is visible as the inner joint, the part underneath the doublure caused discolouration of the paper due to the acidity of the leather.



FIGURE 68 Or. 1065. Detail of the front doublure. The overlap between the leather joint (the flange of the spine-lining) and the doublure is obscured by the gold lines; the edge of the doublure is just visible on their left side. A slight swelling of the doublure to their right betrays the edge of the leather flange underneath.



FIGURE 69 *Or. 731 (1588, Egypt). Leather spine-lining in two pieces, both covering the textblock spine. The parts extend over the joint up to the fore-edge, thus forming the doublures. Note the primary endband warps passing through both layers, now causing damage to the delaminating spine-lining.*

the preferred method because the evidence is only visible when the textblock spine is accessible because of damage.

In a few instances, the spine-lining material was cut along the shoulders of the textblock, in which case there are no flanges. At this stage, we can only speculate about whether this feature should be attributed to a certain tradition, or if it relates to a rebinding method for manuscripts that maintains the original sewing and lining, but not the original flanges, which may have been torn or remained stuck to the covers of the first binding.

Unsewn Manuscripts with Wrapper Bindings

Lastly, I must mention a connective method that does not involve sewing. One group of manuscripts has proper gatherings that had never been sewn, although there are spine-folds that could have been sewn. In many ways, the bindings of these manuscripts are similar to those of sewn Islamic manuscripts. The treatment of the textblock as well as the accompanying wrapper binding suggests a method of assemblage that was chosen with a purpose. The fold-lines in the gatherings have no holes to indicate a former sewing structure and there are no endbands. The position of the gatherings is secured only by

two strips of leather or cloth that are pasted onto the textblock spine; these strips extend the width of the textblock spine with approximately a centimetre, at the front and back, and these extending sides are pasted onto the outer textblock pages. The edges of the textblocks indicate some treatment: they are smooth and all the gatherings are cut to the same size. The manuscripts are further protected by a wrapper cover that fits perfectly, but is not connected to the textblock with adhesive or by any other means. When the connective strips are preserved and intact, they reveal that they were not used as sewing supports and were not connected to the wrapper bindings. In fact, the wrappers themselves are completely finished, their interior shows no indication of being a half-product, the inside of the leather spine is covered with either textile or paper and sometimes even a board (the width of the spine) has been applied. From the exterior, these manuscripts look just like their sewn counterparts, but they clearly form a distinctive group (figs. 70, 71).

In the historic literature, the custom of leaving the gatherings unsewn, keeping them together with a protective wrapper binding that has all the features of an Islamic-style binding, is not mentioned.³¹ However, quite a few such manuscripts have been preserved and there are samples not only in the UBL but also in libraries in Italy,³² Turkey, Egypt, Algeria,³³ and Michigan.³⁴ At present, it is unclear why and where these manuscripts were produced.³⁵ Economic reasons may have been involved, since refraining from sewing and adding an endband would have saved substantial time and cost, yet the manuscripts could still be traded, transported or stored in this fashion. Intensive use would have been impractical, but the custom could be related to copying practices; loose, exchangeable gatherings promote the efficiency of a copying workshop. Another hypothesis is that the unsewn but neatly supported and wrapped gatherings were stored like this in a bookseller's shop, while awaiting customers. What is clear is that the physical form of this kind of manuscript is not coincidental; it is part of the general tradition, although it cannot yet be fully explained. In order to learn more about this particular group, and to explore the hypothesis

31 Nor was this type of manuscript mentioned, as far as I know, in the secondary literature until I described it in 'The conservation of the Middle Eastern manuscript collection in the Leiden University Library' (2008), 68.

32 Personal communication with Sara Fani, National Central Library Florence, at a COMSt workshop (20 December 2010).

33 N. Baydar, 'Newly identified techniques in the production of Islamic manuscripts' (2010), 70.

34 E. Kropf, 'Historical repair, recycling, and recovering phenomena in the Islamic bindings of the University of Michigan Library' (2013), 26–28.

35 The twenty-eight manuscripts identified in the UBL are relatively recent, mostly nineteenth-century manuscripts.



FIGURE 70 *Or. 14.204b* (1859), *Or. 14.201* (1853), *Or. 14.209* (1856, Cairo). Unsewn manuscripts in wrapper bindings. The upper left manuscript retained its connective leather strips. Discolouration on the other spines bear witness of similar connective strips, now lost.



FIGURE 71 *Or. 14.427* (nineteenth century). An unsewn manuscript in a wrapper binding. The connective strips consisted of black cloth. The interior of the binding demonstrates the degree of finishing of the wrapper: the leather covering is turned-in at the head and tail, also across the spine, and the interior is fully covered.

that this relates to copying schemes and/or the practices of booksellers, it is necessary to study these manuscripts in more detail, and to locate as many examples as possible. It is therefore important that conservators and collection managers be aware of this type of binding, so that they make decisions to box rather than bind these manuscripts.³⁶

Covering and Board Attachment

*Full Leather Bindings and the Use of the Two-piece Technique*³⁷

The numerous bindings that are completely covered in leather give the impression that they form a single category, but when we look carefully at the way they are made, a remarkable difference in construction comes to light. Many full leather bindings show an overlap on the spine; these bindings were covered with two pieces of leather instead of one. The leather edges, overlapping on the spine, were finely pared and the seam is hardly recognisable, clearly it was not meant to catch the eye. Usually both parts cover the spine width, and the edge of the top layer lays close to one of the joints (figs. 72, 73). Why did some binders use two pieces of leather to cover the front and back board separately, while others used one piece?

There must have been practical and technical reasons for this practice. Format could have been an issue. If the technique was intended for outsized books too large for one piece of leather, we would find the two-piece technique mainly on large volumes. However, quite a few original bindings in the UBL contradict this hypothesis. The majority of the bindings made with this technique are of modest size; the average is around 25 centimetres high and 18 centimetres wide.³⁸ Furthermore, it seems quite unlikely that there were not enough large-sized pieces of leather available to cover small manuscripts as, for instance, Or. 1392 and Or. 1212 show (fig. 73).³⁹

It can also be argued that the technique is an economic way of using smaller pieces of leather. In that case, we would expect to find examples on which different kinds of leather were used, with a dissimilar structure caused by

36 The fear of losing unsewn textblocks with wrapper bindings to well-meaning collection managers and binders is certainly not hypothetical. Baydar describes an example of such a 'correction practice,' see 'Newly identified techniques in the production of Islamic manuscripts' (2010), 70.

37 Initially, I used the phrase 'two-pieces technique,' but this has been changed since it mixes singular and plural words and a 'two-piece something' is more commonly used in English. With thanks to Jake Benson for bringing this up.

38 The largest exemplars are 36 × 28 or 38 × 25,7 centimetres.

39 Or. 1392 measures 9,3 × 7,7 × 2,8 centimetres, Or. 1212 measures 12,7 × 9,3 × 2 centimetres.



FIGURE 72 *Or. 1065. The leather covering of the back board and flaps was adhered first, and the part adhered onto the spine is overlapped by the second piece of leather, extending from the front cover. The seam lies close to the back joint.*



FIGURE 73 *Or. 1392. A small manuscript (9.3 × 7.7 × 2.8 cm.) covered with the two-piece technique; the seam of the two pieces of leather is visible above and below the right edge of the paper label.*

differences in the hair follicle patterns of the skins, or leather of slightly different colours. This hypothesis also does not hold. None of the bindings with the two-piece technique that I examined in this study show differences in the two pieces of leather used on a single manuscript. The use of leather from one and the same hide for every single artefact is remarkably consistent. This implies that the processing of two pieces of leather was not required for economic reasons. Indeed, the binder already had other uses for such smaller pieces of leather; he used them to cover the spines and edges of *çaharkuşe* bindings and for spine-linings and the inner lining of the fore-edge flap. Additionally, they could be usefully applied to repair bindings.

The rate of recurrence of this method is so large that it points rather to a working routine that was part of the Islamic bookbinding tradition.⁴⁰ Therefore, we must look for other reasons to explain the frequent use of the two-piece technique.

The technique is, remarkably, not discussed in the specialist literature, so suggestions for the rationale behind the technique were only found in an article by Kristine Rose, who, to my knowledge, was the first to remark on this method of leather application.⁴¹ Rose suggests it may be specific to Turkish manuscripts. Yet it is a rather common technique found in many Islamic manuscripts and is not confined to Turkish bindings, as the survey results attest. It is probably often due to the neatly pared leather, that the technique is rather difficult to detect visually; therefore, this method of leather application has likely been overlooked by many conservators and other researchers.⁴² Frequently, the fact that the full leather binding is actually made of two pieces of leather is revealed only when the binding is damaged or the leather starts to deteriorate.

40 Although 11 per cent of the full leather bindings are so heavily damaged that the application method is not detectable, 40 per cent of the remaining full leather bindings are made of two pieces of leather with an overlap on the spine. It should also be born in mind that of the full leather bindings categorised as being in one piece, some specimens may actually consist of two pieces of leather, applied so expertly and preserved in such good condition that the technique was not recognised despite meticulous examination.

41 K. Rose, 'Conservation of the Turkish collection at the Chester Beatty Library' (2010), 47–48. However, the existence of the technique was common knowledge to contemporary binders in Turkey, as was attested by a posting on the BookArtsWeb, 1998. Online at <http://cool.conservation-us.org/byform/mailling-lists/bookarts/1998/04/msg00364.html> (accessed 8 June 2017).

42 For example, Max Weisweiler, who meticulously studied many bindings, failed to see the two pieces of leather on several of the Leiden manuscripts, Or. 190, Or. 270, Or. 539, and Or. 590. He described them as "aus einem Stück gearbeitet" [fashioned from a single piece of leather], while he remarked on other specifics such as the possible repair or renewal of the leather spine or edges, or a replacement flap. M. Weisweiler, *Der islamischen Bucheinband des Mittelalters* (1962), 178–179, 185–186.

This is, presumably, why relevant western literature prior to Rose's article is lacking.⁴³ Two of the historic sources do, however, refer to the technique.⁴⁴

In order to understand the application method of the two-piece technique, we have to consider the practical advantages. When a binding is prepared separately from the textblock it might be easier to tool or otherwise decorate the leather. The cover cores are not solid boards but laminated paper sheets. When placed on the somewhat springy textblock, these materials may not offer the firm support required for tooling and stamping. The delicate and highly elaborate tools that were used for this kind of leather decoration would have necessitated quite some pressure, as we can detect from the frequent imprint in the boards or cuts in the leather along the edges of stamped patterns. When the separate, loose covers were worked on a hard surface it would be possible to apply firm and even pressure with these tools, thus improving results.

At the same time, if the integral cover were prepared separately (as in a case-binding), there is an important drawback. Great precision would then be needed to ensure that the separately prepared cover fits the manuscript. If the spine-leather were a bit too wide or too narrow, the boards would either extend beyond the fore-edge or fall short by several millimetres, in which case the fit of the envelope flap would cause problems as well. Also, the property of the leather, to expand when wetted and shrink when drying, had to be anticipated. Equally important are the exact angles at which the boards would have to be adhered to the leather. If the angles deviated only slightly the boards would not line up with the edges of the manuscript. So, although making a case-binding is feasible, there are risks in the procedure. These are, however, easily overcome by using a different method: the two-piece leather technique. With this method, the two boards are prepared separately and individually,

43 In a very different context, the technique is mentioned by the seventeenth-century traveller Jean Chardin, *Voyages en Perse, et autres lieux de l'Orient* (1711), 4:259. The chapter provides an overview of many different professions, among them, the binder. Although the description is very brief, it reveals a condescending view of the Oriental tradition: "Les relieurs travaillent fort mal aussi; & ce qu'on aura peine à croire, c'est qu'ils ne sauroient faire la couverture tout d'une piece. Ils la font de deux pieces qu'ils collent sur le dos, lequel est toujours plât, ne le sachant pas faire rond. Et quoi qu'ils collent ces pièces fort proprement, la collure ne laisse pas de paroître avec le tems." I elaborate on this text in the literature analysis of Yves Porter, chapter 3, as he first used this source in the context of understanding Persian manuscript culture and materials.

44 G. Bosch et al., *Islamic bindings and bookmaking* (1981), 66, quoting al-Sufyani: "Then when you have finished making the stamp fold the edges of the leather upon the edges of the pasteboard—so when you finish the work of the first cover lay it upon the marble slab before you.... While the book rests on the first cover, the second board is pasted and covered with leather." A. Gacek, 'Arabic bookmaking and terminology as portrayed by Bakr al-Ishbīlī' (1990–1991), 109: "The next step ... was to pare the leather and mount it on the boards.... It was done with one or two pieces of leather."

each one is covered in its own piece of leather, the back board with the fore-edge and envelope flap attached. The boards are attached to the textblock one by one, with the leather that extends from the spine edge, which is adhered onto the textblock spine.

Thus, this method allowed for a controlled positioning of the boards on the textblock and enabled the binder to concentrate on the delicate tooling of the covers. The boards were covered with leather, the exterior decorated and only after that were the individual boards positioned and attached to the textblock by adhering them with the leather that extended to the spine. The leather at the spine side was pared until it was extremely thin at the edge, though this edge was not necessarily straight. Once both parts were adhered to the textblock spine, they were rubbed together on the spine with a bone-folder or similar tool; after this the overlap was almost invisible. The use of similar pieces of leather added to the subtle result. After the boards were thus attached, the binder secured the construction by pasting the flanges of the spine-lining onto the inside surface of the boards, and then applying the doublures.

The two-piece technique was typically suitable and applicable for full leather bindings with covers that were tooled or stamped. In fact, the technique seems so inappropriate for *çaharkuşe* bindings that we assume that the few occurrences made with two strips of spine leather were made that way rather habitually.⁴⁵ The existence of these types is discussed below, in 'Tabbed partial leather bindings.' Without primary documentation indicating why the two techniques (one and two pieces of leather) were both used, over a period of several centuries, to produce full leather bindings, we must consult the manuscripts themselves, as physical examination may provide clues that shed light on the decision criteria. It is important to keep in mind that the techniques may have been interchangeable, and preference for one or the other may only have been determined by culture or tradition, or, on a more individual basis, through masters passing it on to the apprentices. Although questions remain with regard to the development of the two-piece technique, to understand the Islamic manuscript tradition it is important to be aware of its use and prevalence. This is an important issue because the Islamic manuscript structure is often designated as a case-binding, meaning that the binding was made as a

45 Since *çaharkuşe* bindings are generally executed with paper panels covering the boards, which are only rarely tooled, the initial reason to use the two-piece method cannot be the logical explanation. For purely practical reasons, the two-piece technique seems unsuitable for the making of *çaharkuşe* bindings when the boards would be covered apart from the textblock, prior to attachment to the textblock: only a small part of the leather strip for the spine was adhered onto the board and this would easily detach if the boards were thus prepared. The two-piece technique in these cases seems rather to fit in the category of the built-on bindings.

separate entity, apart from the textblock, and was only applied in the last part of the process of bookbinding. The two-piece technique contradicts this typification, even though the two separate covers are partly prepared in advance. In essence, the two-piece technique is a built-on structure, since the cover is assembled on the textblock. In addition, Islamic bookbinders used other techniques that can be classified as ‘built-on’ bindings, as explained below.

‘Built-on’ Bindings

Above, the two-piece technique is described as a method used to cover the loose boards individually and before applying them to the textblock. The development of this method—which appears to be unknown in other bookbinding traditions in the region—can be explained by relating the advantages of this practice to the high standard of binding decoration that we find on the earliest examples of the two-piece technique.⁴⁶ It is, however, also feasible that a full leather binding, using the two-piece technique, was built on the textblock. The boards would then not have been prepared and covered with leather in advance, apart from the textblock. Instead, each piece of leather would be applied to the board and textblock spine, in one continuous action. For this procedure, the board would have to be positioned on the textblock, though its attachment to the spine-lining flange was not required in this stage yet. The resulting structure of either application method is similar, though the latter would have effected the decoration because, when the leather was applied to the boards, positioned on the textblock, and adhered to the spine at the same time, the tooling would have to have been executed on the assembled binding.⁴⁷

This method of building and assembling the binding on the textblock in separate stages is not only used for full leather bindings made with the two-piece technique; it can also be found with full leather bindings covered in one piece of leather, and it was used to make partial leather bindings. This contradicts the common assumption that Islamic bindings were case-bindings; therefore, it is necessary to examine the evidence that was found and the rationale behind the use of the built-on technique in detail.

For *çaharkuşe* bindings in particular, it makes sense, technically, to manufacture them in this fashion. The boards were positioned on the textblock, then the leather was applied—first to the textblock spine, then folded over

46 See chapter 5; the two-piece technique was found on several elaborately tooled Mamluk bindings.

47 It is certainly conceivable that over the sixteenth and seventeenth centuries, while the art of embellishing bindings lavishly in gold was declining and the partial leather binding became more common, the original motive for developing the two-piece technique was gradually forgotten, and this led to changes in the procedure.

the joints and onto the boards. Theoretically, partial leather bindings could be made separately from the textblock (as a case), but of course the same argument that applied to full leather bindings would apply here as well: the risk is that the spine leather and joints with the boards would not exactly match the textblock spine, in which case the boards would not fit or close properly. And, when the textblock does not have exactly straight angles, it is not easy to make a case-binding fit beautifully. But a particular disadvantage of making a partial leather binding as a case is the substantial instability of the product. The overlap of the spine leather on the board edges is so small that it is highly unlikely that the cover was made this way. At this point in the construction, there would be no other material to stabilise the cover on the inside; and, as noted, the leather was not turned in over the joints (which might have steadied the binding, had it been made as a case). The chance that the boards—particularly the back board with the flap attached—would detach from the small leather overlap is evident. When, in contrast, we imagine the making of a partial leather binding as a built-on binding, we do not encounter such complications. The application of the covering leather, first to the textblock spine and then to the boards (put in place on the textblock or even already attached to the flanges of the spine-lining) is a feasible, controllable and effective procedure.

In advance of the analysis of the five historic texts (chapter 3), it is useful to mention here that two of the primary sources indicate the variant method of construction, in which the cover attachment was divided in stages. Ibn Badis clearly describes the board attachment to the textblock prior to the application of the leather. Ibn Abi Hamida points to the same method; he describes mounting the leather on the spine, and only then over the front and back covers.⁴⁸ It is interesting that this *built-on-textblock* structure is mentioned in historical sources, since this is contrary to what later became the accepted classification of the archetypal construction, namely, the case-binding. The inappropriateness of that designation is discussed further below, under ‘A problematic term: Case-binding.’ It is also noteworthy that that this built-on procedure is referred to in the primary sources because, when these treatises were written, the *çaharkuşe* or partial leather covering technique was not yet in vogue; only full leather bindings were being made. Thus, these written accounts confirm that the technique of assembling the cover on the textblock was used for full leather bindings. For practical reasons, it is perfectly understandable that this technique was commonly used to manufacture bindings in general. But, can physical evidence be found to prove that this method was actually used?

48 For a more thorough description and full references see chapter 3, the sections on Ibn Badis and Ibn Abi Hamida.



FIGURE 74 *Or. 20.400 (1749). The leather turn-ins at the head and tail cover the paper stub, which was pasted over the cloth flange crossing the inner joint, prior to the turning-in of the leather covering.*

When looking for evidence that boards were attached prior to the covering material, the order of layers found on the inside of the joint reveals much about working methods. If a binding was prepared separately from the text-block, except for the doublures and inner joints which are formed by the spine-lining flanges, we would expect to always find the flanges on top of the covering material turn-ins.⁴⁹ However, in several manuscripts the sequence of materials encountered is reversed (fig. 74). This indicates that the boards were

49 In fact, this sequence of materials is fairly common. From the making of mock-ups, it indeed appeared practicable to apply the leather on boards and textblock spine first, and



FIGURE 75 *Or. n.550 (1851). The extending sides of the cloth lining are pasted onto the outside of the boards, thus strengthening the board attachment.*

first attached to the flanges and the covering material was only turned in over the board edges afterwards; the turn-ins therefore cover part of the flanges and possibly even the additional inner joints.

We find further proof of the usage of the built-on method in bindings with the textile flanges pasted onto the outside of the boards. Although examples are rare, as this characteristic is only visible when damage gives access to the structure, it is clear that it was only possible to use this method of attaching the boards when the covering material was not yet applied. Therefore, these rare examples prove that the boards of these volumes were first attached to the spine-lining and covered afterwards (fig. 75).

There is one more indication that the built-on method was widely used, namely, the characteristically tabbed leather spine covering that is explained below.

only then adhere the extended sides of the spine-lining onto the inside of the boards, thus covering the turn-ins.

Tabbed Spines

We can learn more about how Islamic bindings were actually made by examining them in more detail; especially the investigation of the leather application and the method used to finish the head and tail of the spine offers new insights. As explained above, in many cases the spine leather protrudes at the head and tail, forming a tab that is frequently moulded over the endbands to protect them (figs. 76, 77). When there are no tabs present, the leather is, or appears to be, cut off straight at the board edge. Here we must make a reservation because it is hard to establish whether the spine ending is intentionally flush with the boards, or if damage of the tabs forced owners or users to cut the tabs in order to prevent further damage. Either way, it is clear that in the flush version the leather was also not turned-in on the spine. Turned-in spine endings appear to be an exception, irrespective of the covering method (leather in one piece, leather in two pieces, or partial leather bindings). In and of itself, this is interesting because it supports the assumption that the Islamic binding structure is not a case-binding. To understand this, we must visualise the stages necessary for covering the boards.

If a binding was prepared separately from the textblock, it would have been easiest to turn-in the leather at each side of the cover, head and tail, over the front and back board edges at the same time. As a result, the leather in between these boards that would later cover the textblock spine would then be turned-in at the head and tail as well; the leather folded over would pass continuously across the spine from cover to cover. However, as noted, we almost never encounter such a turned-in spine ending. The other, predominant, types of spine endings (i.e., the tabbed version with the leather extending beyond the board edges and the one cut flush with the board edges) would require extra treatment if the cover were to be made as a case, separately from the textblock. The leather would have to be cut at both joints adjacent to the spine before it could be turned in over the board edges while leaving the spine leather to extend beyond the endbands. An additional horizontal cut would also be needed if the leather was not left to extend in a tab. Since we can assume that binders economised and refrained from unnecessary actions, we must ask what good reasons a bookbinder could have had to make bindings in a way that seems so unlikely.⁵⁰

50 Another interesting question is why binders would have made turn-ins while covering the fore-edge flap with leather, and created tabs at the part of the leather that was to cover the textblock spine—assuming that the cover was made as a case-binding. Making a model of a case-binding with a flap immediately illustrates that it is easiest and indeed the most logical way to treat both parts of the binding (the leather covers the fore-edge flap and the spine) similarly. I believe that, had the bookbinders made the binding as a separate entity



FIGURE 76 *Or. 47 (1559). Part of the tab is torn and now missing but the remaining half is neatly folded over the endband.*



FIGURE 77 *Or. 10.783 (1869). The tab was moulded over the endband and slightly indented with a tool along the endband's edge. When the incision was made that allows the making of the turn-ins over the board edges, the leather was cut a little too deep.*

It could be argued that this more elaborate technique was chosen because bookbinders wanted to produce a compact and straight codex form; the binder may have wanted to avoid the additional swelling of the spine at the head and tail that could have been caused by turn-ins. However, the excellent paring skills of these binders (as with the almost invisible seam along the spine where the two pieces of leather were joined) almost certainly rules out this explanation. Furthermore, from the investigation of wrapper bindings on unsewn manuscripts, we learned that these wrapper bindings all have turned-in spine endings. Yet, the technique is not found in attached bindings, so evidently it was used very selectively and intentionally. So why did binders choose to cut the covering leather at the joints as described above?

Let us imagine the making of a cover when it is built upon the textblock, as opposed to a case-binding. When we consider the handling of the leather as it was applied to a textblock spine, with the boards either already attached (to the flanges of the lining) or at least positioned on the outer leaves of the textblock, it makes sense that the leather on the spine was not turned in. After all, the spine-lining covered the textblock spine from head to tail and the covering leather was pasted directly onto it; the leather then crossed the joints and was pasted onto the boards. To turn the leather in at the head and tail of the spine, it would be necessary to loosen the already adhered leather at the outer spine ends, thereby also causing tension on and possibly damage to the tiedowns of the primary endband sewing, for they pass over the spine-lining at the spine ends. Binders avoided such a risk by leaving the leather to protrude at the head and tail. One of the historic treatises on bookmaking clearly suggests that after the leather was pasted onto the spine and the outside of the boards, it was first left to dry before the turn-ins were made.⁵¹ This method certainly did not make it easy to make turn-ins at the head and tail of the spine. Apart from that, in order to make the turn-ins at this stage, when the full-length flanges of the spine-lining were already adhered onto the inside of the boards, it would also be necessary to incise the textile or leather flanges of the joint at the head and tail. Thus, making turn-ins at the head and tail of the spine entailed risking damage to the endband tiedowns and weakened the structure. Instead, the alternative—cutting the extending covering leather at the joint, turning it in over the board edges but leaving the leather spine protruding beyond the

prior to attaching it to the textblock, the leather of the spine would have had turn-ins at the head and tail side.

51 “Turn-ins are done as a final step when the spine has satisfactorily adhered to the leather,” A. Gacek, ‘Ibn Abi Hamidah’s didactic poem for bookbinders’ (1992), 42.

edge—seems sensible and practical. (Fig. 77 illustrates the method as the cut was made a millimetre or two deeper than necessary.)

The extending spine leather may have been too long or uneven, and this may have prompted the bookbinder to trim the tab. Examples of tabs that seem to have been cut to size in situ have also been found. In these cases, a thin knife cut is visible at the head and tail edge just beyond the endband; this seems to point to a method in which the protruding spine leather was folded over the endband and then cut, using the textblock edge as a support.

Tabbed Partial Leather Bindings

In view of the discussion of built-in versus case-bindings, it is especially edifying to consider the making of a *çaharkuşe* binding. The leather was smeared with paste and then adhered to the spine. It was rubbed with the thumb or a bone-folder, after which the leather was folded over the joints and onto the boards that were positioned on the textblock. Since the overlapping part of the leather on the boards was only small, generally a few millimetres but sometimes up to one and a half centimetre, the binder probably did not make the turn-ins until after the adhesive had dried and the leather was firmly set. Only then did he proceed with turning the leather at the head and tail over the edges of the board, onto the inside of the boards. Otherwise, the small leather strip would not have stayed in place because, to make the turn-ins, the board needed to be lifted and that movement would cause the still moist leather to detach from the board edge. As explained above, in order to make the turn-ins over the board edges after drying, it was necessary to make an incision in the leather at the positions of the joints, since the complete adhesion of the spine leather onto the textblock spine meant that a turn-in could not be made continuously over the spine (see also figs. 216–219, chapter 6). The leather at the outer ends of the spine was thus left to extend over the endbands. The appearance of so many *çaharkuşe* bindings with tabs indicates that this was a standard practice.⁵²

The theory that partial leather bindings were built onto the textblock (instead of being made as a case-binding) is also supported by the fact that a fair number of them were made in the two-piece technique.⁵³ It is clear from envisioning the manufacture as a case-binding that such a procedure would not have been favourable: the strip of leather needed for the spine of a partial

52 Data on the occurrence can be found in chapter 4, under 'Treatment of the spine at the head and tail' and chapter 5, 'Tabbed spines.'

53 Twenty-five examples of *çaharkuşe* bindings made with the two-piece technique were recorded in the survey.

leather binding is small and using two strips of leather would only complicate the process. Moreover, as the boards of partial leather bindings are rarely tooled, this covering method did not require the two-piece technique.⁵⁴ Nevertheless, it is easily conceivable that the boards were prepared separately, up to the application of the spine leather (e.g., with the flap attached and all board edges covered). However, with the *çaharkuşe* technique, the part of the spine leather that is pasted onto the board edge at the joint is minimal; the leather strip might easily dislodge when it was applied before the board was attached. It therefore seems more plausible that the board was positioned on the textblock, and a strip of spine leather was applied to the textblock spine and board edge in one go. This relatively simple procedure certainly does not require the use of two separate strips of leather, one for each board. Thus, a single occurrence of a *çaharkuşe* binding made with the two-piece technique could be dismissed as an oddity, but given the large number in the UBL collections, we cannot dismiss the phenomenon dismissed as an aberration. The examples may, therefore, indicate that some binders rather automatically used techniques they had learned and applied when covering bindings in full leather, without adapting their approach to this different design. This theory could suggest that the two-piece *çaharkuşe* bindings mainly occurred shortly after the introduction of this partial leather covering technique, when binders were not yet accustomed to the procedure, but the survey results show that this is not the case. Partial leather bindings made with a two-piece technique were made throughout the manuscript period.

Tabbed 'two-piece' Bindings

In conclusion, the existence of tabs argues in favour of the method of 'building' the binding on the textblock for partial leather bindings and the full leather coverings made with one piece of leather. But how does the occurrence of tabs correspond to the two-piece technique on full leather bindings? The best way to fathom the ways of craftsmen is often to retrace their steps. Therefore, I made models, and to get this specific structure right it was necessary to 'try the individual covers' on the textblock. That is, in order to be sure that the two overlapping pieces of leather do indeed overlap on the spine, close to one of the shoulders and not beyond (in the joint where the flexing material would easily be damaged), it is best to apply the leather to the pasteboard when positioned

54 As we see, bindings with leather spines and lacquer boards are the exceptions. In those cases, the covers *are* prepared in advance and provided with a strip of leather with which they are later attached to the textblock and then these strips of leather also cover the spine.

on the textblock and then over the joint, on the spine.⁵⁵ Subsequently, the spine leather can be marked so that it extends precisely far enough. In this procedure, it is logical to make the incision in the leather at the joint at this point. The cut is made a few millimetres away from the edge of the board so the edge of the joint is covered at the head and tail, and its exact position can be clearly established when the board is still positioned on the textblock. This allows for the turn-ins to be made later, and leaves the leather for the spine long enough to cover the spine and endbands. After that, the leather, with the board attached, is taken from the textblock for the final paring. As a consequence, the leather is already adhered to the board but not yet turned-in. According to al-Sufyani and al-Malik al-Muzaffar, paste is applied to the boards rather than to the leather, a method very suitable for this working procedure.⁵⁶ The turn-ins were made either before or after the tooling was carried out, but presumably before the individual covers were returned and attached to the textblock. After attaching the two separate covers to the spine, both pieces of spine-leather extend but because they are pasted together they form a single tab (at both the head and tail).

Indeterminate Structure

It is evident that for certain structures the technique of leather application or the function of the spine-lining provides decisive evidence for a technical classification of the structure. Both full leather bindings in the two-piece technique as well as partial leather bindings are in some way built upon the textblock. However, some full leather bindings bound in one piece of leather do not provide such direct evidence, even though the tabs suggest a built-on technique; as a result, their structure cannot be classified conclusively. Technically speaking, and based on the visual evidence, these bindings were either made as a separate entity, or the covers were built on the textblock. As the latter appears to be the general production method, it seems reasonable to expect that those bindings were constructed as built-on bindings as well, despite the remote chance that they were made as a case.

55 This is, in fact, exactly what al-Sufyani describes: the boards are positioned on the textblock temporarily, in order to apply the leather pieces. See his chapter 3, on "how to tie the quires of the book, the pressing, the covering with leather, designing its center, how to work the headband" in M. Levey, *Mediaeval Arabic bookmaking* (1962), 52–53.

56 G. Bosch et al., *Islamic bindings and bookmaking* (1981), 66–67; A. Gacek, 'Instructions on the art of bookbinding attributed to the Rasulid ruler of Yemen al-Malik al-Muzaffar' (1997), 63.

A Problematic Term: Case-binding

A Matter of Definition

As the literature analysis in chapter 3 shows, the modern literature on Islamic manuscripts often characterises the bindings as case-bindings. The difficulty with this term is twofold. Firstly, the definition is not applicable to the structures commonly used, the two-piece technique and the other built-on bindings, as argued above. Secondly, the term, as it is used for western case-bindings, generates confusion similar to the use of the terms ‘half-leather binding’ or ‘headcap,’ as discussed under ‘Terminology’ at the beginning of this chapter. However, since the use of the term is widespread, its inappropriateness needs further explanation and argumentation.

To start with the definition: western book descriptions draw a distinction between inboard binding and case-binding. Inboard binding is considered craft bookbinding; each binding is unique since it is made individually and constructed onto the textblock. Case-bindings, however, are associated with edition binding, although they are not necessarily made in large numbers. A case-binding is simply defined as a cover that is made (as a case) separately from the textblock and later attached by adhering the endleaves of the textblock to the inside surface of the boards of the case.⁵⁷ This generally accepted term also immediately brings to mind an archetype with a hollow back.⁵⁸

57 M.T. Roberts and D. Etherington, *Bookbinding and the conservation of books* (1982), 47. It was revised in 1994 and is also accessible online: <http://cool.conservation-us.org/don/don.html> (accessed 8 June 2017). The definition provided by Bernard C. Middleton points to the completed state of the case-binding, according to which the Islamic two-piece technique is clearly disqualified from being a case-binding: B.C. Middleton, *The restoration of leather bindings* (1998), 15: “Case binding. In a case-bound book, the cover is made separately from the rest of the book and put on in one piece, as distinguished from the type of binding in which the cover is assembled on the book.”

58 Several glossaries provide comparable definitions. For example, E. Diehl, *Bookbinding. Its background and technique* (1946, republished in 1980), 2:377: “Cased book. A book which is held to its covers, or casing, only by the means of pasted down end papers, which are sometimes reinforced.” See also J. Greenfield, *ABC of bookbinding* (1998), 14: “Case binding: A protective cover, used since the 1820’s, made separately from the bookblock. The bookblock is then attached to the case by gluing the hinges, sewing supports and paste-downs. The spine of the case is not adhered to the spine of the textblock.”

A much more nuanced definition is provided by *Ligatus*, a listing of terms for bibliographers and conservators, <http://www.ligatus.org.uk/lob/alphabetical> (accessed 8 June 2017). Here a meaningful distinction is made between case covers and case-bindings. *Case* (provisional definition for the *Ligatus* glossary): “A cover which is complete in itself before it is attached to a bookblock. It may or may not have boards and other components in addition to a cover but no part of it can have been attached to the bookblock separately before the cover was attached. In almost all recorded examples, the spine of the

Islamic bindings could hardly be more remote from this picture. Their cover spines are adhered to the textblock spine and the function of doublures cannot be compared with western endleaves since they rarely ever form part of the textblock. Thus, the question arises: What exactly is assumed when this designation is used for Islamic manuscripts?

Counter-evidence in the Structure

Although the method of producing a full leather binding with two pieces of leather was common, the technique is overlooked and seldom referred to. It is, however, significant to acknowledge its widespread use. Ultimately, it is clear that the two-piece leather technique is not a case-binding structure, and it cannot be passed off as such because the covers are clearly made separately and then individually applied to the textblock, one after the other. As explained, this technique was likely developed in an effort to improve the quality of tooling and to avoid the risks of an imperfect fit. The fact that so much care was taken to pare the leather edges thinly and evenly, to prevent the seam from being visible, is evidence of excellent and accurate craftsmanship. Conversely, the label case-binding suggests a working procedure in which separate bindings are produced, in a relatively quick manner, by individual craftsman not necessarily involved with the treatment and sewing of the textblock. While this perception adds to an image of economic book production, it also misrepresents the particular care taken to produce Islamic manuscripts and consequently underestimates the *métier* of the binders who worked in the Islamic tradition.

The Dual Function of the Spine-lining

As described above, the majority of Islamic manuscripts were sewn with a link-stitch, most often using two sewing stations. Consequently, there are no sewing supports that can be used to attach the boards, nor are the boards connected with the sewing thread in any way. The connection between the textblock and boards is therefore indirect; they are connected by means of the

case-cover is not adhered to the spine of the bookblock, but is left instead with a natural hollow back. In tacketed case-covers where the tackets hold the case-cover tightly to the bookblock across the spine, the natural hollow back may be closed, though no adhesive is used in this structure. Most case covers will be found on case bindings, but the covers found on longstitch bindings ... are also typically made in the form of a case from single pieces of parchment or cartonnage folded around the entire bookblock. They can therefore be described as case covers, but as the gatherings are sewn to them and they cannot be removed from the bookblock without cutting the sewing and taking the book apart, they cannot be described as case bindings."

covering material and the inner joints or hinges. In the majority of cases the latter are formed by the extended sides or flanges of the full-length leather or cloth spine-lining.

The dual function of the spine-lining is essential in this respect. The full-length lining is pasted on the textblock spine, covering it from head to tail, and the anchoring tiedowns of the primary endband sewing are only sewn after the paste has dried. Without the support of the lining, the gatherings would be much more vulnerable to tearing, and without the flanges, the board attachment is weaker. This twofold function of the spine-lining conflicts with the definition of a case-binding because the connection between cover and textblock cannot be broken without interfering with the sewn structure of the book.⁵⁹ When the binding comes away from the textblock there is nearly always severe damage to the structure and the textblock because the spine-lining is structurally connected to both. The covers themselves, however, are not necessarily harmed when separated from the textblock. In fact, they are sometimes preserved without their original contents; there are abundant examples of covers that have been reused. The term case-binding may have been introduced because of this; the cover appears, very deceptively, to have only a minimal, superficial connection with the textblock. But between the cover spine and the textblock spine sits the inconspicuous spine-lining, and its function is crucial to the structure of the construction. It seems that this characteristic alone indicates that it is not appropriate to classify Islamic bindings as case-bindings.

Photographs of the condition of Or. 1079, before conservation treatment illustrate how the damage typical of the construction can contribute to this confusion (figs. 78, 79). The sewing thread and the tiedowns of the endbands are still in place, yet the textblock has come loose from the binding, although the joints are not torn. The cover seems to have cleanly parted from the textblock. Therefore, at first glance it looks as if the cover was prepared separately from the textblock, and the spine leather was pasted onto the textblock spine (as the only attachment!), which has now come loose. Evidence on the spine-lining leather, however, proves otherwise. This spine-lining is now adhered to the inside of the covering leather, and, on close examination, damage is evident at the head and tail. Those parts of the leather at the outer ends are missing; these ends are still stuck underneath the 'outer tiedowns': the part of the endband

59 The second part of the explanation in the *Ligatus* definition illustrates this, using longstitch bindings as an example; see note 58 above. Although longstitch bindings are substantially different from the Islamic book structure, in that their cover spine is not adhered onto the textblock spine, the fact that the covers cannot be dismantled without damaging the structure is important to the applicability of the term.



FIGURE 78 *Or. 1079. The textblock is detached from its binding. The leather textblock spine-lining still remains adhered to the inside of the leather covering, grain side facing outwards.*

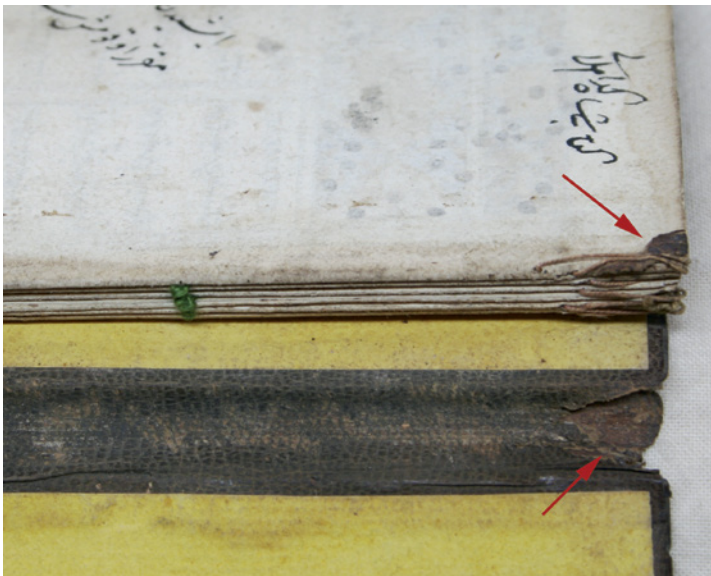


FIGURE 79 *Or. 1079. Detail of the spine at the head, which shows the damage to the spine-lining leather and the remnants of it that are still stuck underneath the tiedowns.*

warp threads that pass on the spine. This is where the torn parts of the leather are located. This clearly indicates that the primary endbands were sewn through the spine-lining and that the lining was once structurally connected to the textblock. The endbands were sewn *after* the lining was pasted onto the textblock spine, but of course *before* the leather exterior covering could have been applied. The flanges of the spine-lining were pasted smoothly onto the inside of the boards before the doublures were applied. In many cases, deterioration of the adhesive has weakened such constructions and once the adhesion becomes insufficient, tension on the tiedowns either causes damage to the threads or tears in the spine-lining material, which can result in the complete disconnection of the binding.

Misjudgement Caused by a Western Perspective

The use of leather as spine-lining material may have added to the confusion, for in the western bookbinding tradition the use of leather is almost solely reserved for covering the boards.⁶⁰ Moreover, Islamic binders applied this particular piece of leather in a way that is completely opposite to the 'western way,' that is, the grain side of the leather is adhered to the textblock. The reason to apply the leather thus is clear. The extending sides of the lining were subsequently used to strengthen the board attachment while part of these flanges remained visible as the inner joint. For aesthetic and practical reasons the outward surface of this small strip of leather in the joint is preferably the grain side. The grain side is usually the embellished side; moreover, when leather doublures are used, the grain patterns match nicely and the seam between the two pieces does not catch the eye. The practical reason for applying the leather in this particular way is that the inner joint is subject to flexing; the fibrous surface of the flesh side of leather would be more vulnerable to damage, delaminating and incrusting dirt.

Notwithstanding these good reasons, to western observers it is highly unusual to adhere leather on the grain, and consequently, when they see detached covers like the one in Or. 1079, they reach the conclusion that this spine leather belongs to the interior of the cover, because the grain of the leather they are facing corroborates the idea that the leather is applied on the flesh side. Therefore, at least for those familiar with western book structures and

60 It is known that spine-linings with leather can be found on Romanesque and early Gothic bindings, although these linings often consist of patches of leather rather than full-length spine-linings. Already in the first half of the fifteenth century the use of parchment as spine-lining material exceeded by four times the use of leather, which soon died out altogether. See J. Szirmai, *The archaeology of medieval bookbinding* (1999), 126–127, 157–158, 190, 194–196.

materials, the leather interior of the spines of loose Islamic covers is not always recognised as being part of the original construction. On the contrary, it is observed as the finishing of the cover.

Leather inner joints also occur in western bookbinding, and this is another cause for misinterpretation.⁶¹ Their structural function is, however, not comparable to the structure of Islamic manuscripts. Western binders added small leather strips either around the endleaf units, in which case they were sewn with the textblock, or they were simply pasted across the joint, to produce a purely decorative element. The construction of the leather joints in Islamic manuscripts—coming from the spine-lining—is rather distinct, but when they are not recognised as the lining extensions, they are easily misjudged. As a consequence, their structural function is not appreciated either.

The Impact of a Leading Opinion

Modern research on the technical aspects of Islamic bookmaking is scarce, so it is understandable that the first publication to elaborate extensively on the structures and materials used, *Islamic bindings and bookmaking* by Gulnar Bosch, John Carswell, and Guy Petherbridge (1981), is much referred to and often cited.⁶² The authority this publication gained, however, has also contributed to the acceptance of certain statements, presented as facts which were not easily questioned afterwards. The authors designated the Islamic binding structure as a case-binding, and this has become its subsequent characterisation, even though the objects themselves provide evidence to the contrary. My observations of the constructions of the manuscripts I treated for conservation purposes led me to doubt the correctness of the assumption that Islamic bindings were made as a separate entity, apart from the textblock. Examination of the fairly large and diverse group of manuscripts in the present research advanced these counter-arguments and it became possible to refute the supposition.

In sum, perhaps it would be more just to say that Islamic manuscripts are commonly *labelled* as case-bindings, instead of them being *perceived* as such, for it seems that the designation has often not been given much thought or attention. Nevertheless, the introduction of the term case-binding and especially

61 Leather joints became popular in western bookbinding in the second half of the eighteenth century, although they were first used in the late seventeenth century, particularly in France. The leather inner joints in western bookbindings are most commonly found in fine bindings, and the vast majority of the leather joints are simply pasted over the joint, and not sewn together with the outer gatherings. B.C. Middleton, *A history of English craft bookbinding technique* (1996), 50–51.

62 This publication and its influence is further discussed in part 3.

the continuation of its use to describe this type of Oriental bindings does illustrate a widespread misunderstanding of the Islamic book structure. As a consequence, it has promoted the idea that the structure is not up to the high standards of the calligraphy and illumination in the manuscripts, or to the quality of the bookbinding design. Moreover, it also resonated with the idea that the Islamic book structure is inferior to western binding techniques.⁶³

That deeply rooted idea has, of course, affected many preservation treatments. In order to ‘repair’ the supposed defect in structure, conservators over-compensated by using multiple sewing stations, by sewing through newly added spine-lining cloth or applying thin, flat sewing supports. Structures were further changed with the introduction of leather or linen inner joints—conforming to western methods developed in the eighteenth century—with the intention of strengthening the board attachment. Even hollow spines and so-called quarter-joint structures were used to ‘improve’ the original construction.⁶⁴

Other Characteristics

In the forgoing discussion, I have approached Islamic bookmaking by examining the different techniques, arranged according to the actual bookmaking procedure: sewing, lining, endbanding, application of the boards, and covering. Thus, I sketched the variety of methods available to the Islamic binder. However, apart from the differences in structure specified above, other characteristics distinguish certain groups of manuscripts from others, such as the materials used and the treatment of particular components. As the survey results show (chapters 4 and 5), these characteristics can provide evidence for the origin and dating of the objects.

63 Several workshops on Islamic bookbinding, organised between 2002 and 2011, by western bookbinders or conservators, attest to this; see chapter 3, under ‘Model making practice’; conservators appear to be inclined to ‘improve’ the structure. I further elaborated on this topic at the “14th Symposium on care and conservation of manuscripts,” Copenhagen 2012, see K. Scheper, ‘Neither weak nor simple: Adjusting our perception of Islamic manuscript structures’ (2014), 253–269.

64 Examples of such conservation treatments are given in chapter 3, under ‘Structure as a conservation issue.’ The “quarter-joint case” or “Viertelfalzeinband” and its merits are described by J. Szirmai, ‘Konservierungseinbände. Teil 2: der Viertelfalzeinband’ (1999), 98–103.

Boards

Without a doubt, board covers are predominantly made of laminated paper sheets. These pasteboards consist of two or more sheets, and because of the frequently damaged covering material on the board edges we can see that waste paper and discarded fragments were often used for the purpose. Other cores consist of paper pulp boards. The average board is not very thick, approximately 2.4 millimetres,⁶⁵ and if not semi-flexible, then it is at least not completely rigid either. However, we do encounter covers with very thin or even without boards, as well as remarkably thick and solid ones. Occasionally, other materials were used to make up the boards. In several cases, a thick piece of leather was found below the leather coverings, and in a few instances the covers contain a sheet of woven rattan or bamboo, or similar plant fibre material (figs. 80, 81). It must be added, of course, that in many bindings the boards are not visible.

Usually the core of the envelope flap is the same thickness as the covers. The core of the fore-edge flap often has a similar consistency as well. Next, I discuss some examples of deviations.

The Fore-edge Flap

The fore-edge flap is not as prominent a feature as the envelope flap; it is primarily the necessary flexible linkage between the back board and the pentagonal flap. Both flaps serve to protect the fore-edge of the textblock, and with the envelope flap secured underneath the front cover, the book is closed and protected from dust and mechanical damage. Often the fore-edge flap was included in the binding design, and sometimes it contains text, applied with stamps. The construction of the flap is fairly simple. The large majority of flaps have boards as thick as the covers and envelope flap. Usually the width of the core of the fore-edge flap corresponds with the thickness of the textblock. Its exterior is covered in leather, which also forms the outer joints. At the head and tail, the leather is turned-in and the interior is lined with leather, textile or paper. The survey results in chapters 4 and 5 provide more details, but generally we can say that textile and paper linings of the fore-edge flap were used in the later centuries of the manuscript era.

Because nearly all flaps were produced in a consistent manner, the few anomalies encountered catch the eye. The first diverging group of manuscripts is made up of bindings without a core in the fore-edge flap. These flaps consist

65 Although this feature has not been incorporated in the survey, to obtain this average I took a small but representative sample by measuring the boards of every twentieth manuscript following the entries in the database.



FIGURE 80 *Or. 12.831 (Indonesia)*. A leather board; the rodent damage at the front edge reveals the core material.



FIGURE 81 *Or. 5467 (Indonesia)*. The board consists of a woven sheet of fibrous plant material.

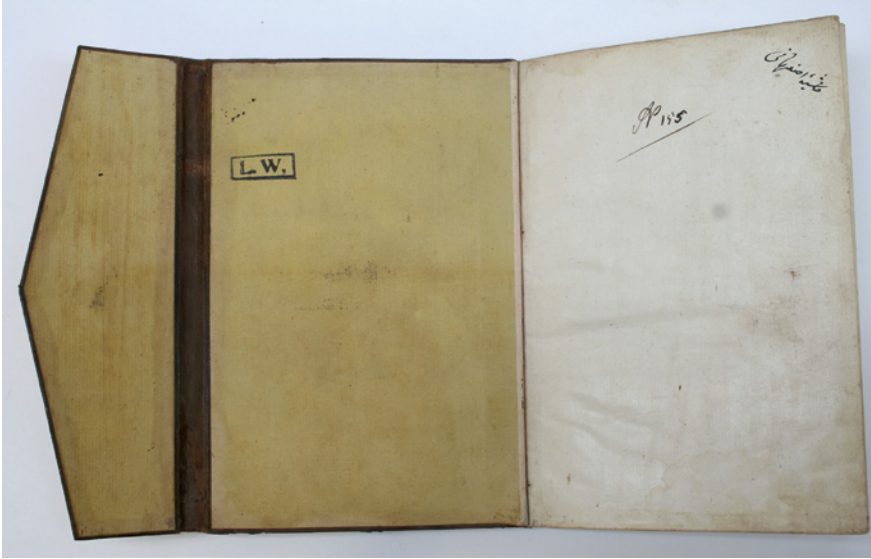


FIGURE 82 *Or. 155. A flexible fore-edge flap, without a board.*

of just two layers of material: the leather of the exterior covering and the material from the doublure or separate fore-edge flap lining (fig. 82). A second type of fore-edge flap consists of a core that is significantly smaller than the width of the textblock. The flexible joints are then wider, to make up for the loss of width of the core, though not in equal measures. As a rule, the joint adjacent to the back board is relatively narrow and the joint adjacent to the envelope flap is relatively wide (and thus more flexible) (fig. 83).

Several publications suggest that apart from protecting the fore-edge of the manuscript and safeguarding the whole item from dust and deformation, the envelope flap could also be used as a reading aid and bookmark.⁶⁶ It seems that this theory can only be true for manuscripts with these flexible fore-edge flaps. The majority of the bindings have fore-edge flaps with rigid cores the width of the textblock thickness, which will not allow these flaps to be inserted half or three-quarters of the way through the book. On the other hand, some manuscripts have very narrow fore-edge flaps that require insertion in the textblock simply because they do not reach as far as to the front cover. It is obvious that

66 See for example Chr. Gruber (ed.), *The Islamic manuscript tradition* (2010), 15; A. Gacek, *Arabic manuscripts: A vademecum* (2009), 104.



FIGURE 83 *Or. 10.783 (1869). A fore-edge flap with a narrow and a broad joint. The board in this part of the flap is visible between the two arrows.*

these short flaps cannot serve as a bookmark for the first part of the textblock.⁶⁷ A truly functional bookmark should be flexible enough to be inserted into the book at any opening. The form of the flaps, even the flexible ones with the

67 For conservators, it is important to be aware of the occurrence of narrow fore-edge flaps; the assumption that a flap 'does not fit properly' may easily lead to a treatment decision that involves splitting joints in order to extend the material into a shape the original binding never had.

somewhat wider joint on the envelope flap side, does not allow for this. Thus, the main and perhaps sole purpose of the flap seems to be a protective one, although this does not explain why some binders preferred to manufacture flaps with a broader joint adjacent to the envelope flap. An interesting anomaly in the fore-edge flap construction again hints at the purported use of the flap as a bookmark. This anomaly concerns a fore-edge flap with a lengthwise split core, or rather two small cores adhered at a certain distance from each other so that the leather covering and lining in between these two cores form an extra joint (figs. 84, 85). This additional joint in the middle of the fore-edge flap allows for extra flexing. If this type was developed as a multi-functional flap, we would expect to see more examples, yet, there is only one specimen of it in the UBL.

The Envelope Flap

The pentagonal shaped flap is undoubtedly one of the most characteristic features of the Islamic manuscript. It has been suggested that the use of the flap only diminished in later centuries, presumably under western influence and mainly in the peripheral regions.⁶⁸ However, authentic bindings without a fore-edge and envelope flap were made in the heartland of the Islamic world in the early sixteenth century. Slight differences in the shape of the flap can be noted. Some flaps, for example, are almost rectangular, or have a sharper point or an ogee-shape (see also fig. 149 in chapter 5).⁶⁹ One noteworthy divergence is a binding type with a flap that contains a (remnant of a) leather strap at its point. Such straps were used to close the binding and therefore clearly point to a different use for the flap: it was closed *over* the front cover so that the strap could be wrapped around the volume.

Decorative Structural Elements

With the exception of block-stamped leather doublures and doublures decorated with filigree work and exquisite tooling or painted doublures, the interior of bindings has not received much attention in the literature. It is, however, interesting to look at the various parts that make up the interior and the materials and decorative techniques used to enhance their appearance. In general,

68 See A. Gacek, *Arabic manuscripts: A vademecum* (2009), 27; Gacek says bindings without flaps appeared on the scene in the seventeenth century.

69 A remarkable deviant shape was observed in a set of thirty *Juz'*, from China, dating to 1730 CE; three of these were on display in the Museum of Islamic Arts in Kuala Lumpur, Malaysia in February 2012. These flaps were shaped with two tips instead of one, forming a kind of quarter-turned 'W'. Although mutually divergent, the flaps with their distinctive appearance clearly formed a group. Envelope flaps shaped like this were not found in the UBL.



FIGURE 84 *Or. 426 (1484, though resewn). The inside of the fore-edge flap; the double small cores are distinguishable by the dent in the middle and the damage at the head and tail.*



FIGURE 85 *Or. 426. Detail of the exterior of the fore-edge flap. Because of the damage and the delaminating boards the double cores are clearly visible.*

the material on the inside of the front cover was also used on the back cover; the envelope flap and fore-edge flap may be lined with different material.

The first category is that of the leather doublures. With leather doublures, usually the envelope and fore-edge flap were also lined with leather, and often a continuous piece of leather was used for the back board and flaps: the interior was lined from the joint adjacent to the textblock to the point of the envelope flap. The joint itself is either a separate piece of leather, namely the extension of the leather spine-lining (fig. 86), or the doublure continued in a stub which was pasted onto the outer leaf of the outer gathering along the spine-fold (fig. 87). The doublures are made of separate sheets, with the one exception being the leature doublure, which sometimes appears to be the spine-lining leather. In that situation, the leather may consist of one sheet of leather large enough to cover the textblock spine and sides of the manuscript. However, there are also examples of doublures made of the extending sides of the leather spine-lining, made of two pieces, overlapping on the spine. Those parts were adhered to the textblock spine as with the two-piece technique (see fig. 69). We can only determine which technique was used if the construction is damaged and gives access to the spine.

A, second, plainer category is an interior with a leather lining on the envelope and fore-edge flap, but with other material for the doublure on the back and front boards; this other material was usually paper, although sometimes cloth was applied instead. In these bindings, the envelope and fore-edge flap are lined with a single piece of leather (fig. 86). An even more sober and very common variety uses leather for the lining of the fore-edge flap only. The inside of both boards and envelope flap of such bindings were then covered with paper (fig. 88). Without exception, the leather was wide enough to also cover the inner joints and it overlapped on the vertical edges of the back board and the envelope flap. Thus, the strength, flexibility, and durability of the leather were well utilised. These bindings demonstrate that binders economised on materials, but also made efforts to enhance bindings aesthetically, by using decorated or dyed papers and by carefully choosing the colours of the materials.

When paper doublures were used, the construction of the inner joints varied. The joint may be formed by a single material, the leather flange of the spine-lining. Alternatively, when a cloth lining flange was used in the structure, a second layer of diverse material was applied to cover the cloth. This could be a separate strip of leather or paper as long as the textblock and a few centimetres wide. It was applied before the doublure and pasted over the joint and covering the outer textblock leaf along the spine-fold as well as the edge of the board (figs. 89, 90). In other cases, the paper of the doublure is larger than a single folio (which is also the size of the board) and extends on the spine side

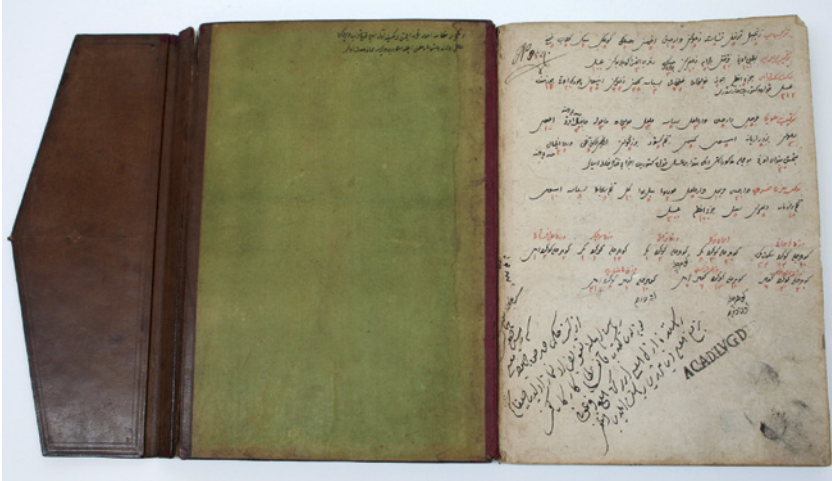


FIGURE 86 Or. 854. The interior of the fore-edge and envelope flap are lined with leather; the front and back boards with dyed paper.



FIGURE 87 Or. 6892 (1769, India). The leather stub, extending from the doublure, appears to have a decorated cut edge, but in fact it is partially covered with a paper strip that is decoratively cut on its right side.



FIGURE 88 *Or. 1604 (1757). The fore-edge flap is lined with leather. The doublures of the envelope flap and the covers consist of marbled paper. The doublure is extended with a stub (indicated with an arrow) which is pasted across the joint, onto the outer leaf of textblock.*

of the doublure, thus forming a stub that is adhered over the joint and onto the outer leaf of the textblock (fig. 91). Alternatively, a stubbed leaf is applied as a tipped-on, along the gutter of the outer leaf of the textblock, thus forming a fly leaf and covering the inner joint, which is combined with a paper doublure (fig. 92). Sometimes the outer leaves of the textblock were used as a pastedown. Finally, a strip of paper or leather could be applied over the primary inner joint (usually the extension of the cloth lining) and the doublure, forming a hinge that reinforces the board attachment. The edges of this strip were sometimes cut in tracery designs for an aesthetic effect.



FIGURE 89 Or. 11.526. A block-stamped paper doublure and a leather inner joint which is not an extension from the spine-lining, but an additional strip pasted along the gutter of the outer textblock leaf, over the joint and onto the board.



FIGURE 90 Or. 2748. Simple paper cut work along the left side of the paper strip that was adhered over the joint as an inner hinge.



FIGURE 91 *Or. 546. A dyed paper doublure with a stub, which has a decorative cut edge.*



FIGURE 92 *Or. 829 (1638). A tipped-on blank paper leaf with a stub, that crosses the inner joint and cloth lining flange underneath, its outer end is covered with a marbled paper doublure.*

Apart from the construction of the inner covers, we encounter variations in the decorative aspects of the materials. The leather used for doublures, linings of the fore-edge flap, and the inner joint was often a natural brown, or dyed red, dark brown, greyish or greenish, without further ornamentation. A fair segment of this group with full leather doublures demonstrates additional decoration in the form of tooling, blind or gold stamping, and sometimes the application of a painted central ornament or frame-lines in silver or gold paint (fig. 93). Mamluk bindings with block-stamped leather doublures make up a separate category (fig. 94). Another distinctive method of decoration is a high quality filigree work (fig. 95). The leather doublures with medallions, made with leather inlay or overlay and gold or blind tooling (fig. 96) are somewhat simpler. A rather different but small group of manuscripts has leather linings decorated with painted flowers, without tooling or stamping (fig. 97). The decorative papers can be categorised as *ebru* (marbled) paper (fig. 98), papers dyed in one colour (fig. 91), and papers with other decorative techniques, such as dyed and sprinkled papers, and block-printed or brocade papers (fig. 99). In some cases, the effect of ornamentation is further enhanced by decorative cutwork along the visible edges of the material (figs. 90, 91, and 94).

Lastly, the description of bindings with cloth doublures needs some extra attention, since their make-up shows an interesting difference from the general work procedure. It appears that cloth doublures were applied before the leather turn-ins were made; this is easily recognised when we examine the inside of the boards. This method contrasts with the usual procedure; the leather turn-ins were made first so the doublure of leather or paper overlaps the turn-ins. The same is true for the application of the leather on the fore-edge flap. Again, with cloth doublures the leather overlaps the textile, in contrast with the usual application method. As this is done repeatedly and consistently, we must conclude that binders did so intentionally. The rationale behind this working method is quite obvious: the edges of the fabric were secured underneath the leather turn-ins, or the edges of the leather fore-edge lining, in order to prevent fraying (figs. 100, 101).

Page-markers

Some manuscripts were furnished with page-markers. The large majority of the page-markers encountered in the UBL Oriental collection consist of coloured silk thread, laced through the paper margin of the front edge of the pages. Several patterns of lacing and knotting were used; in some the thread passed through three holes, in others just one or two. Sometimes the page-markers



FIGURE 93 Or. 312 (1622). The leather doublures are modestly but finely gold tooled and gold sprinkled; the joints consist of leather from the spine-lining flanges.



FIGURE 94 Or. 650 (fifteenth century). The leather doublures are block-stamped.



FIGURE 95 *Or. 270* (ca. 1500, Cairo). The leather doublure is gold tooled, and its central medallion and corner pieces are inlaid leather filigree pieces, which are adhered over blue silk.



FIGURE 96 *Or. 565 (1564)*. The leather doublure was dyed blue and embellished with a leather onlay, pigments and gold tooling.



FIGURE 97 *Or. 1007a (1525, though resewn)*. The leather, covering the exterior, and the lining of the fore-edge flap are decorated with a painted floral pattern.



FIGURE 98 Or. 442 (1624). Marbled doublures, the leather spine-lining extensions form the inner joints. Different marbled papers were used for the lining of the covers and the envelope flap.



FIGURE 99 Or. 18.155. The doublures are made of block-stamped paper.



FIGURE 100 *Or. 408b. The doublures consist of dyed cloth of tabby weave. The leather inner joint is a repair.*



FIGURE 101 *Or. 61 (1485, Egypt or Syria). Detail of the leather turn-ins of the envelope flap: the leather is adhered over the edges of the cloth.*

were made with different colours of thread, while others are monochrome. In some manuscripts, several different colours were used in the individual page-markers (figs. 102–104).

Their position on the margin varies as well. While they are scattered all over the front margins of some manuscripts, they were positioned more or less in the centre of the fore-edge of others, or alternatively, they were fixed to the paper in descending order from head to tail and front to back (figs. 105, 106). Some deviations from this common type are encountered, such as paper page-markers, decoratively cut or narrow, plain strips, pasted to the edge of the page instead of being laced on (fig. 107). Another variety consists of leather patches, seemingly cut at random from a blind tooled piece of leather (fig. 108). Given the function and tight fit of the fore-edge flap, it seems that the page-markers of flexible thread were likely to have been more durable than the extending page-markers made of paper or leather.

Although this particular element is small, it is an interesting characteristic because it indicates which pages were singled out for easy reference. Page-markers were affixed to illuminated or illustrated pages, as well as to pages that



FIGURE 102 Or. 2c. A page-marker piercing the paper three times, forming identical patterns on both sides of the page.



FIGURE 103 *Or. 134 (1315). A page-marker consisting of three colours of silk going back and forth through three holes in the paper.*

only contain text. Frequently, they appear in composite manuscripts, indicating a change of texts. This aspect of usage, and the question of whether page-markers were applied by the binder or the manuscript's owner, is discussed further in chapter 5.

Characteristically Tabbed Spines

Although most projecting leather tabs are inconspicuous, we find distinctive varieties. Some bindings have tabs remarkably longer than the average

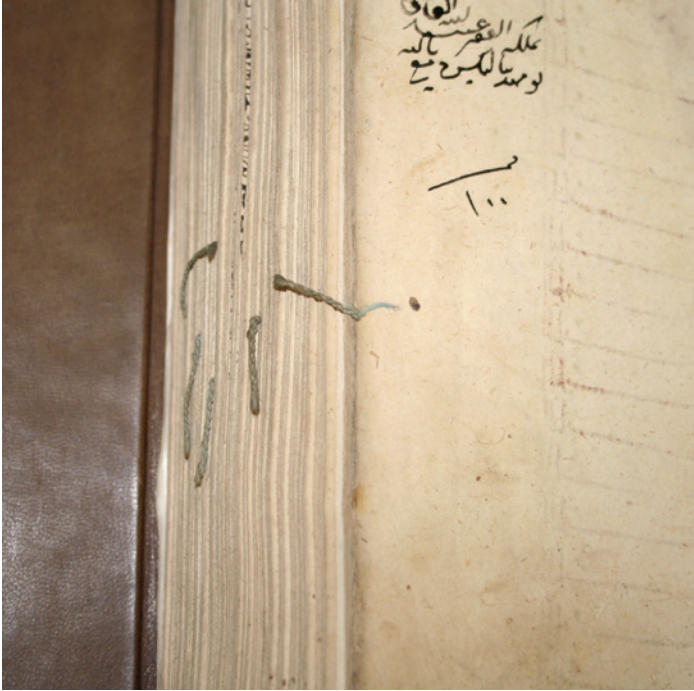


FIGURE 104 *Or. 94c (thirteenth century). A page-marker made with a single loop through one hole in the paper.*



FIGURE 105 *Or. 969 (sixteenth century). The page-markers are unevenly spaced along the front edge.*



FIGURE 106 Or. 590 (before 1483). The page-markers are all centred in the front margins.



FIGURE 107 Or. 961 (1564). A combination of silk and paper page-markers.



FIGURE 108 Or. 1902. The page-markers were cut from a tooled piece of leather.

(fig. 109).⁷⁰ The findings from an examination of a particular collection of eighteenth- and nineteenth-century manuscripts from Xinjiang suggest that a specific method of tab decoration, namely the cutting of the tab so as to create a fringed tab, points to a Xinjiang origin (fig. 110).⁷¹ Very occasionally an anomaly is encountered that is not easily explained or categorised. Among these excep-

70 The tabs of Central Asian bindings are often remarkably long. Oleg Akimushkin suggests that the tabs in this particular region were used to pull the manuscripts from the shelves “out of a pile.” O. Akimushkin, ‘Central Asian manuscripts’ bindings (1730s–1930s)’ (2001), 4. Frequent use would have caused severe damage to the spine ends if such handling was common; the specimens kept in the UBL do not show evidence of that. The fact that most book titles are written on the tail edge, indicating the book’s position on the shelf, also contradicts the theory.

71 K. Scheper and A. Vrolijk, ‘Made in China’ (2011), 58–59.



FIGURE 109 *Or. 26.684 (1871). A manuscript from Central Asia with a full leather binding and very long tabs.*



FIGURE 110 *Or. 26.663 (1825, Yarkand). A manuscript from Xinjiang with a characteristic fringed tab.*

tions are tabs that appear to be connected to the secondary endband sewing and tabs that are tied with a vertical thread around the spine.

Endband Characteristics

Endbands on Islamic manuscripts are one of the typical binding elements. The system in which a primary endband is sewn over a core, before a mainly decorative secondary endband is woven, remained the same throughout the manuscript period. Nevertheless, differences in small details in endband manufacture did occur. We are familiar with some variations in the secondary endband weaving.⁷² Throughout the period, the predominant pattern is a chevron, made with two colours of thread but only one needle (see fig. 55). Passing underneath each individual or bundle of tiedowns, the needle attaches one of the threads and leads the other thread along. The secondary endband threads were attached inside one of the outer gatherings, or the knot with which they were secured is on the outside of the spine-lining. The weaving started close to the edge of the textblock, and the pattern was worked towards the spine.⁷³

Slightly different patterns occurred when the sewing threads were crossed differently and changed direction in the subsequent row, or when the threads changed direction and swapped the leading role, using a second needle. These alternative methods of secondary endband weaving could result in a vertically striped or diagonally striped pattern (figs. 111–113). Alternatively, the endband could be sewn with a chevron, but with a change in colour every two rows, in which case the chevron took on a kind of chequered pattern (fig. 114).⁷⁴ The chevron pattern itself varied depending on the number of tiedowns the needle passed under. The passage under one or two tiedowns resulted in a compact pattern. When three, four or even five tiedowns were bundled together, a more elongated chevron was made. Occasionally the chevron was executed with

72 Some of the possible varieties are mentioned explicitly in the treatise of Bakr al-Ishbili and hinted at without details by Ibn Abi Hamida. See A. Gacek, 'Arabic bookmaking and terminology as portrayed by Bakr al-Ishbili' (1990–1991), 109 and 'Ibn Abi Hamidah's didactic poem for bookbinders' (1992), 42. Variations are also mentioned by B. Fischer, 'Sewing and endband in the Islamic technique of binding' (1986), 198, and by N. Baydar, 'Structural features and conservation problems of Turkish manuscripts and suggestions for solutions' (2002), 7.

73 For a schematic drawing and images of mock-up chevron endbands, see B. Fischer, 'Sewing and endband in the Islamic technique of binding' (1986), 191, 196–197; see also Laffitte and Tarrete, *Les tranchefiles brodées* (1989), 87–89. See for a more detailed essay on Islamic endbands with instructive descriptions of how the various types were made: K. Scheper, 'Endband varieties in the Islamic world' (forthcoming).

74 The detailed differences between these variant patterns and their exact making are elaborated on in K. Scheper, 'Endband varieties in the Islamic world' (forthcoming).



FIGURE 111 *Or. 6633. Secondary endband in a vertical striped pattern, without the alternating thread direction which is characteristic for chevron.*



FIGURE 112 *Or. 2072 (1404). Secondary endband in a diagonal striped pattern. Both colours of thread pass underneath the tiedowns, alternating in every changing row.*



FIGURE 113 *Or. 196 (fifteenth century). A diagonal striped secondary endband pattern in which the changing of threads at the turn of each sewing tour is visible; at the front joint, the blue thread 'takes over', while at the back joint the red thread makes the loop and continues to take up the blue thread.*



FIGURE 114 *Or. 241 (North Africa, fifteenth century). The pattern of the secondary endband is a chevron, however, it diverges from the dominant chevron as every pair of sewing tours alternate, which results in a 'chessboard'-like pattern.*

three colours of thread, in which case three needles were necessary (fig. 115). The appearance of endbands was, of course, further determined by the type of thread, which could be delicate or coarse, a shiny silk or dull cotton.

More remarkable deviations are found in Southeast Asian manuscripts.⁷⁵ While in the rest of the Islamic world the endband core nearly always consisted of a leather strip, Southeast Asian binders used strips of textile, cords of silk or flax or a thin solid material strongly resembling thin bamboo strips. As a further divergence, textile cores often projected from the sides of the endband and extended over the joint, forming tufts. Thus, the endband core seemed to have gained a new, decorative function (figs. 116, 117). However, it is necessary to examine the tufts closely, as there are also examples of endbands with tufts that are part of the secondary endband sewing and not part of the core (fig. 115). Another variety is formed by endbands which, after the weaving, were wrapped around their base with one of the endband threads (fig. 118). Tying the thread around the finished endband perhaps prevented the secondary weaving from sliding off the tiedowns in the direction of the spine.

During the survey, I encountered several manuscripts with a groove in the head and tail edge of the textblock, parallel to the spine and just along the edge of the endband. This groove appeared to be connected to a diverging endband method, although the construction of the primary and secondary sewing followed the traditional procedure (fig. 119). The grooves, more or less one millimetre wide and two millimetres deep, were probably saw-cut or possibly made with a knife.⁷⁶ In this small channel a relatively thick thread passed from the front to the back of the textblock. In some of the manuscripts, this thread was tied to the spine, in others, it made a full loop through the textblock, which was stabbed close to the spine for this purpose, about two centimetres from the head or tail edge. On a number of occasions this thread was applied after the cloth lining was adhered onto the spine, in which case it pulled the lining away from the joint at the stabbed position and as a consequence it interfered with the flanges' function as a board attachment. The primary endband sewing was carried out in the usual manner after this thread was tied around the edge and through the stabbed hole. However, the presence of the recessed horizontal thread must have hindered this process, as it tied the gatherings together close to the spine, thus obscuring the centres of the gatherings. As a result, many of the tiedowns in this endband type were not sewn through the centre of each gathering. The making of a model confirmed this complication

75 See chapter 5 for more information and data.

76 This groove is quite distinctive from the fine cut that can sometimes be observed in head and tail edges, caused by cutting the leather tab, folded over the endband, in situ.



FIGURE 115 *Or. 2098 (Southeast Asia). Three colours were used to make this endband, and while weaving the chevron pattern, the threads formed the frills on the edges.*



FIGURE 116 *Or. 2116 (1853, Southeast Asia). The endband cores consist of several strips of decorated textile, the ends protrude in a decorative fashion.*



FIGURE 117 *Or. 1886 (before 1825, Southeast Asia). The core of the endband consists of silk thread and the extending ends were frilled.*



FIGURE 118 *Or. 2064 (possibly Aceh). The chevron pattern is woven with three colours, and after completion, one of the threads was tied around the total endband structure.*



FIGURE 119 *Or. 6329 (1902). Along the left side of the endband the saw-cut in the edge of the textblock is just visible. The secondary endband is woven with undyed thread and a red strip of cloth.*

and the application of the tiedowns became quite irregular. Manuscripts with this divergent endband type were supplied with the usual secondary endband sewing, made of two colours of thread and a chevron pattern, except for one anomaly, in which a thin strip of twisted red cloth was used instead of thread, combined with a normal unbleached thread.

A practical reason for the execution of this endband was probably the wish to solve the sliding of the secondary endband sewing, as I can think of no other reason to go through the elaborate process of making the cut in the edges of the paper and stabbing a full textblock while diminishing the flexibility of the structure. In comparison, the method of tying one of the sewing threads horizontally around the finished endbands appears to be a simpler and more adequate procedure with a similar purpose.



FIGURE 120 *Or. 22.784 (1913, Indian subcontinent). An unusual endband pattern in which the thread direction changes within one and the same sewing tour.*

A few anomalies were found as well; these were endbands made according to the basic principle—a primary and secondary endband—but which turned out to be sole examples of an anomalous sewing pattern (fig. 120).⁷⁷

Interleaving

The first edition of this book did not contain a paragraph on interleaving. However, recently, Amelie Couvrat Desvergne has conducted interesting research into the use of interleaves in Islamic codices. Her work describes the use of animal skin and paper as the interleaving material.⁷⁸ This practice of interleaving concerns different local traditions, and Couvrat Desvergues' study addresses the practice in Persia and India (involving the use of animal skin),

77 For detailed descriptions and drawings of these patterns, see K. Scheper, 'Endband varieties in the Islamic world' (forthcoming).

78 A. Couvrat Desvergne, 'Of books and men: Past cultural practices and methods of Islamic manuscripts preservation in Iran and India' (2014), 15–22; 'Skin against paper: Identification of historical interleaving materials in Indo-Iranian manuscripts' (2015), 130–139; 'Identification et signification des serpentes rencontrées dans copies Marocaines du *Dalā'il al-Hayrat*: premiers résultats' (2016), 49–64; 'Dyestuff identification and significance of interleaves from Moroccan manuscripts of *Dalā'il al-Khayrāt*' (2018), 236–250.

and that in Morocco (involving the use of paper). Though some of the objects from the collection of the Museum of Islamic Art in Doha she studied had been resewn and rebound (in which case the interleaving appears to be not contemporary with the manuscripts themselves), it is nevertheless part of the Islamic manuscript tradition; during certain periods and in specific regions, the addition of protective leaves into manuscripts with illuminated pages was considered an improvement. Whether the interleaving skin tissue actually improved the condition of the manuscript is debatable, since their thinness and flexibility caused the membranes to distort over time. Their current condition—some of the interleaves are now discoloured, wrinkled or cockealed—often poses conservation issues.⁷⁹ The analysis of the membranes of four manuscripts points to the use of split sheep skins.⁸⁰

The Moroccan manuscripts Couvrat Desvergnès worked on date primarily to the nineteenth century. Most were copies of the *Dala'il al-hayrat* by Muhammad b. Sulayman al-Gazuli.⁸¹ These manuscripts are interleaved with dyed opaque papers positioned opposite illustrations and illuminations; these interleaves have quite a different function from the thin transparent membranes. They protect the media of the decorated and illuminated pages against physical contact and the facing pages against chemical deterioration caused by degradation products from these media.⁸² In addition, Couvrat Desvergnès suggests a parallel between these interleaves and the use of textile 'curtains' as sometimes found in western medieval manuscripts, pointing to a symbolic function these coverings may have had.⁸³ Though the material substance in western manuscripts is different, these cloth curtains are sometimes of the same colour, varying between shades of yellow, orange and fuchsia pink. In the UBL, one similar interleaved manuscript from Morocco is kept, Or. 1335, a collective volume starting with *Dala'il al-hayrat*, dated 1811. Its interleaving is almost identical to the ones studied in Doha and Paris (figs. 121, 122).

79 A. Couvrat Desvergnès, 'Of books and men' (2014), 16–22.

80 A. Couvrat Desvergnès, 'Skin against paper' (2015), 135.

81 A. Couvrat Desvergnès, 'Identification et signification' (2016), 49–50. For this study, seven manuscripts from collections in Doha and another seven manuscripts from the Arab collections of the Bibliothèque Nationale de France were examined.

82 Ibid., 50–51, and 'Dyestuff identification and significance of interleaves' (2018), 246–247.

83 These curtains seem primarily to serve a devotional purpose, rather than a protective one, as the large majority of miniatures never received such coverings. When they occur, the curtains cover representations of holy figures and thus evoke a symbolic and emotional contact with the revered images.



FIGURE 121 *Or. 1335 (North Africa, 1811). Full-page interleaves of pink paper protect the full-page miniatures in the manuscript.*



FIGURE 122 *Or. 1335 (North Africa, 1811). Heading interleaves, of pink paper and cut to the shape of the illuminated titles and marginal rosettes, cover the illuminations.*

Though the practice of interleaving concerns the textblock, it is decidedly relevant to our understanding of manuscript production and the bookbinding tradition. In her study, Couvrat Desvergnès poses the question by whom and why such interleaves were applied, and their inclusion in certain manuscripts sheds new light on the development of bookbinding practices and on how those manuscripts were regarded.

Meaning and Validity of the Diversity

The examination of the Islamic manuscript collection in the UBL yielded a great deal of information. I observed and recorded minor as well as major differences in techniques, and a variety of materials. For example, apart from the predominant link-stitch sewing on two stations, I found more elaborate link-stitch techniques. From the literature, we already knew that stabbed sewing structures occurred in some parts of the Islamic world, but now it appears that other sewing techniques using sewing supports are also part of the Islamic manuscript tradition. With regard to technique, the crucial function of the spine-lining is apparent. Equally important, the practical and technical aspects of the two pieces of leather covering actually direct us to a revised view on the manufacture of the whole construction. However, the two-piece technique for full leather bindings is common but not universal, so there is a question as to when one technique was preferred over the other. In addition, while the two-piece technique seems to be an impractical method for making *çaharkuşe* bindings, it is occasionally found. Other anomalies were also encountered, such as spine-linings that were applied without strengthening the board attachment and endbands that involved a stabbed technique that rendered the functioning of the manuscript more difficult.

This diversity, both in techniques and materials used, shows a much richer bookbinding tradition than the Islamic culture has been credited with so far. How the various methods were disseminated, however, remains speculative, unless data appears concerning the origin of these features. A quantification of the varieties in structure and materials is therefore needed, as well as a linkage with the origin and dating of the manuscripts. In chapters 4 and 5, I provide and examine such information. This allows for a better understanding of the development of the tradition, with regard to the occurrence of different techniques in time, and their geographic and cultural distribution. However, one of the original questions remains: is the Oriental manuscript collection in Leiden in fact representative of the Islamic manuscript tradition as a whole? To answer that question, the relevance of the variations encountered and presented

above must be more firmly established. As analysis of both the primary and secondary literature on bookbinding techniques sheds more light on the validity of the findings, the next chapter provides an overview of the binding procedures as presented in the historic sources and in all relevant research published since. Additionally, the structures and methods described in the literature are compared with the binding characteristics as presented above. From this comparison, it is clear whether the methods and characteristics described here are incongruous or whether they do, indeed, correspond with what has been recorded in primary and secondary sources. As we see, some of the anomalies and remarkable divergences described above *do* emerge in the literature analysis. This is of particular interest; even though the origin of these techniques or materials is often not explained or even mentioned explicitly, the fact that they are, in some way, referred to substantiates the theory that such characteristics are part of the Islamic manuscript tradition. Ultimately, their description proves that these divergences were encountered not only in the UBL collections, but elsewhere as well. Thus, the historic sources and the information revealed in later studies support and validate the findings of the present research.

A Comparative Study of the Historic Sources and Recent Literature on the Making of Islamic Manuscripts

Historic Sources

Introductory Remarks

Next to autopsy there is, of course, a supplementary method to obtain information on how manuscripts were made. Written sources originating from the period and culture of the objects involved shed an interesting light on book production. We know of five historic sources specifically focussed on the making of Islamic manuscripts and their binding.¹ Although the texts are well-known amongst scholars working in the field of Islamic manuscript studies, they have not been analysed comparatively before. Nor have they been evaluated from the point of view of a binder or a conservator. My approach to the study of these sources is craft-based. To explain the possibilities and limitations of this way of exploring the treatises, it is necessary to start with some remarks to clarify and contextualise this perspective.

First, the original texts have been made accessible to non-Arabic readers, either in edited versions or direct translation, through the efforts of excellent scholars, who were compelled to work from later copies preserved in sometimes dire conditions. The way the original sources have come down to us is affected by this in one way or another. My inability to read Arabic left me dependent on the available translations or summaries, adding of course a stratum between me and the sources in which changes in interpretation can occur. On the other hand, my capacity as a book conservator with the practical experience of making Islamic book models gives me an insight into the material that adds a new dimension to the texts. Because of my specialism, concerning techniques, composite structures, and materials, I examined the treatises differently than the original translators. While reading the series of

1 The authors are Ibn Badis (d. 1062), Bakr al-Ishbili (d. 1231), al-Malik al-Muzaffar (d. 1294), Ibn Abi Hamida (fifteenth century), and al-Sufyani (treatise is dated 1619). Full descriptions are given in chapter 1, n. 41. Extended bibliographical information can be found in A. Gacek, 'Scribes, amanuenses, and scholars: A bibliographic survey of published Arabic literature from the manuscript age on various aspects of penmanship, bookmaking, and the transmission of knowledge' (2004).

steps described in the bookbinding procedures, I visualised the process and evaluated it in light of the technical possibilities. As a result, I was able to interpret some technical descriptions differently than the original translators had. Also, when procedures, as described in the texts, appeared to be incomplete or impractical, it was possible to indicate these passages and I offer possible explanations.

Secondly, it is useful to look at the authors' names and social positions from a critical perspective. It appears that in two cases, the authors were rulers, not binders. Although princes and rulers were introduced to certain respected trades or crafts as part of their general education, it remains unknown if the two rulers involved—Ibn Badis and al-Malik al-Muzaffar—were actually trained in how to bind books. It is quite possible that they were, but it is equally possible that the treatises bear the ruler's name, but were actually written by someone more adept at the craft. One of the three other treatises was written by a man of letters and a poet, Bakr al-Ishbili, who knew how to make books, since we know that bookbinding provided him with additional income. The writer of the didactic poem on bookbinding, Ibn Abi Hamida, states that he himself was not trained as a binder. Only one of the five authors, Sufyani, is known, without doubt, to have been a craftsman; he even wrote his instructions out of frustration over his unappreciative apprentices.² Therefore, we can conclude that at least three of the primary sources were not meant to be manuals, they were merely descriptive accounts of a respected craft. Being aware of the nature of the writings helps us to understand their incompleteness. Furthermore, the five sources do not cover the total breadth of the Islamic world at the time; three of them were produced in the Maghrib (Algeria and Morocco), one in Yemen, and the origin of the last is uncertain—it may have been written in Syria.³ This means that we lack accounts of the bookbinding tradition from important cultural centres in Egypt, Anatolia, large parts of the Arabian Peninsula, Persia, and further east. Even so, comparing the contents of these known treatises allows us to reach some interesting conclusions, and from this we can clearly discern the shape of the Islamic bookbinding tradition.

Lastly, the primary sources that came down to us are copies of the original texts, some of them written centuries later. Multiple copies of a single source attest, in their divergences from each other, that the originals were not always copied word for word. This means that the newer versions are an interpretation

2 G. Bosch, 'The staff of the scribes and implements of the discerning: An excerpt' (1961), 1; G. Bosch et al., *Islamic bindings and bookmaking* (1981), 3.

3 A. Gacek, 'Ibn Abi Hamidah's didactic poem' (1992), 41.

of the original, and alterations could be influenced when the copyist had some knowledge of contemporary bookbinding techniques.

As the historic texts sometimes give patchy directions and leave room for interpretation, the drawn models with named components (see figs. 13–24) and the list of terms given in appendix 1 are intended to assist readers in understanding the technical details, as well as my argumentation.

Ibn Badis

The earliest known treatise is dated approximately 1025. The author, Tamim Ibn al-Muizz Ibn Badis (d. 1062), was a prince and ruler in northeast Algeria and a patron of the arts, which explains his interest in the art of bookmaking.⁴ He was not, however, a binder himself. The majority of the chapters deal with the making of the textblock: the preparation of inks, dyes, adhesive, and the manufacture of paper. Only the last chapter is dedicated to “the art of binding books in leather and the tools.” The full title of the work is “Book of the staff of the scribes and implements of the discerning with a description of the line, the pens, soot inks, *līq*, gall inks, dyeing, and details of bookbinding.” While Martin Levey translated the whole text, Gulnar Bosch focussed on the twelfth chapter (on bookbinding); both translations were published more or less simultaneously in 1961–62.⁵

4 This means that Ibn Badis supposedly wrote this treatise almost forty years before he died, when he must have been relatively young.

5 G. Bosch, ‘The staff of the scribes and implements of the discerning: An excerpt’ (1961), 1–13; M. Levey, *Mediaeval Arabic bookmaking and its relation to early chemistry and pharmacology* (1962). Both editions are based on the early twentieth-century copy of the text kept at the Oriental Institute in Chicago. Levey, a scholar in Semitic languages and chemistry, also examined other copies or fragments of copies kept in Gotha, in order to clarify difficult passages in the text, and a much older copy (1671), also preserved in the Oriental Institute (see Levey, 6). Bosch, an art historian and Arabist, only used the 1908 Chicago copy. An equivalent copy in Berlin (MS Landberg 637) from 1813, was not consulted.

Notwithstanding the importance of these translations, as both scholars were not binding practitioners a marginal note is necessary. The lack of in-depth knowledge of this specific type of manuscript construction must have complicated the translation work. Apparently, Levey recognised his shortcomings with respect to the art of binding, and therefore asked for Berthe van Regemorter’s assistance. At the time, van Regemorter was working on a publication on Oriental bindings, including Arabic manuscripts, in the Chester Beatty collection; see B. van Regemorter, *Some Oriental bindings in the Chester Beatty Library* (1961). As a skilled professional who had examined many Byzantine and Coptic bindings, van Regemorter’s contribution was undoubtedly helpful. She was, however, not particularly specialised in the field of Islamic bookbinding. Her descriptions in the aforementioned publication cover the decorative aspects only and do not contain any information on structure. Apart from lacking expert knowledge on binding, Levey alluded to the fact that working from defective copies using uncommon terminology was not easy, as the rare technical terms were not well known.

Ibn Badis starts with a brief description of a few tools. The use of two different needles is interesting for our purpose. One needle is supposed to be used for page sewing and the other for binding the book. In bookbinding terms, this is one and the same thing; gatherings are formed by nestling two or more bifolios in one another's spine-fold, and sewing these gatherings together forms the textblock. Apparently, Ibn Badis denotes two different procedures. He indicates that the needle for sewing should be perfect and thin in body, while the one for bookbinding should be shorter and thicker.⁶ For practical reasons, a thick needle for sewing the gatherings is not advisable because a thick needle causes larger holes in the spine-folds, and adhesive can penetrate these larger holes and cause the spines to become stiff or brittle. The only other sewing procedure is the endband sewing, which consists of a primary and a secondary sewing. Of these two, the primary sewing is applied through the gatherings, therefore, the same drawbacks with respect to the thick needle are applicable as for the stations of the sewing of the gatherings. Hence, the thick needle again is an inappropriate tool for this action. The only type of sewing that an experienced binder would perform with the thick (and presumably blunt) needle is the secondary endband sewing. For this, a blunt needle is definitely preferable because the needle needs to slip between the tiedowns and the leather core without catching on these materials.⁷

A relatively large part of the text is used to elaborate on presses and straight edges, dividers, and irons for tooling (stamps). Apart from listing all the necessary tools, Ibn Badis notes some of the character traits a binder needs.⁸ After this he starts to describe how a book is sewn. There is an interesting detail in this paragraph. When the stack of gatherings that needs to be sewn is put on the slab, he says,

a quire (gathering) is picked up with the left hand. It is opened with the right hand. It is put down on the slab and opened. Then the folder is passed over its centre where the binding thread is to be. Then it is folded

Moreover, in the text of Ibn Badis the diacritical marks were frequently omitted which hampered clarification of the text.

6 G. Bosch, 'The staff of the scribes' (1961), 2; M. Levey, *Mediaeval Arabic bookmaking* (1962), 41.

7 Bosch explicated the second type of sewing called "binding," providing the Arabic word *hazam* which she translated as "weaving the headband." It would be even more exact to clearly distinguish this second type of sewing (which indeed is a kind of weaving) as the secondary endband sewing.

8 "One who seeks this art should have quick understanding, good observation, dexterity of hand, and be certain without being hasty. The latter is a good manner of getting along and it has the elegance of attracting others of grace and good character;" M. Levey, *Mediaeval Arabic bookmaking* (1962), 42.

and the end paper is cut properly. This is a double sheet; one page is pasted on the leather and the other remains on the quires to protect the book from harm and dirt.⁹

This is a description of a bifolio that will serve as fly leaf and a paste-down after the covers are attached. It is interesting since a paste-down is a very different binding element (in structure) than the doublure, which is usually mentioned and recorded as the covering material of the interior of the boards. If anything, paste-downs are usually mostly associated with manuscripts from much later periods, when western methods became influential.¹⁰

Ibn Badis states that some craftsmen used a sewing technique with two sewing stations for ease and swiftness, but others used more needles, two or even three.¹¹ The method with one needle over two stations corresponds with the predominant link-stitch sewing encountered in Islamic manuscripts. According to Ibn Badis, the thread should be thin to obtain an even spine, and he emphasises the importance of evenness, for the spine should also be pounded “where sewn” so that there will be no difference in thickness between the sewn area and the rest of the textblock.

Subsequently, he describes the lining of the spine. It is suggested that two pieces of paper were taken, presumably these were the length of the spine, although this is not explicitly mentioned, but the width should exceed the width of the spine by two fingers. These strips are pasted onto the spine one after the other, with the excess width of each one on one side of the spine (forming a flange), “the other in the opposite way,” indicating the front and back of the textblock. Ibn Badis advises that the spine be smoothed or rubbed after the adhesion of the lining, not directly with a bone-folder, but with a sheet of paper in between the folder and the lining, in order to protect the freshly pasted and still moist paper linings. His additional advice to be patient and let the lined spine air dry is practical and sensible too; only if necessary should the drying process be sped up with the aid of a low fire or the warmth of the sun.

9 M. Levey, *Mediaeval Arabic bookmaking* (1962), 42.

10 The survey results attest to the use of endleaves from at least the sixteenth century onwards.

11 J. Szirmai points out some differences in translation between Levey and the work by Bosch et al., *Islamic bindings and bookmaking* (1981). In this specific passage, Bosch et al. (1981, 47) translated the text with “others use more positions, two or three,” which indeed makes quite a difference. Szirmai also rightly addressed the problem of having to rely on translations and emphasised the importance of using established terminology. J. Szirmai, *The archaeology of medieval bookbinding* (1999), 60–61, n. 6.

The making of boards (cores) is described next, rather cursorily. Before the lined textblock is left to dry, the binder needs to measure it, although it is not specified why. From what follows, we can deduce that this relates to the making of the boards. Sheets of paper and paste are needed to build them up to the required thickness. Ibn Badis then makes a remark about Iraqis, who apparently follow a different method. Here Levey's text is particularly patchy and difficult to follow.¹² The edition by Bosch differs only slightly but is less confusing. Ibn Badis seems to indicate that the Iraqis do not use endleaves, although the translation also suggests that they might not have used boards (although preserved manuscripts from the period were bound in bindings with boards): "the Iraqis paste the book (cover) to its pages without these linings, or end papers." The remark about the 'strengthenings' (*taqawwi*) does not refer to the Iraqis (as it seems in the translation by Levey) but to the function of the laminated paper boards: "people think that by using them they strengthen [protect] the book. Their strength is like that of cloth or board."¹³

Ibn Badis continues with the method of board attachment. The description indicates that the boards are put on the textblock when both are sufficiently dried. The hinges from the lining are pasted on the exterior of both the upper and lower boards.¹⁴ Then "a long, narrow sheet whose width is two fingers is pasted on it from the other side [that is, between the interior of the board and the outer leaf of the gathering] to prevent it from being opened excessively."¹⁵ This strip forms a hinge in the inner joint and by preventing the board from opening at too great an angle (more than 180 degrees), it reduces damage at this vulnerable point in the structure. This whole procedure, as well as the next step, is significant. The text says, "When this stage has been reached, the leather is applied to it." This points, irrefutably, to a method in which, *first* the boards are attached to the textblock, and then the leather covering is applied as a subsequent step. Ibn Badis describes this matter-of-factly, then says no more on the subject and uses the rest of his treatise to explain how the covering leather should be coloured and treated, and how to test several ink recipes, but the implication is there. It supports the results of my survey in the UBL and my

12 M. Levey, *Mediaeval Arabic bookmaking* (1962), 43.

13 G. Bosch, 'The staff of the scribes' (1961), 7.

14 "Now place the strengthening [the laminated paper boards] on the book, mounting it between the hinge and the core [textblock]." G. Bosch, 'The staff of the scribes' (1961), 7. The method of pasting the flanges of the lining on the outside of the boards does not correspond with the structure we find in later centuries (with the exception of a few specimens), but it could have been a more common method in the eleventh century.

15 M. Levey, *Mediaeval Arabic bookmaking* (1962), 43.

contention that Islamic binding structures are often wrongly judged as case-bindings, by showing that their structure is more complex than that.

We need to consider one more issue regarding Ibn Badis's text. He does not write about the exact application of the leather, nor its tooling or other ornamentation techniques apart from dyeing and marking the centre of the covers, presumably for decoration purposes. According to the procedure he describes, the application of the leather is the last stage. If indeed this was the final step in creating a binding during Ibn Badis's time in North Africa, then consequently, the leather turn-ins would cover whatever material is pasted onto the inside of the boards, whether this be a doublure or the paste-downs Ibn Badis describes. That make-up does not correspond to the situation we usually find in manuscripts where the leather turn-ins are largely covered by paper or leather doublures, and only a small strip of the turn-ins are visible on the interior of the boards. The latter structure demonstrates that for the majority of bindings, the turn-ins of the leather covering were made before the doublures were applied, but with one clear exception. When the doublures consist of cloth (instead of leather or paper), the procedure was reversed. Then the edges of the fabric are covered with the leather of the turn-ins. Accordingly, on these bindings the doublures must have been adhered to the inside of the boards before the leather turn-ins were made. Although the historic sources make no mention of this detail, the rationale behind it is very clear. Cloth frays quite easily, while leather or paper does not. It is therefore practical to cover the cloth edges with the leather turn-ins to prevent them from fraying over time. Furthermore, in the UBL collection, I found two specimens with leather doublures applied in the same way—before the leather turn-ins were made—and both have a North African or Andalusian origin.¹⁶ The fact that Ibn Badis describes the application of the leather covering as a last step in the procedure could indicate his preference (or that of the bookbinders that were his contemporaries) for using a textile for the doublures, or applying leather doublures in the same way at that time. Unfortunately, because there are not many bindings left from the period in which Ibn Badis wrote his treatise, we cannot confirm this, so this interpretation remains speculative. Given the incompleteness of other parts in the treatise, it is likewise possible that the final steps in the binding procedure, those that followed the application of the leather such as adhering the doublure or additional inner hinges, were just not mentioned. Given that the source texts used for the transcription are such late copies of Ibn Badis's text, the omission might also be a result of copying faults.

16 These bindings are described in chapter 5, 'The ratio of the different sewing structures.'

Bakr al-Ishbili

Another Maghribi text on bookbinding was composed by Bakr al-Ishbili (d. 1231).¹⁷ Of this work, which is dedicated to the ruler Abu Yusuf Ya'qub al-Mansur (r. 1184–99), only one late copy (1634) is known to have survived.¹⁸ Adam Gacek, who made the text available in English, albeit in a summary form, states that this text is the most comprehensive manual on bookbinding that we know of to date.¹⁹ This might be explained by al-Ishbili's profession; although he knew how to bind manuscripts, he was a man of letters and a poet. Thus, he was capable of writing a concise textbook with a full understanding of the craft. However, Gacek points out the difficulties with interpreting the text because many of the technical words used by al-Ishbili are no longer standard in present bookbinding terminologies. Moreover, since so few manuscripts from al-Ishbili's time have retained their original bindings, there are few contemporary examples to help explain or reconstruct the meaning of the text.

The first sections deal with tools and adhesives, but al-Ishbili also makes a general distinction between manuscripts bound with wooden boards and those with pasteboards. Some of the tools he mentions were used for working wooden boards, like a drill for making the holes necessary for endbanding.²⁰ This description is remarkable. Though the wooden board type is known, it is generally associated with the box-binding and landscape format type of manuscripts, thought to belong to the earliest centuries of Islam. However, al-Ishbili's text may imply that wooden boards were still being used in the twelfth century. The fact that we have no surviving examples does not mean the practice was not common, merely that the manuscripts bound according to this technique did not survive the subsequent eight centuries. Al-Ishbili continues with further specifications on the materials used. Doublures, for example, can

17 According to the lemma 'Bookbinding' in *Encyclopaedia of Islam*, al-Ishbili died in 1179; http://referenceworks.brillonline.com/entries/encyclopaedia-of-islam-3/bookbinding-COM_22883?fromBrillOnline=true [accessed 12 June 2017].

18 The manuscript copy is preserved in al-Maktaba al-Amma, Tetuan (Morocco); a printed edition was made in 1959–60 which, according to Gacek, is unfortunately far from flawless.

19 A. Gacek, 'Arabic bookmaking and terminology as portrayed by Bakr al-Ishbili in his *Kitāb al-taysīr fī šinā'at al-tasfīr*' (1988), 106.

20 *Ibid.*, 107. This could point to two techniques. It either refers to making transversal holes in the board used for the attachment of the endband sewing based on the Coptic technique, or to making channels, used for the attachment of the slips (the extending sides at the joint) of the endband cores. Both kinds of endbands can be related to the use of wooden boards and manuscripts with a box-binding. See also Di Bella, Marco, 'An attempt at a reconstruction of early Islamic bookbinding: The box binding' (2011), 107–111. This structural feature is not encountered on the predominant codex form ('Type Two' and 'Type Three').

consist of leather, cloth (more specifically silk), paper or parchment. The possible use of parchment for doublures is also noteworthy, since we associate this with the wooden board binding.

The section on sewing is of interest since it describes phenomena that are rarely encountered. First the text suggests that doublures, when made of leather or cloth, can be sewn together with the textblock. This implies that these materials consist of more than just the sheet used to cover the inside of the board, since the sewing requires that part of the material has a spine-fold to which the sewing will be applied. However, from autopsies we learn that leather or cloth doublures are never encountered in the shape of a bifolio, which could be sewn in the spine-fold; they appear as a folio. Accordingly, to sew such a leaf, part of the material should project over the spine-fold, as a stub. The UBL collections do not have original examples with a sewing thread in the fold of the joint (between the stub and doublure) or with a leather or cloth stub folded around the outer gathering, but such specimen have survived elsewhere.²¹ The other possibility is that the stub was attached to the spine of the textblock in the form of a lining, and that the doublure was sewn together with the first or last gathering; I encountered two specimens with this structure.²² The text continues with the textblock sewing; al-Ishbili advises that parchment gatherings be sewn in twos (which means sewing two gatherings on a single length of thread in one tour)—presumably to prevent swelling of the spine once the stack of gatherings is sewn—, while paper gatherings are sewn one by one. The first sewing technique poses questions since the common link-stitch sewing on two stations is not suitable for two-on sewing. It is simply not possible to switch gatherings between two stations when the link-stitch sewing consists of only two stations. A technique linking two gatherings in one sewing tour needs at least three sewing stations.

21 John Mumford and Jake Benson, who studied Mamluk bindings in the Dar al-Kutub, Cairo, reported that they observed this structure in several bindings. They presented a poster on these Mamluk binding structures at the ninth conference of the Islamic Manuscript Association, Cambridge 2013. I was able to examine another example myself, dated the first half of the fourteenth century, in a well-preserved Mamluk binding, kept in the Museum of Islamic Art in Doha, Qatar, MS. 307.1999. This is a *Juz'* consisting of a few gatherings, and the green silk doublures were folded and pasted around the spine-folds of the outer gatherings, thus sewn into the structure before they were pasted down as doublures.

22 This structure is known to be used in other manuscripts as well, for example in those called 'al-Andalus bindings.' See T. Espejo and A. Beny, 'Book I from the collection of Arabic manuscripts from the Historical Archives of the province of Málaga: An example of al-Andalus binding' (2009). Whether the specimens in the UBL collections originate from the Iberian Peninsula or the Maghrib is not clear; details are given in chapter 5.

Al-Ishbili advises rounding the spine of the textblock after sewing, "otherwise, when the book becomes old, the fore-edge flap will protrude."²³ The rounded spine is then lined, although he does not specify the material used for the lining in this stage. Nevertheless, it is clear that the spine-lining is wider than the textblock thickness, since the flanges of the lining which form the hinges are said to be glued on to the inner covers. This procedure, however, is not explicated and the further instruction to place three to four sheets of paper on top of the hinges adds to the confusion. The question arises, what exactly are the "inner covers"? Are the hinges pasted onto the outside of these covers, as Ibn Badis had instructed? And would the extra sheets of paper then be pasted on top of these hinges to form "outer covers," which, once adhered onto the "inner covers" would form paste-paper boards consisting of several sheets of paper as we know them? In that case, the hinge would be sandwiched between two thin boards which would certainly constitute a strong board attachment, but I did not encounter such a structure in the present survey nor have I seen it mentioned anywhere in the recent literature. The description of the "inner cover" may as well denote the interior of the cover, in which case the extra added leaves could make up the laminated paper boards proper, although "three to four sheets" would only form a thin board. Since al-Ishbili does not reveal the exact method of application of these extra leaves (were they sewn, or adhered?), we have no way to better understand their function.

Al-Ishbili writes about the practice of binders to add extra hinges of parchment when wooden boards are used; usually the doublures are then made of parchment too. He also specifically discusses the materials used for pasteboard bindings, in which case the doublures could consist of paper or cloth. Another option al-Ishbili refers to is the use of cloth for the spine-lining, in which case the doublures could be made of soft leather.

In the next, short section, he discusses the repair of worn or worm-eaten manuscripts. When manuscripts need to be re sewn, al-Ishbili advises marking the middle of the gatherings in order not to overlook any of them in the endbanding procedure. The recommended use of leather spine-lining strips also appears to be related to repair work. These leather strips are applied to re-attach the boards, irrespective of the material used for the doublures. However, instead of using strips, al-Ishbili states that some binders use a single piece of leather to line the textblock and attach the boards; this is a clear description of the leather spine-linings as described in chapter 2. Although, according to al-Ishbili the extending flanges of the lining can either be pasted over the

23 A. Gacek, 'Arabic bookmaking' (1988), 109.

doublures or underneath them, he prefers the latter, but he does not elaborate on his reasons, which might be strength and durability, or aesthetics, or both.

Subsequently, he describes the sewing of the endbands. A strip of leather is used as a core and al-Ishbili advises using ‘ordinary’ thread (common sewing thread) for the primary sewing, but acknowledges that some binders use coloured silk for the tiedowns. The outer gatherings are to be sewn twice for additional strength, which indeed is frequently found. According to al-Ishbili, two needles are necessary for the endband sewing. He recounts eight secondary endband patterns but is of the opinion that four of them are too complex to describe and require demonstration. Of the four varieties he describes—endbands in one colour; a chessboard-like pattern; a chevron or zigzag pattern; and another chevron variety called ‘rotating or trellis-like’—only two correspond to regularly encountered specimens, assuming that the trellis-like endband he mentions can be correlated with the type that I refer to as diagonally striped. Although we can imagine how a chessboard-like endband would look, a clear example has never been published.²⁴ Monochrome endbands are not common at all; this may refer to the Coptic style endband, since al-Ishbili also mentions tools needed for making holes or channels in wooden boards, referring to the box-binding. Both monochrome and chevron endbands can be made with one needle. So, the fact that al-Ishbili mentions two needles either points to a continuation of a technique that is not necessarily dictated by a strict need, or to a slight simplification of his description, since some of the more complex secondary endband sewings *must* be made with two or even three needles, as is explained in chapter 2, ‘Endband characteristics.’ It is also possible that he was referring to the two different needles (a pointed and a rounded one) needed for making the primary and the secondary endband.

Next, he discusses the preparation of the leather for covering the boards. While Ibn Badis only briefly mentioned the covering of the boards in leather, al-Ishbili’s rather detailed description is very interesting. He explicitly states that, for this purpose, one or two pieces of leather can be used. According to the translation, “two pieces were used if the flap (*udhn*) was prepared separately”; the term for this technique is *al-mukassar* (literally broken).²⁵ I am inclined to think that the original text indicates that a separate piece of leather was used to cover the *board connected to and including the flap*, and not just

24 While conducting the survey, I found a few endbands that may qualify as a chessboard variant, nevertheless, it remains uncertain whether they correspond with the historic exemplars al-Ishbili saw; see fig. 114 below and fig. 157 in chapter 5.

25 A. Gacek, ‘Arabic bookmaking’ (1988), 109; however, the term is not listed in the ‘Glossary of technical terms used in *Kitāb al-taysīr*’, 112–113.

the flap. My interpretation accords well with the large number of manuscripts which have an overlap on the spine, whilst the making of full leather bindings with a separate piece of leather on the flap is not a common technique.²⁶ If this interpretation is correct, then this is the two-piece technique discussed in chapter 2, 'Full leather bindings and the use of the two-piece technique,' and the oldest reference to a covering technique, unique to the Islamic world, that was to be used for centuries. Moreover, the date of the description of its use accords with the earliest specimen included in the survey, see chapter 5, 'Full leather bindings in one and two pieces.'

Gacek emphasises the novelty of al-Ishbili's description of making just one flap as an extension of the lower board, since, until the time he was active as a binder, books generally had flaps on all sides, which were closed with thongs and pegs, or were box-bindings.²⁷ Although the use of wooden boards is mentioned, as are several procedures connected to wooden board-binding (such as the sewing of parchment gatherings, the extra lining strips, and the lacing-on of the endband cores), al-Ishbili does not remark on the covering or attachment of the wooden boards, nor on the making of the "walls" (the three sides protecting the edges) of a box-binding. He does, however, discuss the making of pegs, thongs and clasps, and, in addition, he describes how to produce slip-cases and boxes. His mention of bindings with only one envelope-shaped flap is the earliest reference to this type of binding.

The paragraph on covers is not very clear. According to his description, pasteboards seem to consist of several layers of paper and one sheet of parchment. The parchment would be the inner layer of the board because when the turn-ins of the leather covering are made they are said to be adhered onto the sheet of parchment. However, I have not found evidence of parchment used in this way, which may indicate that after al-Ishbili's time the use of parchment declined rapidly; it might have been used mostly for bindings in wooden boards. The next sentence "The covers were usually made of one piece of leather, particularly in the case of *al-maṣāḥif al-sifrīyah* [the paste-board type]

26 I have found only one example in the UBL collections, Or. 890.

27 A. Gacek, 'Arabic bookmaking' (1988), 109, see n. 22 for sources on these early structures. More information on these three-flap or box-binding structures can also be found in J. Szirmai, *The archaeology of medieval bookbinding* (1999); and M. di Bella, 'An attempt at a reconstruction of early Islamic bookbinding: The box binding' (2011). Marco di Bella expanded his research and offers more on the early developments in M. di Bella, 'From box binding to envelope-flap binding: The missing link in Transitional Islamic bookbinding' (2016), 264–279.

and thus formed a casing”²⁸ leaves us in doubt about what the original text indicates and whether Gacek correctly interpreted the term “casing”.

The next part treats the tooling of the leather quite elaborately, but discusses the differences in decoration styles rather than the working method. Al-Ishbili does not mention whether the tooling should be carried out before or after the covered boards are attached to the textblock. However, the list of originally unnumbered chapters does suggest the latter. Using Gacek’s numbered headings, 7, 8, and 9 are, respectively, *lining inner covers*, then *paring leather*, and *mounting, covering with leather*. Only three steps later we find 12, *tooling*.²⁹

An interesting detail is hidden in the last chapter, ‘Flaws in bookbinding.’ One of the flaws mentioned is an “uneven cut of the leather near the endband.”³⁰ This seemingly trivial comment characterises the way in which the leather is applied to the textblock spine and covers, and, in fact, how it joins the binding to the textblock. As explained in chapter 2, when the cover would have been made as a case-binding structure (but which it is not), it would have been easiest to turn-in the piece of leather across the spine. With that method, there would not be any leather near the endband that needed cutting. However, because the binding was not made as a separate entity, but instead was built on the textblock, the leather on the spine extended beyond the endbands, as a tab, while the leather on the boards was turned in over the board edges. For this procedure, vertical cuts at the position of the joint were needed to allow the turn-ins over the board edges. Subsequently, the leather tab may have been cut horizontally, to bring the leather of the spine even with the endbands or at least to diminish the length of the tab a little.³¹ Although the summarised description in al-Ishbili’s text of this particular cut is insufficient to prove that he meant this specific procedure, it does contradict the case-binding technique and indicates a built-on technique. The widespread use of this technique is reflected in many bindings from then on.

Al-Malik al-Muzaffar

Another text, only slightly later than al-Ishbili’s, is called “Instructions on the art of bookbinding”; it is attributed to al-Malik al-Muzaffar, an Arab ruler residing in Yemen. It has been preserved in three copies, of which two are very

28 The word *al-maṣāḥif* may indicate a Qur’anic manuscript, but Gacek explains that this is probably not the case in this context, see 107.

29 A. Gacek, ‘Arabic bookmaking’ (1988), 106.

30 *Ibid.*, 110.

31 The specific characteristic of a tabbed or flat spine-end is discussed extensively in chapter 2, the commonness of the feature is substantiated by the survey results in chapter 5.

similar and one contains supplementary information.³² Like the treatise of Ibn Badis, quite a few chapters on ink and writing tools precede the bookbinding chapter. Adam Gacek, who translated and adapted the section on bookbinding of those three manuscripts (chapter seven of al-Muzaffar's text), points out that al-Muzaffar used Ibn Badis's treatise and quotes him at certain points. The opening paragraph, for example, lists the same tools and implements. The actual procedure starts with a description of how to prepare adhesives. The preparatory treatments of the gatherings include their collation and pounding along the spine-fold so the textblock will remain flat, but the instruction to mark the outer spine-folds of the gatherings, by dividing the length of the spine into three equal parts, to determine the two sewing stations is new.

According to the diverging copy of the text, the next procedure is the preparation of the doublures that will be sewn together with the textblock.³³ The doublure for the upper board should be the size of the gathering, the lower doublure includes the lining of the fore-edge and envelope flaps and is therefore longer. A single blank sheet of paper, also the size of the gathering, is pasted onto both doublures, presumably along the spine-fold. Subsequently, another single blank, though slightly wider sheet is applied with adhesive; the extra width is used to fold the completed endleaf structure around the spine-folds of the outer gatherings. Thus attached, the doublures and free endleaves become part of the textblock structure. The material of the doublures is not specified; perhaps the choice of leather or cloth was so obvious there was no need to state it. The instructions for adhering the additional blank folia lack details as well, yet for technical reasons we know that it is rather important that they were only pasted along the gutter instead of being adhered over the full surface, otherwise they would not function as free endleaves at all. As with the doublure material which was not mentioned, this practice may have been so self-evident that it was not mentioned, or the omission may be explained by the fact that the author was not a binder by profession. Strictly speaking, the doublures in this construction are paste-downs rather than doublures, as the endleaf section that is created becomes part of the textblock. As explained in the discussion of the text of Ibn Badis, who also describes the application of paste-downs, these references demonstrate the early use of paste-downs.

32 A. Gacek, 'Instructions on the art of bookbinding attributed to the Rasulid ruler of Yemen Al-Malik al-Muzaffar' (1997), 58. The oldest copy of this text dates 727/1327 and is preserved in Cairo, the second is located in Hyderabad, dated 876/1471, and a later copy, 1184/1770, is kept in the Bibliotheca Ambrosiana, Milan. Gacek describes the Hyderabad copy as the most divergent of the three.

33 This method of attaching doublures seems to be a rare or rather an early practice, as mentioned above, in the discussion of al-Ishbili's text.

For the next stage, the sewing of the gatherings, the binder is instructed to start at the end and use thin thread. The sewing structure that al-Muzaffar describes is clearly a link-stitch on two stations. Any swelling caused by the sewing is pounded flat after the manuscript is sewn. Like al-Ishbili, al-Muzaffar advises that the spine be rounded, although “not too round as this would damage the glosses during shaving, nor too square for this would precipitate the disintegration of the book.”³⁴ The rounded spine is lined with three layers of paper. The first layer exactly fits the height and width of the spine, the subsequent layers are two fingers wider and form a flange or hinge on each side of the spine. Then an additional spine-lining is applied. This secondary lining appears to be a partial lining only, made with two pieces of thick cloth. The text seems to indicate that these cloth linings are short and only cover the outer ends of the spine, and do not extend on both sides over the joints.³⁵ If this is correct, these linings only serve to support the primary endband sewing and do not strengthen the most vulnerable part (the outer ends) of the joint. I did not encounter this particular type of lining in the survey, nor during conservation treatments.³⁶ It therefore occurred to me that this could be a misinterpretation caused by our modern definitions. In our perception, the ‘width’ of the spine is the distance between upper and lower cover, and ‘the ends’ of the spine likely refer to the head and tail. But if we read this part conversely, then the width of the spine refers to the length of the joint—after all, the manuscripts were kept lying horizontally on their back cover—and the ends of the spine indicate the sides, the joints themselves. Interpreted this way, the description of the first and secondary lining corresponds to the treatise of Ibn Badis and, what is more, with the actual situation we generally encounter on manuscripts. In this

34 A. Gacek, ‘Instructions on the art of bookbinding’ (1997), 61. The shaving here refers to cutting the textblock edges at head, tail, and fore-edge, executed after sewing in order to obtain smooth textblock edges. It is interesting that the shaving is remarked on as a subsequent treatment, after the rounding of the spine, since a convex spine results in a concave fore-edge. As a consequence, when the fore-edge is cut evenly, in this stage, the margins of the outer gatherings are trimmed slightly shorter than those in the middle. This explains al-Muzaffar’s warning.

35 A. Gacek, ‘Instructions on the art of bookbinding’ (1997), 61: “After this, two pieces of thick cloth (*khirqah*) of the width of the spine and three fingers long (ca. 5cm) are attached to the ends of the spine.”

36 Of course, when the binding structure is sound and the leather on the spine is not damaged, the lining is not accessible and therefore the survey results are not conclusive. On the other hand, this particular structure with only paper hinges as functional board attachments, is deemed more vulnerable than structures that include textile or leather flanges. Therefore, we would expect that if this method had been used regularly, it would have revealed itself during the survey, when rather a large number of damaged items were studied, or during conservation treatment of some of these manuscripts.

interpretation, the primary paper linings (hinges) then seem to function as a stabiliser for the cloth joints.

The procedure to fabricate the boards is similar to that outlined in the text of Ibn Badis. After drying, the boards are positioned on the textblock, a bit away from the spine, which in this stage of the procedure means that the boards are placed on the reverse side of the doublure, with the hinges formed by the linings between. This is followed by the endband sewing. The instruction for making the leather endband core indicates that the strip of leather needed is the width of half the little finger. "It is glued on the inside with *nashan* (starch paste), twisted and dried."³⁷ It remains unclear what 'the inside' means, though one would assume it is the flesh side of the leather. It is equally uncertain why the leather core should be twisted; the endbands that I examined do not attest this practice. However, the width of the strip of leather that is advised (the width of half the little finger) is unusually and impracticably wide; it would result in an endband that would restrict the opening of the pages. The application of paste on the flesh side of the leather and then fold it and twist it would result in a much smaller core; this could be a feasible explanation of the text.

The description then states that the gatherings are pre-pierced with an awl, then the primary endbands are sewn with a thread of the same thickness as that used for the sewing of the gatherings (which was thin), but with a thicker needle. Presumably, "the thicker needle" refers to a blunt-pointed needle, and the pre-piercing explains the need for a blunt point, as this would make it easier to manoeuvre in the spine-fold and find the pre-pierced hole; with a sharply pointed needle the risks of damaging the paper would have been substantial. Al-Muzaffar does not explain the procedure for making the secondary endband, except to state that silk thread was used.

After this, Al-Muzaffar follows this with a section on the preparation of the covering leather. The notes on tanning, paring and dyeing are again very similar to Ibn Badis's treatise; therefore, Gacek does not go into details. The paragraphs on the application of the leather are not entirely clear. The text says that "the covers [boards] are pasted on the outside and the leather is glued onto them," which means that the paste is spread on the pasteboards, and not the leather; this proves to be important later in the procedure. For this procedure, it is not explicitly stated whether the boards should be de-mounted from the textblock. However, the next paragraphs do indicate that this would have been the case, since the covers and flaps are folded after the leather is applied on the outside of the boards, and left to dry under a stone. After this, the desired tooling is done. Only then are the covers and spine pasted onto the textblock spine

37 A. Gacek, 'Instructions on the art of bookbinding' (1997), 62.

and doublures.³⁸ Therefore, it seems that the provisional attachment of the boards, while the endbands were sewn, serves to stabilise the manuscript during that phase of production. Interestingly, in the described work procedure, the leather turn-ins are pared only after the leather is applied to the boards, and after it was left to dry for an hour. This explains why it was necessary to spread the paste on the boards, and not onto the flesh side of the leather. The paring of such a small length of leather protruding from the board edges (which cannot have been much broader than one and a half centimetres) is not an easy task because the thickness of the boards prohibits the movement of the knife. It does, however, provide an additional reason for working the boards off the textblock. As an extra detail, al-Muzaffar mentions the finishing of the turn-ins; according to him these should be cut straight, presumably for aesthetic reasons. Although examples of such treatment were found, there is no great need to do this, since the turn-ins are largely covered by the doublures, though not, of course, when cloth doublures were used. Therefore, the description of this custom may indicate that textile doublures were common, or may point to a certain 'school' of practice.

The the description of the covering procedure is not complete and the procedure remains inconclusive; it could indicate that binders prepared a single piece of leather onto which the boards and flaps were adhered, or that they used the two-piece technique. Crucial details are simply lacking. The text does not mention the treatment of the spine-ends, so it is unclear whether these were prepared by cutting the joints and leaving tabs or by cutting the ends flush with the boards.

Ibn Abi Hamida

The fourth text, a didactic poem, is thought to have been written in the fifteenth century by Ibn Abi Hamida; again, the text is available in an English translation by Adam Gacek.³⁹ It seems that Ibn Abi Hamida is the most mysterious of this group of historic authors. He probably lived in the fifteenth century and, according to his own words, he was not taught the craft of bookbinding, but did receive some advice from a judge (*qadi*) in Damascus; however, this does little to explain the source of his bookbinding knowledge.⁴⁰ As far as we know, only one copy of the poem has been preserved; it is now kept in the Dar al-Kutub, Cairo (the National Library and Archives of Egypt). It is not dated, but appears to be a late copy, probably from the mid-nineteenth century.

38 A. Gacek, 'Instructions on the art of bookbinding' (1997), 63.

39 Idem., 'Ibn Abi Hamidah's didactic poem for bookbinders' (1992).

40 Ibid., 41.

In line with the other texts, Ibn Abi Hamida starts his instructions with the making of adhesives. In the second chapter, the preparation of doublures and boards is described, though only very briefly; the text says that “the leather used for doublures should be thin. It is glued on one side only and attached to the textblock by means of threads. The boards are then mounted and left to dry.”⁴¹ The compressed instruction and ambiguity of the terms make understanding the process quite complicated. At first reading, “the mounting of the boards” in this stage seems to indicate their application to the textblock. This would be an important instruction, as it indicates that the binding is assembled on the textblock. However, the mounting may also simply refer to assembling the pasteboards. This is affirmed by the instruction that they should be left to dry, which is something an experienced binder would not do on the textblock, as the moisture within the pasteboard could affect the paper and ink of the textblock. By the same token, it is not clear if “side” indicates an edge of the doublure leather (presumably the gutter, or spine edge) or the whole surface of the leather, presumably the flesh side. In the latter case, the gluing “on one side” could indicate the mounting of the boards onto the textblock. Technically, since the instruction refers to sewing of the doublure to attach it to the textblock, there would not be a need for the additional attachment with adhesive. According to this premise, it remains uncertain whether the folded edge of the doublure was adhered as a stub onto the gutter edge of the outer textblock leaf, or if the extending side of leather doublure was adhered onto the textblock spine, as a spine-lining. In either case, sewn-on leather doublures are not common, but they are encountered in some Andalusian and Maghribi manuscripts.⁴²

The next part of the text deals with the shaving or trimming of the paper edges, followed by “the sewing of the gatherings and endbanding.” Again, the text offers no definitive clarity. If the order of the verses correlates to the order of the binding operations, then it would be unlikely that the gatherings would be trimmed at this stage. When gatherings are sewn, it is extremely difficult to prevent the slight displacements of leaves. Therefore, the trimming of the textblock edges usually follows, and does not precede, sewing, in order to eliminate any unevenness in the edges. It remains unclear where the sewing fits into the procedure. In footnote 6 (p. 42) Gacek explains that the word *shabikah* (endband) refers only to the sewing of endbands, and that the author does not

41 Ibid., 41.

42 See note 22 above. Perhaps this structure was a more common product of Ibn Abi Hamida’s time; the fact that few manuscripts from the fifteenth century have survived unscathed in their original binding may explain our unfamiliarity with the sewn doublures.

elaborate on the sewing of the gatherings, in which case the textblock sewing may have preceded the trimming of the textblock after all.

Ibn Abi Hamida does not provide details about the sewing of the endbands, except to state that two needles—one with a ‘thick head’—and two colours of silk should be used. The advantage of using a needle with a rounded point has been elaborated on above. It is likely that the ‘thick head’ refers to such a needle; this also indicates that the other needle, for the sewing of the gatherings, was thin and sharp. By contrast, the mounting of the leather is described in more detail and offers an interesting account of the procedure. The work is done with leather in one piece, which should be cut into a piece large enough to fit the boards and the envelope flap plus the turn-ins. “The procedure begins with the spine, then the upper and lower covers and ends with the flap. Turn-ins are done as a final step when the spine has satisfactorily adhered to the leather. The book, with the covers thus mounted, is then placed in a press.”⁴³ This clearly indicates that the leather was applied to the textblock on which the boards were already mounted, or at least put in position, and thus it refers to the built-on method. The boards are not covered in leather while they are off the textblock, and only then adhered to the textblock spine; therefore the structure cannot be considered a case-binding.

Additionally, the explicit mention of making the turn-ins only after the spine leather has sufficiently set corroborates the use of a binding procedure which results in tabbed spine-ends. Although the procedure is not explicated, the leather that extends at the head and tail would have to be cut near the joints to allow for the turn-ins to be made, thus forming tabs. Another result of the working procedure that is described, is that the turn-ins would cover the doublure, because the doublures were already adhered to the inside of the boards. Although such a composition is not at all common, it is noteworthy that the two bindings with sewn-on leather doublures in the UBL are indeed specimens with turn-ins covering the edges of the leather doublures. The last stage discussed in the text is the tooling of the covers, and some instructions are specified for heating and cooling the tools. The exterior as well as the doublures are tooled according to the binder’s preference.

Al-Sufyani

The fifth text is dated 1619, and was written by a master craftsman, al-Sufyani, who lived and worked in the Maghrib and supposedly wrote his treatise in Fez.

43 Gacek, ‘Ibn Abi Hamidah’s didactic poem for bookbinders’ (1992), 42.

It is known only from a late copy (1839), based on which we have an edition first published in 1919.⁴⁴

After an introduction, al-Sufyani describes making the boards, then assembling the gatherings. He advises the use of catch-words to avert disorder, and the flattening of the gatherings, through pounding. Before the gatherings are sewn, al-Sufyani suggests marking the spine-folds on the outside with ink, in two lines, where the sewing thread will pass. Although he does not explicitly mention the use of the link-stitch over two stations, this instruction certainly points to that sewing structure. He prescribes a thin but strong thread, however, when the book is thick and swelling is caused by the thread notwithstanding the thin thread, then the textblock needs to be rubbed over the spine edge, using a bone-folder, in order to rub the excess material away, into the mass of the paper. There are also suggestions for adjusting the textblock properly, should gatherings slip out of alignment.

When the gatherings are sewn, a layer of adhesive is applied to the textblock spine.⁴⁵ According to al-Sufyani's description, a fair amount of it should be spread on the textblock spine, even between the gatherings. This action is, however, immediately followed by the use of the press, to make the thickness of the textblock spine even with the other edges and to remove the excess glue.

The next sentence indicates the application of a leather spine-lining. According to the description, two strips of finely-pared leather are used. Al-Sufyani does not explicitly state that they should fully cover the spine, neither from head to tail nor from joint to joint. Nor does he indicate that the two strips should abut or overlap in the middle of the width of the spine. However, the next paragraph continues with the application of the leather hinges and this provides additional clues. We can deduce two additional facts from this part of the text. First, the leather is pared when wet. It is not uncommon to do this, but it is not explicated anywhere in the text. Al-Sufyani expresses

44 For the analysis of al-Sufyani's text I mainly used the translation of M. Levey, *Mediaeval Arabic bookmaking* (1962), 51–54, and compared it with Bosch et al., *Islamic bindings and bookmaking* (1981). In his introduction, Levey writes that he studied the text as published in 1919 in Fez, and he states he was unable to procure a second edition published in 1925 in Paris (both by Prosper Ricard), 6–7. However, the heading on 51 suggests that he *did* use the 1925 edition, which seems likely, as this was probably a more accessible edition; it was also used by Bosch et al.

45 M. Levey, *Mediaeval Arabic bookmaking* (1962), 52. In the glossary (58–65) several types of adhesive are mentioned, such as starch and fish glue. As Levey used the verb “to glue” as a generic term in the text, it is not always clear which adhesive was actually used. The word glue usually indicates an adhesive made from an animal source, such as hide or bones, while paste or starch indicate a vegetal adhesive. From my own conservation experience I can say that animal glue is not often found on Islamic textblock spines.

the concern that dampness from the leather may damage the outer leaves of the textblock, especially when these leaves are decorated with gold or water-sensitive paints or dyes. Therefore, he advises keeping the two hinges away from the front and back of the textblock “in such a manner that the hinges do not come in contact with the writing.”⁴⁶ He also remarks that “when you prepare the two hinges, both being wide, glue them to the book when they are dry, neither moist nor wet.” Since the adhesive would certainly introduce moisture to the leather, that is not the kind of moisture he is referring to here; therefore, it must point to moisture from another source and the leather hinges, that were moist during paring in the preceding phase, are the likely cause of it. Second, we learn that the textblock al-Sufyani refers to is not protected at the front or the back with blank bifolios, or even a single leaf of paper. This indicates that the gatherings were copied from front to back without designating outer leaves as endpapers, nor were extra protective leaves added at this point in the procedure. This also suggests that the previous method of sewing leather or cloth doublures together with the textblock was no longer standard procedure. As to the application of the two leather hinges, the phrase “turn over the two hinges on it, each of them on the other with awling and flattening”⁴⁷ seems to point to the position of the hinges on the spine. Indeed, they should overlap: only then do they provide full support to the textblock spine and the tiedowns. However, it remains uncertain why two strips of leather are required, when it seems that one piece of sufficient width could have served the same purpose.

Al-Sufyani suggests that an additional three layers of spine-lining, made from paper, should be adhered to the spine while the sides of these paper strips may protrude on both sides of the joints. After drying, these extending sides should be cut off with a sharp knife. He does not explain the function of these additional linings, but the obvious reason seems to be to further even out the spine so the leather covering does not show any unevenness. During the present study, I encountered several manuscripts with multiple layers of spine-linings, combining leather and paper, and these attest to this practice.

The preparation of the boards is discussed as the next step. The upper and lower boards are cut first and then positioned on the textblock, using two or three drops of glue on the hinges, to keep the boards in place. At this point, the description shows a resemblance to the text of al-Malik al-Muzaffar. When the thus positioned boards have dried in the press, al-Sufyani describes the cutting of the edges. Although he does not state it explicitly, this procedure seems to include the cutting of both textblock edges and the two boards. This would

46 M. Levey, *Mediaeval Arabic bookmaking* (1962), 52.

47 *Ibid.*, 52.

indeed be an adequate method for making the boards flush with the textblock. After pumicing to remove any trace that may have been left by the cutting iron, a third board is cut to size for the fore-edge flap (“the fore-band”) and the envelope flap (“the tongue cover”).

When all the boards are ready, the leather can be applied. First the front board is to be marked in the centre, for the stamping. The board is covered with leather while positioned on the book, and rubbed “to the right and to the left”; only then is the board detached from the hinges, lifted from the textblock, and put on a marble slab. Stone provides a solid and flat surface that is more suitable for the further tooling of the leather than the somewhat springy textblock. Once placed on the stone, the leather is stamped, and the turn-ins may be made. Work continues on the second and third board (the back board, and the fore-edge and envelope flap). From this, we can deduce that both boards are covered individually, a clear indication of the two-piece technique. Al-Sufyani seems to describe a method that involves spreading the adhesive on the boards, not on the leather. Between the third board (the flap) and ‘the other board’ (the second or back board) the binder should leave a space the width of one or two fingers for flexibility. Once the exterior of these boards is covered, the inside surface of the fore-edge flap is covered with leather. Al-Sufyani describes the use of a piece of pared leather which is adhered from the edge of ‘the other cover board’ to the outer edge of ‘the tongue.’⁴⁸ This seems to imply the covering from the back board edge adjacent to the fore-edge flap, to the outermost edge, the point of the envelope flap. Al-Sufyani then describes the variant in which the doublure of both flap elements are created by a single piece of leather.⁴⁹

The subsequent chapter deals with drying the leather that covers the boards, and subsequently rubbing and polishing it. “After you complete this aspect of bookbinding, you line it either with leather or cloth.”⁵⁰ This “lining of the boards” seems to indicate the application of the doublure at this point. Although feasible, it complicates the board attachment with the leather hinges, if they are to be pasted underneath the doublures (where the usually are

48 M. Levey, *Mediaeval Arabic bookmaking* (1962), 53.

49 Such a leather doublure of the fore-edge and envelope flap was usually combined with either a paper, or a separate leather doublure of the back board. From the survey results, it appears that this technique was indeed common in the centuries preceding al-Sufyani’s text. From the seventeenth century and later, when the flap pieces were lined with leather a continuous piece was used to cover the back board as well. Otherwise, only the inside of the fore-edge flap and adjacent joints were covered with leather, while the doublures of the envelope flap and the back board consisted of paper. See also chapter 5.

50 M. Levey, *Mediaeval Arabic bookmaking* (1962), 53.

adhered). After the sewing of the endbands, which is dealt with first, al-Sufyani continues with this phase of the procedure—the lining of the boards. He omits, however, relevant advice: “... fix the cover boards on the book after you have spread it with glue.”⁵¹ This leaves us at a loss as to how we should explain the attachment of the hinges; what part of the book is spread with adhesive? Evidence on most manuscripts shows that inner joints or hinges were not adhered on top of the doublures, but directly to the inner boards and under the doublures. Thus, there are two possibilities to explain al-Sufyani’s text. Either the doublures were not applied before the board attachment and we need to read the text differently, or, they were only partially applied, and a few centimetres close to the edge of the inner joint were left free. That way, the hinges could be pasted onto the boards underneath the doublures, before the pasting down of the last few centimetres of the doublures is completed. This would be a complicated work procedure and, therefore, it seems unlikely. A second argument against this explanation is that cloth and leather doublures were no longer common at the time al-Sufyani wrote his treatise. Therefore, another possibility is that the sentence “... you line it either with leather or cloth” does not refer to the doublure at all, but to the flanges of the spine-lining, which would indeed have consisted of leather or cloth. If true, it indicates that the boards were attached to the textblock at this stage, which would make perfect sense. However, it remains undecided what the author actually meant, or whether a later copyist may have introduced an error in the text.

The procedure of the endband sewing starts with the adhesion of the leather core onto the edge of the gatherings, using gum Arabic. Al-Sufyani briefly describes sewing the primary endbands, and explicitly states that the thread is attached with a knot on the spine. The secondary endband sewing, however, is summarily described as “weaving it with coloured silk until you complete the work of the headband from the two sides.”⁵² In the same paragraph, the description of the work then proceeds with “... fix the cover boards on the book after you have smeared it [presumably the extending leather on the spine side] with glue.” This is followed by the instruction “Tie on the spine side with strong thread.” The action he refers to must have been clear to a binder, since he does not elaborate on it further. Apparently cord was used to tie the book, probably so as to put pressure on the moist, freshly applied parts of leather now covering the spine. That cord could be tied perpendicularly to the spine or

51 Ibid., 53.

52 Ibid., 53.

along the joints, modelling the tabs over the endbands in the process. From the text, the exact procedure is not clear.

The fifth chapter elaborates on the use of gold and is not relevant for studying the structure of the book. The sixth and last chapter is a short text dedicated to the decoration of the leather for binding. It does not add anything further to the bookbinding procedure. Again, this treatise gradually comes to a conclusion, but without a clear description of the last procedures that seem necessary for the making of the Islamic book, which would include the adhesion of the spine-lining flanges on the inside of the boards, followed by the pasting of the doublures. However, while the treatment of the board attachment and application of the doublures is incoherent, at least in our view, the author may have felt that all stages were addressed well enough. Perhaps al-Sufyani considered these final procedures so obvious that he saw no need to explicate them further.

Concluding Observations

The five texts have a similar structure. They start with an overview of the necessary tools for bookbinding and instructions on how to make adhesives. They all give clear instructions for how to prepare the gatherings for sewing, and they stress the importance of keeping the surface of the spine level with the rest of the textblock. As for the shape of the spine, al-Ishbili and al-Muzaffar suggest that a rounded form is preferable. All the sources describe the preparations for the boards rather similarly. The noteworthy differences are found in the lining of the textblock spine, the assembling of the doublure material, the board attachment, and the application of the covering material.

Except for the oldest and most recent documents, the texts remark on the practice of sewing leather doublures onto the textblock. However, we lack evidence for a frequent use of this method. None of the authors denote the use of a link-stitch sewing on four stations, although this method of sewing was used in their region, at least in the times of the two most recent authors. All the authors describe how to line the textblock spines after sewing. Leather, cloth, and paper are noted as suitable materials, and the linings are consistently described as projecting over the joints so the extensions could be used for board attachment. It is interesting to note that additional spine-lining strips of paper are mentioned several times. Those extra linings were presumably intended to further flatten the spine, for they were not used as board attachments, except for the paper 'hinges' described by Ibn Badis. He only indicates the use of paper linings, without reference to an additional stronger lining material, so the flanges of paper, in this case, were necessary to form the attachment

to the textblock. It is important to emphasise that all treatises confirm that the lining is part of the structure. On the assumption that the sequence of the described steps reflects the actual work procedure, the texts clearly indicate that the spine-lining was applied before the primary endbands were sewn.

All five texts include a paragraph that deals with the finishing of the textblock edges. They do not diverge significantly, except perhaps in method or in the tools used. All the treatises mention shaving or trimming the edges, either with a trimming blade or a knife, followed by softening the paper edges with a pumice stone or a file. The edges of Islamic manuscripts are seldom decorated, so the smoothing of the edges does not serve the purpose of preparing them for gilding or marbling. Still, when five out of five sources mention it as a necessary step we must assume that it was considered worth the effort. Al-Sufyani mentions this action to dispose of any traces of the instrument used for trimming. Possibly it enhanced the ease to leaf through a textblock; it is also possible that the aesthetic quality was heightened by the polishing.⁵³

Save for al-Sufyani, all the authors describe the use of two needles for the endband sewing, without explicating their precise usage. The endband type that consisted of the chevron pattern, which was predominant in the whole period covered by these primary sources, was easily made with one needle. The leading or active thread, that holds by the needle, takes the other thread along while it passes underneath one or more primary endband warps. The ‘vertically striped’ variation in pattern can likewise be produced with just one needle.⁵⁴ The exception appears to be the diagonal pattern and the chevron pattern in three or more colours; for the latter three needles are necessary. However, this variety is extremely rare and its occurrence seems to be confined to Southeast Asia, an region which was not covered by these historic texts. Thus, although most endbands are executed in two colours, for the majority of the secondary sewing patterns only one needle was used. Could it be that the instruction to use two needles for endbanding actually points to the separate sewing stages? Ibn Abi Hamida writes in his conclusion that “only the

53 By comparison, western historic sources on bookbinding techniques do not contain instructions or suggestions for smoothing the edges. The trimming or cutting of edges is a standard technique, for which different tools were used, but I know of no further mechanical methods for sophisticated results (with the exception, of course, of marbled, gilded and gaufered edges).

54 See chapter 2, figs. 55, 111–114 for images of these patterns. Making models of these endbands clearly demonstrated the easy production with a single needle for the chevron and vertically striped pattern. The diagonal (or ‘trellis-like’) endband is best done with two needles, although one might ‘cheat’ at the beginning of every other tour by skipping a warp; this would allow the use of just one needle, and one would still end up with a nice diagonal endband sewing.

needle for endbanding should have a thick head.”⁵⁵ Presumably, ‘thick’ meant round, as opposed to pointed; a round needle point facilitates a smooth passage between the tiedowns and endband-core leather strip, whereas a pointed needle would catch on the materials and cause damage. Such a needle, however, would not be practical for sewing the primary tiedown, connecting every gathering to the endband core and spine-lining. For that purpose, a thin and sharp needle was used. Yet, the decorative sewing on top of the endband core was sewn with the second, thicker (or rather rounder) needle. This is the most obvious explanation.

With regard to structure, it is noteworthy that both Ibn Badis and Ibn Abi Hamida describe the method of building the binding on the textblock, that is, first mounting the boards and then applying the leather. Bakr al-Ishbili provides more options; the two-piece technique that he mentions involves attaching the boards after covering the separate covers, but he also indicates that the boards could be attached prior to covering. Al-Malik al-Muzaffar offers no conclusive procedure but hints that the boards should be prepared and covered prior to their attachment to the textblock; whether or not two pieces of leather were used in that process remains unclear. Al-Sufyani also refers to the two-piece technique, albeit indirectly. His description indicates a technique of covering the boards, individually and separately, prior to their attachment.

As we see in the secondary sources, there is a persistent inclination to refer to Islamic manuscripts as being case-bindings, or, when that specific term is not used, the preparation of the entire binding separate from the textblock is indicated in other words. Additionally, the frequent occurrence of the two-piece technique is overlooked in the vast majority of the secondary sources. Therefore, we must assume that the historic treatises, in this respect, have been widely neglected as a source to help understand the structures and actual composition of these artefacts.

Secondary Sources: Related Studies and General Reference Works

Book-historians, Art Historians, and Pioneers of Manuscript Studies

Since many of the materials and decorative techniques used to produce western bindings first occurred in the Near and Middle East, Islamic bindings are frequently referred to in studies on the history of the western book. The ornamentation schemes and decorative tools used to beautify Oriental bindings significantly influenced western styles of book decoration, and the importance

55 A. Gacek, ‘Ibn Abi Hamidah’s didactic poem for bookbinders’ (1992), 42.

of Middle Eastern manuscripts as a source and inspiration for the development of western binding designs has not been underestimated. Similarly, developments in the use of the materials in the Orient were transferred to Europe over time and permanently changed the western bookbinding tradition. Examples include the use of alum tawed leather, the introduction of paper, the use of pasteboard instead of wooden boards, the practice of gold decoration, techniques for cutting filigree leather, and the secret of paper marbling. However, although these aspects may be covered in many reference works on western bookbinding, technical descriptions of Islamic bindings are only touched on briefly.⁵⁶ Generally they do not go beyond the observation that the Coptic sewing structure—a chain stitch sewing—underlies the sewing techniques of both Islamic books and western codices, and then it is added that the Islamic book structure may be referred to as a kind of case structure.⁵⁷

Some of the first publications on the general aesthetic aspects of Islamic bindings were discussed briefly in chapter 1. I do not address these further since they do not add to the topic of structure and technique. An important exception is *Der islamische Bucheinband des Mittelalters* (1962) by the German Arabist and Orientalist Max Weisweiler, who followed a much more thorough line of research on this topic. He assessed hundreds of Arabic manuscripts from the pre-Ottoman period in collections preserved in Berlin, Gotha, Istanbul, Tübingen, and Leiden. He made rubbings from (parts of) their covers and developed a system to group them according to differences in tooling patterns and decorative schemes.⁵⁸ Weisweiler's detailed typology of decorative groups is highly esteemed and has contributed to the diligence with which scholars now approach many early manuscripts. His study did not, unfortunately, include remarks on the structure of the bindings. Partly based on the results of Weisweiler's research, Gulnar Bosch further studied the use of block-stamped leather doublures, associated with the pre-Ottoman binding, preserved in the Oriental Institute at the University of Chicago.⁵⁹

A completely different contribution was made by Johannes Pedersen, the Danish theologian and Orientalist, with *Den Arabiske bog* (1946), translated

56 The exception is J. Szirmai, *The archaeology of medieval bookbinding* (1999). Chapter 5 is devoted to the Islamic book structure (51–61) and is discussed below.

57 See, for example, M. Foot, *The Panizzi lectures 1997: The history of bookbinding as a mirror of society* (1998), 4.

58 M. Weisweiler, *Der islamische Bucheinband des Mittelalters. Nach Handschriften aus deutschen, holländischen und türkischen Bibliotheken* (1962).

59 G. Bosch, 'Medieval Islamic bookbinding: doublures as a dating factor' (1964); this study is summarised below.

into English in 1984.⁶⁰ He sketched the whole picture of Islamic manuscript production, starting with how manuscripts were composed, then written, authorised and published, copied, bound, and traded. Thus, he explained many aspects of the tradition and put it into context. In the early centuries of Islam the *warraq* (copyist) was more than a professional transcriber; he may also have been involved in proofreading, binding, and selling the manuscripts.⁶¹ However, when the need for books increased in later centuries, the book-maker's art was divided into several specialities, one of which was that of the binder.⁶² Pedersen described the characteristic features of the manuscript form, the flat spine with the leather covering adhered directly onto it, and the envelope flap, but he provided no technical details.⁶³ The rest of his chapter on bookbinding is devoted to developments in the decorative aspects; apart from tooling and painting, he does not mention bookbinding techniques. Pedersen ends with the remark that "the bindings considered so far have been the deluxe ones. The ordinary, everyday bindings, of course, did not have the costly decoration described here."⁶⁴ This remark is important and reflects the general focus in bookbinding studies, which until then covered only one part of the spectrum.

At the end of the nineteenth century, Paul Adam, who was a German book restorer, became interested in the Islamic book structure when he became involved in the conservation of a collection of Oriental manuscripts.⁶⁵ He took great care in analysing the techniques used to manufacture the objects before treating them, and published his observations on their structure.⁶⁶ Adam recognised the importance of the endbands and described them as an essential part of the sewing system, with a function similar to the western kettle-stitch close to the head and tail of a book.⁶⁷ He also noted that the sewing structure was remarkably consistent over the ages, in contrast to western sewing

60 J. Pedersen, *Den Arabiske bog* (1946).

61 J. Pedersen, *The Arabic book* (1984), 50–52.

62 *Ibid.*, 102–103.

63 *Ibid.*, 104–105.

64 *Ibid.*, 112.

65 P. Adam, *Lebenserinnerungen eines alten Kunstbuchbinders* (1951), 102.

66 *Idem.*, *Der Bucheinband; seine Technik und seine Geschichte* (1890), 186–200.

67 *Idem.*, *Das Restaurieren alter Bücher: Wiederherstellungsarbeiten an alten Büchern, Einbänden, auch Manuskripten sowie Ausführungen über das notwendige Verständnis für die Technik des Buches zur Beurteilung von Zeit und Herkunft alter Einbände* (1927, reprint 2003), 26, 28, and 48. He even stipulated that the function of the Oriental endband is so important for the stability of the manuscript that, when a binding needs to be restored, one should never cut the edges of the textblock, for then the endband sewing would be cut as well.

structures that varied considerably over time. According to his descriptions, Adam never came across manuscripts sewn on more than two stations.⁶⁸ The way he incorporated and discussed the Oriental book in *Das Restaurieren alter Bücher* was a novelty. Unfortunately, although he compared the western and Oriental binding features in nearly every aspect, in his description of the methods used to cover bindings in leather, he did not include Islamic manuscripts.⁶⁹ Therefore, we do not know if he noted the two-piece technique, or what his thoughts on tabbed spine-ends were.

An even older ‘pioneer’ in Islamic bookbinding studies is Mary Eliza Rogers, although her perspective was that of an outsider; she was not a craftsperson herself. She travelled the Levant with her brother in the 1860s, where she visited several bookbinder stalls in souks, and she wrote a short account of what she encountered.⁷⁰ Her insights into a nineteenth-century workshop offer details not given elsewhere. In the author’s sketch of a bookbinder’s workplace, we see a sewing frame standing on the floor right behind a chest which also functioned as a worktable. Given that a sewing frame is not used for the traditional Islamic link-stitch sewing, this device is a clear indication that the western method of sewing on supports had been introduced.⁷¹ Rogers states that “the five [Damascene] bookbinders good-naturedly lend their patterns and tools to each other”⁷² and notes that none of the stamps, used for decoration, seem to be very recent, because sufficient old stamps were available. Both observations imply that the study of stamps—at least of that period—will not be a useful way of identifying the workshops of specific binders. Rogers also describes the use of asphodel, “an excellent paste,” used to adhere the leather for covering and for the glazing of paper. According to her, the asphodel paste was also used with wheat starch, in a ratio of one to two. The paragraph documenting the actual making of a binding suggests the making of a true case-binding, although, unfortunately, she does not mention the precise stage at which the textblock was attached to the cover. In short, she says that paste is applied to the inside of the leather, and then three boards—front board, back board, and

68 Ibid., *Das Restaurieren alter Bücher* (1927), 48.

69 Ibid., 33–36.

70 M.E. Rogers, ‘Books and book-binding in Syria and Palestine’ (1868), 113–115; this account, including her illustrations of a bookbinder at work and details of tools and designs, was brought to light by Jake Benson in his contribution to a conference on codicology of manuscripts of the Arabic script (Madrid, Spain, May 19–21 2010); the paper was published as ‘Satisfying an appetite for books: Innovation, production, and modernization in later Islamic bookbinding’ (2015), 378–379.

71 Several manuscripts from the nineteenth century with local, contemporary bindings are included in the present study, and attest to this practice.

72 M.E. Rogers, ‘Books and book-binding in Syria and Palestine’ (1868), 115.

envelope flap—are applied to it. According to the sequence of the description, the next step is the application of a cloth lining to the inside of the fore-edge flap, then the edges of the leather are turned-in and rubbed with a bone-folder (in this case, the tool is described as a “boxwood rubber”). After the leather has firmly set, the stamped designs are applied to it by vigorous hammering. She does not mention the sewing of the gatherings, the application of the endbands, or the textblock attachment. In this respect, her account could even be a description of the making of a wrapper binding for an unsewn textblock. The only further steps noted are the application of a leather lining to the flap—it is not specified whether this is the fore-edge flap or envelope flap—and paper to “the other parts.” Given the non-professional nature of Rogers’s interest in bookbinding, it is difficult to judge the reliability of her eyewitness account. However, her description of the making of the binding separate from the textblock could be correct; techniques and materials from the West are known to have been used in the nineteenth-century Islamic world—the sewing frame is an obvious witness—and the western case-binding was developed some forty years before Rogers published her report.⁷³

Glossaries and Encyclopaedias

Entries on ‘bookbinding’ in encyclopaedias on the Islamic world start with a short characterisation of the typical shape of the Islamic manuscript (edges flush with the covers, spine always flat without raised bands, and a flap attached to the back cover to protect the front-edge, which is tucked under the upper cover). The description then follows with the development of the decorative aspects. The *Encyclopaedia Iranica* elaborates on the impressive technical advances made during the Timurid period and later during the Safavid dynasty, and addresses the craftsmanship of filigree cutwork and the manufacture of lacquer in some detail, however, no mention is made of how books were constructed.⁷⁴

The entry ‘book’ in *Medieval Islamic civilization: An encyclopaedia* stresses the eminent position of the manuscript in the Islamic world in order to explain the care calligraphers and binders took to produce these artefacts.⁷⁵ The phrase “although elegant and alluring, the binding offered a robust protection

73 M.T. Roberts and D. Etherington, *Bookbinding and the conservation of books: A dictionary of descriptive terminology* (1982), 47; the case-binding is said to have been developed in the 1820s in Great Britain.

74 E. Yarshater (ed.), *Encyclopaedia Iranica* (1990), vol. IV, ‘Bookbinding,’ by Duncan Haldane, 363–365.

75 J.W. Meri (ed.), *Medieval Islamic civilization: An encyclopaedia* (2006), vol. I, ‘Books,’ by David J. Roxburgh, 114–117.

for the text that it contained” is noteworthy, for it recognises the protective functionality of the binding, which is so frequently underestimated or disputed in western sources.⁷⁶ While the possible varieties of book production in society are described (from the individual copyist who sold his books in the market to the sophisticated and highly specialised artists working under royal patronage), actual bookbinding techniques are not discussed.

More information is provided by the latest, online edition of the *Encyclopaedia of Islam*, which interlards an overview of the development of the physical appearance of the book with technical information. The entry even opens with the statement that several types of binding were used in the Islamic world and that not all manuscripts were bound.⁷⁷ Both the box-binding (‘Type One’) and its successor, the ‘Type Two’ binding are explicated in fair detail. Bindings from the southern Maghrib and sub-Saharan Africa are explicitly mentioned as a distinctive group, as these manuscripts are often not sewn. Indeed, the textblocks consist of gatherings or loose sheets, and the bindings are not necessarily connected to them. Their covers are described to be made of supple leather, for which sometimes several pieces were used, in the archetypal shape with an envelope flap extending from the back cover. It is also noted that these flaps frequently close over the upper cover, at least in cases in which the tip of the flap contains a leather strap that can be wrapped around the entire volume. There seems to be a reference to the tab, though it is referred to as *endcap*: “The endcap protects the bundle of quires but is not fixed to the covers.” When Guesdon later discusses Central Asian bindings, they are said to be sometimes “adorned at the top or bottom with small scraps of leather that could be grasped by the user to pull the volume off the shelf.” The source of this remark is probably Akimushkin.⁷⁸ However, the theory for this possible use of tabs has not been substantiated, and is even contradicted by the common practice of writing the title of a manuscript on its tail edge, which means that the volume was positioned on the shelf with the tail side out, and not the spine, so the tab at the head could not be reached. Nevertheless, it is

76 Ibid., 115.

77 Marie-Geneviève Guesdon, ‘Bookbinding,’ *Encyclopaedia of Islam*, Third Edition, ed. Gudrun Krämer, Denis Matringe, John Nawas, Everett Rowson, Brill Online, 2013. http://referenceworks.brillonline.com/entries/encyclopaedia-of-islam-3/bookbinding-COM_22883?fromBrillOnline=true, first appeared online 2011 (accessed 12 June 2017).

78 The “scraps of leather” are an interpretation, Akimushkin writes, “The back spine sometimes had two tongued flaps that extended upward and downward (1.5–2.0 cm) for pulling the manuscript out of a pile on the shelf.” O.F. Akimushkin, ‘Central Asian manuscripts’ bindings (1730s–1930s)’ (2001), 4.

interesting that the tabbed spines were considered a distinctive Islamic binding feature worth mentioning.⁷⁹

Several publications on the history of western bookbinding as well as glossaries for book-historians, conservators, and other scholars offer a few cursory sentences on the making or characterisation of Islamic manuscript structures. A similar short 'typification' is found in many catalogues. Unfortunately, these brief descriptions are often incorrect. They reflect the common misconception that Islamic bindings are made as a case-binding and thus these descriptions contribute to the inaccurate perception of this manuscript tradition. The rather summary character of such descriptions and the focus on decorative schemes in this particular bookbinding tradition add to the idea that Islamic bindings mainly served an aesthetic purpose, rather than a functional use, to protect the book. For example, Jane Greenfield completely misrepresented the structure in her *ABC of bookbinding*. According to her drawings and brief captions, first the textblock is sewn; this is followed by the sewing of the endbands. Only then the cloth spine-lining is thought to have been applied, in which case it would no longer have the structural function that it actually has. Furthermore, the cover is presented as a case, with turned-in leather caps at the head and tail, made separately from the textblock.⁸⁰ *The dictionary for bookbinders* by Roberts and Etherington does not mention anything about the Islamic (Oriental, Middle Eastern, or Arabic) book, although it does have an entry on Japanese binding.⁸¹

Founders of our Knowledge on the Use of Structure and Materials in Islamic Bookmaking

Bosch

In the early 1960s Gulnar Bosch researched the decorative features of block-stamped leather doublures. She compared the ornaments used with those

79 As far as I am aware, Akimushkin and Guesdon are the only authors who have pointed out the distinctive nature of Islamic spine ends.

80 J. Greenfield, *ABC of bookbinding: A unique glossary with over 700 illustrations for collectors and librarians* (1998), 88–89. As she typified the structure as a case, her definition of a 'case binding' on p. 14 is of particular interest. It illustrates the inconsistent use of the term 'case,' of which she states that "The spine of the case is not adhered to the spine of the textblock"; clearly this is not applicable to Islamic manuscript bindings.

81 M.T. Roberts and D. Etherington, *Bookbinding and the conservation of books: A dictionary of descriptive terminology* (1982). This illustrates the neglect of the Near Eastern bookbinding tradition at the time, while Far Eastern techniques and materials were incorporated in the field of bookbinding and conservation.

known from Indian textiles. Intriguingly, the peak of the trade in these textiles coincided with the period in which this type of doublure was used.⁸² Bosch also observed that the use of this decorated material occurs in ‘average’ bookbindings, and suggests that such decorated leathers were a trade product, used throughout the whole Islamic region, although its artistic and creative centre may have been situated in the Egyptian-Syrian region.⁸³ The descriptions of the block-stamp patterns themselves, however, did not lead to a sub-classification system for this particular period, nor is the publication widely known or referred to. By contrast, around the same time, Bosch translated the twelfth chapter of the treatise of Ibn Badis, which undoubtedly found a much wider audience.⁸⁴

Notwithstanding the value of Bosch’s first publication on the Islamic binding structure, *Islamic bindings and bookmaking*, which Bosch wrote in cooperation with John Carswell and Guy Petherbridge, is the work that has become fundamental to the knowledge of many contemporary scholars and conservators and is cited or referred to in many publications.⁸⁵ The book is an elaborate catalogue divided into three parts. The first section gives an extensive overview of the literature available at that time, this is followed by an in-depth chapter on the materials and techniques used to make manuscripts, then by a final section comprising the catalogue itself. Particularly the second chapter on materials, techniques, and structures was very well received and, indeed, filled a void in the knowledge of Islamic manuscript production. It offered for the first time a clear overview of the possible construction of Islamic manuscripts and the materials used to produce them. The description of techniques provided access to hitherto often ignored bookbinding procedures. The vivid picture that emerged of the making of manuscripts found its way into many studies that have since been conducted.

Bosch’s information is partly based on the treatises of Ibn Badis and al-Sufyani. Substantial parts of both texts are quoted; when phrases of the translation by Bosch and colleagues are compared with the translated text by Levey there are clear differences.⁸⁶ These sources are complemented with historic context, other studies—by Bosch, Carswell, and Petherbridge, and others—and direct observations of the exhibited items. This last source of information merits a

82 G. Bosch, ‘Medieval Islamic bookbinding: Doublures as a dating factor’ (1964), 219.

83 Ibid., 221.

84 Idem., ‘The staff of the scribes and implements of the discerning: An excerpt’ (1961).

85 G. Bosch et al., *Islamic bindings and bookmaking* (1981).

86 For example, the paragraphs dealing with adjusting the gatherings prior to sewing, or the leather application on the covers differ substantially. These differences are not explained, and are particularly odd, as all the authors used the Paris edition by Prosper Ricard (1925).

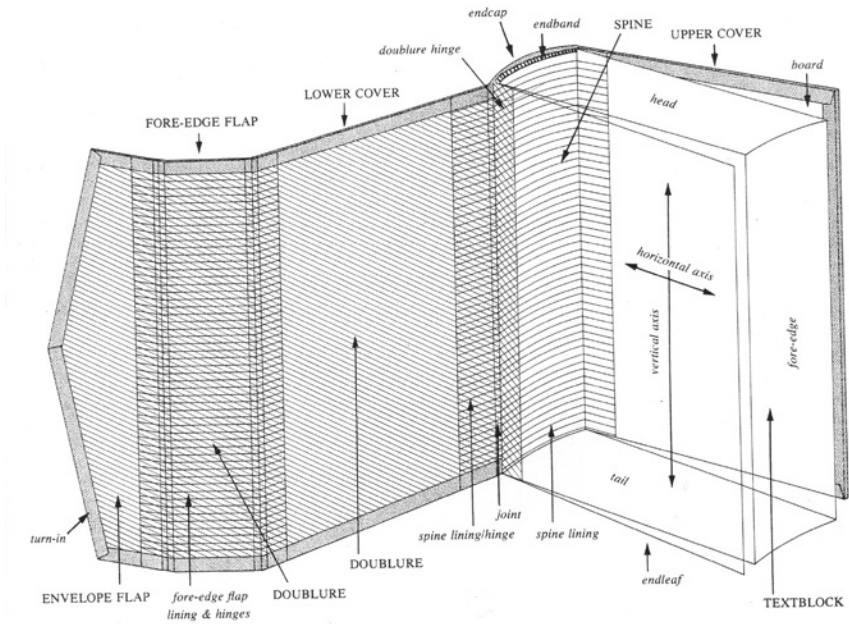


FIGURE 123 *The schematic presentation of the Islamic manuscript and its constituent parts, reproduced from Bosch et al. (1981), p. 38.*

comment, for the condition of these objects, which largely consisted of loose medieval manuscript covers, likely influenced the views of these authors on matters of structure and the strength of the original bindings.

There is no need to repeat those parts of the text that are more or less a synopsis of both historic treatises. However, a critical analysis of the interpretations of the authors is necessary, especially given the authoritative role of *Islamic bindings and bookmaking*. In light of the current survey results, it is apparent that some views and assumptions stated by Bosch, Carswell, and Petherbridge must be modified.

One of the features of *Islamic bindings and bookmaking* which has been frequently reused in later publications is a line drawing of the archetypal manuscript, providing terminology for its constituent parts (fig. 123).⁸⁷ The introduction of this basic vocabulary, together with the depicted structure, offered everyone working with Islamic manuscripts tools to communicate with each other. Adam Gacek for example reproduced the diagram in his edition

87 G. Bosch et al., *Islamic bindings and bookmaking* (1981), 38.

of al-Ishbili's text; he added the Arabic terms used by al-Ishbili to the terms provided by Bosch.⁸⁸

Most of the English terms have taken root, however, the usefulness of the word 'endcap' is debatable, as argued in chapter 2. With regard to the drawing, a few remarks are necessary. It shows a continuous doublure covering the back board, the fore-edge flap and envelope flap, with a stub (called 'doublure hinge') pasted onto the outer leaves of the textblock. At the same time, it also shows a separate fore-edge flap lining that covers the joints and edges of the adjacent boards. This appears to be a hybrid assemblage. When such a continuous doublure is used, usually made of leather, binders did not first apply an additional lining on the fore-edge flap. A lining of the fore-edge flap as depicted is common enough, but then it is combined with individual doublures for the inner boards and a separate lining of the envelope flap, made of leather, cloth, or paper. Two different drawings would be needed to illustrate the variation clearly. Also, the stub itself is certainly a frequently encountered element, though it is not as common as an inner joint formed by the projecting flanges of a leather spine-lining. For readers to learn to distinguish between the inner joint structures, and to enhance the understanding of the dual function of the spine-lining, it would be important to present the appearance of the latter structure prominently; this drawing only represents a variant structure and does not focus on the actual board attachment.

In the scope of the present study, the way the structural components of the Islamic manuscript are discussed is of special interest. When Bosch and colleagues described the procedure for lining the textblock spine, they omitted one of the important functions of the spine-lining. They did not mention the support that the lining provides the primary endband sewing and the protection it offers the paper spine-folds.⁸⁹ This is especially crucial because on several occasions Bosch and colleagues indicated that the binding structure is, in essence, a case-binding (as elaborated below). As explained, the dual function of the spine-lining is a counter-indication of that structure. Also, it should be noted that these authors explicitly and solely mention cloth as a spine-lining material, whereas leather was also often applied. They then note the *additional* application of leather or paper hinges, with a reference to both Ibn Badis and al-Sufyani. However, what those historic sources actually describe is the spine-lining proper. Furthermore, according to Bosch and colleagues there is little evidence that paste-downs were used in the fourteenth to seventeenth centuries, instead of doublures. However, such evidence is provided by the results

88 A. Gacek, 'Arabic bookmaking and terminology' (1990–1991), 108.

89 G. Bosch et al., *Islamic bindings and bookmaking* (1981), 50.

of my survey of the Leiden collections: I identified over 30 manuscripts with paste-downs from this period.

The description of the endband sewing, both primary and secondary, is very clear and comprehensive and apparently not only based on the patchy primary sources. Several observations concerning variations in the chevron pattern indicate that preserved specimens were examined. For example, the authors observed that slight changes in the processing of the threads when the secondary endband is sewn result in differences of the pattern, and that the size of the pattern depends on the thickness of the threads and the applied interval between the primary tiedowns. The subsequent remark, however, is a misjudgement probably caused by the poor condition of the manuscripts involved: “more often than not the protective endband core is omitted with the result that the primary endband threads (not being anchored around a core) cut into the spine folds of the paper gatherings and eventually tear out.”⁹⁰ Endband cores are prone to damage or loss once delamination or tearing of the spine-lining has caused damage to the tiedowns, yet the large majority of endbands were definitely originally sewn on an endband core.⁹¹

Bosch points out that manuscripts were not necessarily sewn and bound, a custom which could have eased the copying of texts, as it allowed for the simultaneous distribution of gatherings among several copyists.⁹² According to Bosch, when left unsewn, a portfolio was constructed to protect the loose gatherings. This portfolio is said to be made with additional flaps at the head and tail. However, no examples of such multiple flap structures are given, nor to my knowledge published in other sources, and although the UBL collection contains unsewn textblocks with wrapper bindings, none of these specimens show additional flaps or remnants of such flaps; their wrapper covers are very similar to those of Type Two.

Given the influence of Bosch's publication, the characterisation of the binding structure is a major concern. The authors state that “Regardless of the sequence of operations used to construct it, the Islamic book cover ... can be

90 Ibid., 53. Most likely, the paper damage occurred when the spine-linings were torn, pulling at the tiedowns which keep that little strip of leather in place. The missing endband core is an additional damage.

91 See chapter 4, ‘Endbands’ and chapter 5, ‘Endband cores.’

92 G. Bosch et al., *Islamic bindings and bookmaking* (1981), 45; the remark about copying schemes is found in note 156. However, there may well have been other reasons for keeping the intentionally unsewn manuscripts in wrapper bindings, which I first described after my pilot survey in 2010, see K. Scheper, ‘Refining the classification of Islamic manuscript structures’ (2011), 379. This issue is further explored in chapter 5.

considered as a separate structural unit,” and the structure is designated as a portfolio.⁹³ They also hold that their

examination of Islamic bindings with fore-edge and envelope flap indicates that usually the book cover was prepared as a unit separate from the textblock right up to the completion of the tooling and other decoration, somewhat like the case bookbindings developed for the mass production of books in Europe in the nineteenth century.⁹⁴

We should keep in mind that the authors worked with a particular collection, consisting of a selection of manuscripts and, importantly, a collection of covers which were separated from their contents. It is likely that the condition of these objects influenced the authors' perception of the materials; indeed, they point out that the intact survival of so many loose covers attest to the case-binding structure. Given the selection of objects they worked with, there may not have been manuscripts at hand with original bindings produced with the two-piece technique, or, if they existed, damage may have rendered this feature difficult to detect. In addition, one often needs to be aware of the existence of a certain characteristic to be able to observe it and at the time, the two-piece technique appeared to be unknown. Additionally, conclusions derived from loose covers have inherent limitations. In order to draw conclusions about the binding structure, it would have been necessary to examine the original, bound volumes, to detect such details as the use of the flanges to support the board attachment, the presence of tabbed spine-ends, and signs of the use of the two-piece technique. In chapter 2 I argued that the two-piece technique is, by definition, not a case-binding technique since the cover is not completed as a sort of cassette before attachment. The difference may seem quite subtle, for the book covers are partly prepared in advance. Nevertheless, the covers are prepared separately and individually, and the binding is assembled on the textblock. Ultimately, this distinction is essential for the qualification of the structure, as is the fact that the spine-lining material, with the sewn-through tiedowns, forms a strong bond with the flesh side of the cover-spine leather(s).

The importance of *Islamic bindings and bookmaking* cannot be underestimated. It has informed and shaped the ideas of the scholarly community working with Islamic manuscripts. Apart from the significant facts and

93 G. Bosch et al., *Islamic bindings and bookmaking* (1981), 56.

94 *Ibid.*, 64. The analogy with the nineteenth-century mass production of case-bindings is particularly unfortunate. It seems to underline the supposed weakness of the structure and devalues these custom-made bindings by equating them with ready-made bindings.

understanding that this publication provided, the misperception of the authors concerning the construction of the manuscripts also influenced the acuity of other scholars. As a consequence, the notion that Islamic book structures are case-bindings is deeply-rooted and all too often Islamic manuscripts are judged to have weak structures, whereas in fact they are functional and durable. It is true that due to natural decay in combination with intensive use, wear and tear, and unfavourable conditions, many Islamic manuscripts were damaged. The flexing parts proved to be most vulnerable and covers tended to tear along their joints. Yet, such damage is to be expected, considering the organic materials and the mechanism of a book. In those instances where bindings are preserved separately from their textblocks (usually in western collections), they often carry the traces of that intensive bond with the former spine-lining on the inside, such as traces of thread or parts of the lining. Even the complete lining may still be adhered there, showing holes where the tiedowns passed through the material (as in figs. 75 and 76, in chapter 2). Certainly, many covers were reused for other manuscripts, but usually only after the application of new leather on the spine, new inner joints, and possibly other adjustments. Therefore, the recirculation of covers does not indicate that the covers were initially made as a cassette. Covers only have the capacity to lead a second life when they are adjusted or repaired. When they are preserved as individual objects, traces of the former structure are usually disguised by repairs, which are meant to cover any split edges or loose materials. Such adjusted covers, and the reuse of covers in itself, do not prove that the bindings were made as case-bindings, nor that the original structure was a feeble one.

Déroche

In 2000, François Déroche published his *Manuel de codicologie des manuscrits en écriture arabe*, which became available in English translation in 2006.⁹⁵ Apart from being an excellent introduction to the codicology of Islamic manuscripts, Déroche's subdivision into three binding categories has been widely adopted and used as a guide to describe bindings.⁹⁶ He addresses the various materials for bookbinding, and further subdivides them into discussions of their components: boards, covering materials, and doublures. However, he does not explicate the actual construction of these components. Déroche's typification of three categories touches on the surface of technical aspects of bookbinding

95 F. Déroche, *Manuel de codicologie des manuscrits en écriture arabe* (2000), translated (by Deke Dusinberre and David Radzinowicz and edited by Muhammad Isa Waley) as *Islamic codicology: An introduction to the study of manuscripts in Arabic script* (2006).

96 *Ibid.*, 256–262 and 286–290.

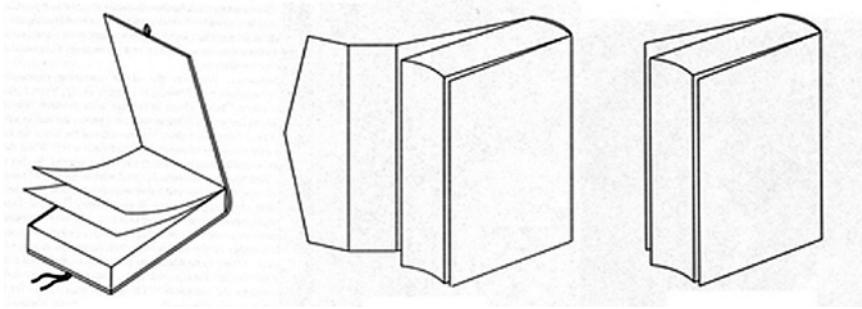


FIGURE 124 *The type One, Type Two and Type Three binding, reproduced from Déroche (2006), pp. 262, 260 and 258.*

but does not clearly specify what differences can be found in the binding structures, nor how the bindings are actually constructed. Accordingly, the classification is mainly based on the outer appearance of the artefact; it is either a box binding (Type One), a binding with a fore-edge and envelope flap attached to the back cover (Type Two), or a binding without flaps (Type Three) (fig. 124).

With regard to construction, Déroche describes the predominant sewing structure—the link-stitch on two stations—but adds that little research has been done on this issue.⁹⁷ He clearly and correctly describes the endbands as important for the manuscript’s stability, however, in the description of the sewing structure he omits the spine-lining, and he does not point out the sewing of the primary endbands through the lining material. The spine-lining is mentioned under the description of Type Two, where it is only indicated as a constructive element because the extensions of the spine-lining are pasted onto the boards. Furthermore, just as in Bosch and colleagues, only cloth is mentioned as a lining material. Déroche thereby passes over one of the most common techniques, the use of a leather spine-lining with flanges that are used to strengthen the board attachment and that remain visible in the joint and are combined with doublures without a stub.

The somewhat cautious statement that “from a technical point of view, it [the predominant form of bookbinding] is close to the modern ‘pasted down to ends’ style in case-binding in which the block is attached directly to the endpapers” appears to be a recapitulation of Bosch, Carswell, and Petherbridge.⁹⁸ In the footnote the term “case-binding” is explained as a process in which the

97 *Ibid.*, 274–276.

98 *Ibid.*, 260; Déroche, however, refrains from further use of the term ‘case-binding.’

covers are made separately from the book. Déroche then continues with the visible characteristics of the bindings.

When dealing with the covering of the exterior, he mentions full leather bindings, but does not refer to the two-piece technique. With regard to the partial leather bindings, which are only described under Type Three bindings, Déroche employs the terms “half-binding” and “quarter-binding.” The terms are used with explicit mention of coverings consisting of leather spines with leather covered *corners* or *corner pieces*, and without *corners* or *corner pieces*.⁹⁹ For want of readily available alternative terms, as noted in chapter 2, the use of the terms “half-binding” and “quarter-binding” is understandable. However, the layout of the partial leather Islamic bindings clearly diverges from their western counterparts; long strips of leather were used to cover all board edges, or, in a simpler variety, only the front-edge was covered with leather. Either way, in the Islamic world, it would be highly unusual to find a variety in which only the corners of the boards were covered with leather. The fact that these varieties in covering styles are discussed in the paragraph dealing with Type Three bindings is somewhat unfortunate and, as pointed out above, the reference to “corners” complicates the issue further. For those unfamiliar with the wide range of covering schemes in Islamic manuscripts, this could imply that the partial leather techniques mainly occur in Type Three bindings, whereas in fact they were made more often with envelope flaps than without.¹⁰⁰

Gacek

The importance of Adam Gacek’s contributions in making the primary Arabic sources accessible to a larger public, is unmistakable. His work on these historic treatises have become the basis of and are cited in many publications on Islamic codicology, and it would have been impossible to write the first section of the current chapter without these articles, for example. More recently, Gacek published his highly informative *Arabic manuscripts: A vademecum for readers* (2009). This reference work has a different character and aims to combine information from historic sources with knowledge acquired from contemporary research. While the major part of the book addresses material and codicological aspects of the textblock, the *Vademecum* does include entries on bookbinding, sewing, and endbands. Gacek uses Déroche’s division into three major types (box-bindings, bindings with flaps, and bindings without flaps). He describes Type Two as a “roundback,’ i.e. the upper and lower covers flow

99 Ibid., 258. In French, the terminology is comparable: “pleine reliure” and “demi-reliure,” Déroche (2000), 279.

100 See chapter 4, ‘Fore-edge and envelope flap.’

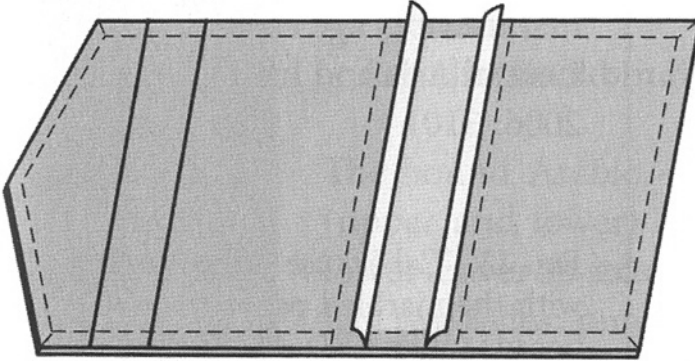


FIGURE 125 *Depiction of the inside of 'a case-binding' as represented in A. Gacek, Arabic manuscripts: a vademecum (2009), p. 27.*

smoothly round into the spine without a strengthening ridge," after which he stipulates that the spines of Islamic bindings are never a "hollowback." The "ridge" denotes the point where the side of the spine and the edge of the front or back cover join each other, and by "strengthening ridge," Gacek probably refers to the 'backing' or 'rounding' operation used on western books in order to form shoulders (the ridge) to accommodate the boards.¹⁰¹ Such an operation, however, has no positive influence on the strength of the joint and therefore the lack of it has no negative consequences.

Gacek's description of the structure follows the view of Bosch, Carswell, and Petherbridge: "Most of the bindings produced after the 7/13th century are essentially 'case bindings,' that is, bindings produced independently, as a whole, and then lightly attached by paste to the lining of the backs of the sewn quires."¹⁰² The drawing of the inside of this assumed case-binding is particularly interesting because it shows a completed cover prior to attachment, with the doublures already adhered (fig. 125).¹⁰³

At the edge adjacent to the spine of both doublures, a certain form of joint-hinges are already drawn. These are either stubs, from the doublures, or additional strips; the dotted lines seem to mark their position underneath the doublures. The extending parts of this joint material are supposedly adhered

101 See, for example: B.C. Middleton, *The restoration of leather bindings* (1998), 12 ('backing'); 32 ('outer joint'); this ridge can also be referred to as 'outer joint' or 'shoulder.'

102 A. Gacek, *Arabic manuscripts: A vademecum* (2009), 25.

103 *Ibid.*, 27; the figure is based on W. Bull, 'Rebinding Islamic manuscripts: A new direction' (1987), 26.

onto the outer leaves of the textblock later on (after the spine of the cover is adhered onto the textblock spine). This type of construction is theoretically possible but does not accord with the empirical findings (see chapter 4). Moreover, the drawing displays turn-ins over the spine area at head and tail; in reality, these turn-ins are not found on the most common type of Islamic binding.

When Gacek discusses Type Three bindings, he remarks on the covering of the bindings (which he did not do for the Type Two bindings). Next to full leather bindings, he describes the occurrence of partial leather bindings. The three images which are meant to explain this type of covering are found under the lemma “Half-bound books.” He calls bindings with leather only on the spine “quarter-binding,” and uses the term “half-binding” when leather covers the spine and corners, thereby conforming to Déroche’s terminology.¹⁰⁴ The drawings only cause confusion since they depict a covering scheme mainly used for western bindings.¹⁰⁵ Although the dominant Islamic partial leather binding is not illustrated under the lemma “Half-bound books,” when Gacek addresses the Type Three binding, he affirms the use of the term *çaharkuşe cild* for bindings with the spine and edges covered in leather.¹⁰⁶ As mentioned above, this type of covering is certainly not restricted to Type Three bindings. It seems that this brief overview is largely based on Déroche’s description. It is, however, noteworthy that in addition, Gacek mentions the occurrence of limp bindings (covers without boards) in the Type Three category.

Gacek indicates that endbands serve both a structural and aesthetic function, but he does not elaborate on the construction. He does not mention the dual structural function—the formation of extra sewing stations in each gathering close to the head and tail and securing the spine-lining to the textblock spine. Rather, he gives more attention to the decorative function of the secondary endbands.

Under the entry “notabilia and finger tabs,” Gacek mentions “thread tabs, often made of twisted multi-coloured silk or cotton threads ... sewn through

104 A. Gacek, *Arabic manuscripts: A vademecum* (2009), 27.

105 *Ibid.*, 118–119. The first depiction of “half binding” is certainly a western covering scheme, the second occurs in the Islamic and the western binding tradition. However, when this scheme is used for Islamic books, the strip of leather used to cover the front-edge of the boards is significantly smaller than depicted. The fact that none of the schematic drawings include a fore-edge and envelope flap contributes to the western appearance of the book. According to the *Vademecum*, manuscripts covered in partial leather are mainly encountered in the eighteenth and nineteenth centuries. The survey findings attest that such bindings occur just as often in the seventeenth century.

106 *Ibid.*, 27–28.

paper on the level of chapter headings or sub-section of the text and protruded outside on the side of the fore-edge.¹⁰⁷ Perhaps it is typical that this much disregarded binding element does not even have a fixed name or its own entry in the *Vademecum*; in the present study, I record and refer to this characteristic as a ‘page-marker.’

When sewing is discussed, Gacek describes a link-stitch sewing on four stations along with the much more common link-stitch on two stations. However, the drawing of the former sewing structure represents two separate link-stitch structures next to each other, rather than a continuous link-stitch sewing on four positions.¹⁰⁸ This representation accords with the two parts of the sewing thread visible in the spine-fold, but not with the actual structure used by the Islamic bookbinders, in which the thread passes from the second sewing station to the third on the spine-side of the fold, where it makes a loop around the thread from the sewn gathering underneath (see chapter 2, figs. 31, 32). Thus, it deviates from all the sewing structures on four stations that I encountered in the Arabic collections in the UBL and I believe it is not related to the Islamic manuscript tradition.

Structure as a Starting Point

Szirmai

Janos Szirmai looked at manuscripts from a truly material perspective when he wrote *The archaeology of medieval bookbinding* (1999). He related historic sources to physical evidence, the latter through examination of many original manuscripts. This resulted in an excellent and profound overview of the evolution of the codex form. However, for the chapter on Islamic codices he based his account mainly on the manuscript findings in Kairouan (early 1940s) and Sanaa (1972), which brought to light text and binding fragments from the first centuries of Islam up to the twelfth or thirteenth century. Szirmai did not study these manuscript fragments himself; for this particular topic he relied on the written accounts of other researchers when making his comparisons. Examination of the physical evidence by these researchers proved difficult because of the condition of the material, both in Kairouan and in Sanaa. In fact, the bulk of the material consisted of loose covers or even smaller parts of

107 Ibid., 169.

108 Ibid., 247–248. The drawing seems to be inspired by the illustrations of Coptic and Ethiopic sewing structures as represented in J. Szirmai, *The archaeology of medieval bookbinding* (1999), 17–18, 21, 46–47.

bindings, which were found along with incomplete textblock fragments and loose leaves. It is unfortunate that Szirmai, with his discerning eye and attentive mind, did not examine early Islamic manuscripts himself. The findings from Kairouan and Sanaa were equally fascinating and exceptional, nonetheless, it is very difficult to reconstruct binding structures from such damaged and broken remnants. To draw conclusions about the functionality of Islamic manuscript structures on the basis of this particular collection is treading on dangerous ground, for these covers were discarded because they were so damaged. They were no longer useful and probably considered to be beyond repair; many of them had already been mended several times.

Therefore, we must question Szirmai's assertion that "the binding is constructed as a modern case binding..."¹⁰⁹ There is no explanation, or reference to a single item from the findings, to support his claim, but Szirmai linked the treatise of al-Sufyani to the case-binding technique. Al-Sufyani indeed explained the making of the pasteboard and the possibility of applying the leather on the boards when they are separate from the textblock, to which they were attached in a later stage, with adhesive only. Apart from my conviction that these individually prepared boards, made with the two-piece technique, are not case-bindings, al-Sufyani wrote his text in 1619 and the fragments in question date from before the thirteenth century, so some caution seems in order in trying to explain early binding structures using a treatise written many centuries later. As we have seen, Ibn Badis, whose treatise is more or less contemporary with the objects in question, unambiguously described the application of leather only after the boards were attached to the textblock.

Szirmai put considerable emphasis on 'the weakness in the construction.' He clearly qualified "the manuscripts, sewn with extremely thin thread on two sewing stations and provided with a case binding" as being technically inferior to its predecessor with structural board attachment and multiple sewing stations.¹¹⁰ In my opinion, this description of the structure does not do justice to the Islamic binding.

Firstly, Szirmai does not mention a vital component in the structure—the endband. The primary endband sewing provides two extra sewing stations in each gathering close to head and tail, which in itself enhanced the stability of the sewing. Additionally, this endband sewing was applied after a full-length spine-lining was adhered to the textblock spine, which further strengthened the structure. It is possible that Szirmai did not fully realise the importance of the endband to the manuscript types with pasteboards and an envelope flap,

109 J. Szirmai, *The archaeology of medieval bookbinding* (1999), 53.

110 *Ibid.*, 56.

since the Kairouan findings contained only the covers with wooden boards, that showed remnants of endbands.¹¹¹ His account does not suggest he examined any Type Two structures himself.

Secondly, the assumption that the covers were case-bindings is not without bias. Szirmai suggested the shortcoming explicitly: "... the weakness of the board attachment of case bindings and the ease by which it can be severed constitutes a problem for the student of oriental bindings...."¹¹² This preconception seems to be based on the reiteration of other scholars, rather than on solid conclusions from the two reference collections used. All in all, while most of the other chapters in *The archaeology* are based on structural examination of substantial corpora and provide excellent insight into structures and materials, the chapter on Islamic codices is deficient and misleading as an introduction to Islamic binding structures.

Merian

Sylvie Merian has researched and outlined the material aspects of the Armenian binding tradition.¹¹³ In the years prior to 1993, Merian examined the structure of several Islamic manuscripts with the objective of making a comparison with Armenian binding structures; she also compared the Armenian bindings with Byzantine and Syriac bindings. Unfortunately, she did not use many 'real' manuscripts to make first-hand observations; with respect to the Islamic book, information was, in large part, gathered from published material. Bosch, Carswell and Petherbridge were her main informants. Merian's interpretation of the bookmaking process is therefore based on known material and does not offer new insights. We see a certain repetition of thoughts when she states that "Examination of the large number of detached covers from Islamic manuscripts has indicated that the covers *must* have been prepared separately and even covered with leather and tooled before being attached to the sewn text

111 The primary endband sewing thread was attached to the wooden boards of the box-bindings through holes in the corners close to the spine; such a connection has not been reported on manuscripts with pasteboard covers, either in the literature or based on physical evidence. On manuscripts bound with pasteboard covers, the endband is securely, but only connected to the textblock. As a consequence, when remnants of bindings and loose covers are found without their associated textblocks, the absence of endbands is to be expected.

112 *Ibid.*, 57.

113 S. Merian, *The structure of Armenian bookbinding and its relation to Near Eastern book-making traditions* (1993); *Idem.*, 'The characteristics of Armenian medieval bindings' (2008).

block. The idea is similar to modern case bindings.¹¹⁴ To support her theory, Merian introduced a remark in a footnote of Arnold and Grohmann, about the makers of cases (for Qur'ans) who worked in the vicinity of booksellers, which she interpreted as to suggest that "the making of cases may even have been a separate craft."¹¹⁵

In particular, the assumption that "board attachment consisted of the previously made hinges (cloth, paper or leather) which had been pasted to the spine," without recognising that these hinges are the actual spine-lining that also supports the primary endband sewing and therewith constitutes a constructional cohesion between the gatherings and the cover, does not do justice to the complex structure of the Islamic book. The same is true for Merian's conclusion, that

the board attachment, therefore, is accomplished simply by the use of adhesive on some type of hinge, which had previously been attached to the spine of the text block with adhesive. This would not be an extremely strong attachment, and indeed, it is quite common that the bindings of Islamic books be detached from the text block and found separately.¹¹⁶

As a further argument, similar to Szirmai's line of reasoning, she mentions the finding of many loose covers in the Great Mosque of Kairouan (Tunisia), in spite of the fact that many of these fragments belong to the box-binding category and are therefore not comparable. The covers with wooden cores may even have been unattached from the start and perhaps just functioned as a weight to rest on the stacks of gatherings.¹¹⁷

Merian put forward the idea that the doublures could also have been applied to the separately prepared covers, prior to their attachment to the text-block. This is hardly feasible for most Islamic bindings. After all, even when one supposes that the lining is not structurally connected to the textblock by sewing, the flanges from the lining usually are adhered onto the inside of the

114 S. Merian, *The structure of Armenian bookbinding* (1993), 159. My italics; the "must" in this quote amplifies, rather than repeats, Bosch's theory.

115 Ibid., 159, n. 38. Arnold and Grohman, however, only point out that booksellers and paper-makers had their own section in the bazaar, and they refer to al-Maqrīzī, who wrote that the makers of cases for Qur'ans worked not far from this section. Th.W. Arnold and A. Grohmann, *The Islamic book: A contribution to its art and history from the VII–XVIII century* (1929), 32, and 180, n. 141.

116 S. Merian, *The structure of Armenian bookbinding* (1993), 160.

117 G. Marçais and L. Poinssot, 'Objets Kairouanais: IX^e au XIII^e siècle. Reliures, verreries, cuivres et bronzes, bijoux' (1948), 16; Th. W. Arnold and A. Grohmann, *The Islamic book* (1929), 30, 33–34, 44–46.

boards underneath the doublure. Presumably, Merian was not aware of the occurrence of leather spine-linings, and based her idea on Bosch's description of leather block-stamped doublures that frequently have a stub which is pasted onto the textblock. With such doublures, and when one ignores the use of the flanges, the application to the boards prior to board attachment is indeed feasible. Bindings with leather stubbed doublures, however, form a minority group, and even with stubbed doublures one can usually find flanges of a cloth lining underneath the doublure.

Merian concludes that the structure of Islamic manuscripts indicates that these books may have been made more hastily than Armenian bindings. In support of this assertion, she suggests that there "was a great market for books because of a large literate class, and that bookmaking seems to have been much more of a business endeavour rather than a secluded monastic activity."¹¹⁸ She hints that bindings may have been made cheaply. Apart from a rather significant number of bindings that are very elaborately embellished, the idea of cheap production does not at all corroborate with the care and effort taken by the scribes to produce the manuscripts, nor with the generally accepted notion of the high position manuscript making holds in the Islamic world. It is more reasonable to assume that costly, precious, and highly regarded manuscripts were respected accordingly by the binders and therefore were supplied with attractive *and* functional covers. Binders were evidently aware of the eventual damage the structure could suffer; they repaired broken bindings often enough. Still, it is likely that the bindings were thought to be durable for a certain period of time, although we do not know what that expected lifespan would have been. Of course, economics played a part; bookbinders had to meet high levels of production, so they developed their bookbinding techniques to meet that demand. The strength of the structure of bindings, however, was not compromised in order to reduce labour or costs. For example, the survey findings prove that the spine-linings kept their dual function throughout the whole period of the manuscript era. Also, the number of tiedowns was not reduced over all these centuries; all gatherings were structurally connected to each other as well as to the spine-lining, even though this number of warps was not strictly necessary to create the secondary endband sewing, as the common practice of coupling the tiedowns (two by two, for example) demonstrates.

Fischer

In preparing for an exhibition entitled *The book in the Orient* (1982–1983), Barbara Fischer, conservator of the Bavarian State Library in Munich, was

¹¹⁸ S. Merian, *The structure of Armenian bookbinding* (1993), 167.

confronted with the care of Islamic manuscripts. Fischer knew little of Islamic bindings and this work prompted her to examine the structure, and especially the endbanding, more closely. Her intelligent account throws a clear light on the construction of the endband sewing as an elementary part of the manuscript structure.¹¹⁹ Using publications from Paul Adam and Emil Kretz and direct observations of her own, she managed to disprove a theory Karl Jäckel proposed in 1961.¹²⁰ Her research mainly concerned the sewing of the secondary endband, but also addressed the structure of the endband sewing as a whole.

Jäckel had devised a method with twisted threads or cords in two colours that resulted in a chevron pattern. However, instead of weaving the secondary endband on tiedowns, he connected these twisted threads with an additional thread that was only then fastened to the manuscript. Not only was this a reversed procedure, every twisted thread had to be cut at the outer ends and glued on the sides to prevent the bundle from fraying. This action in particular was unsatisfactory to Fischer because it created a discord with the otherwise sound and elegant characteristics of the manuscript structure.¹²¹ Also, none of the specimens Fischer treated showed traces of such a procedure. Searching for other sources, Fischer found that observations recorded by Paul Adam, fifty years earlier, did correspond with the originals. He described the primary endband sewing “as part of the sewing, actually ... was at the same time the outermost stitch of the sewing, replacing what we call the kettle-stitch.”¹²² However, since Adam did not describe the secondary endband sewing in detail, Fischer explored Oriental textile techniques and then set out to create models. These reflect the variety she observed in the secondary endbands; they were either sewn on single or bundled tiedowns and with dissimilar types of thread. Fischer thus clearly illustrates that chevron patterns sewn on bundles of three or more tiedowns become elongated. In the same way, a diverse chevron form is created by using a combination of thin and thicker thread. Lastly, Fischer mentions the sporadic occurrence of diverse patterns as a result of a changed course of the sewing threads.¹²³ She concluded that with a systematic study, more variations might be found and information about regional and temporal varieties might come to light.¹²⁴

119 B. Fischer, ‘Sewing and endband in the Islamic technique of binding’ (1986).

120 Ibid., 183–188 and nn. 4–6 and 11–12.

121 Ibid., 183; Fischer describes this cutting and gluing as ‘an open end.’

122 Fischer translated from P. Adam, *Das Restaurieren alter Bücher* (1927), 9, 11.

123 B. Fischer, ‘Sewing and endband in the Islamic technique of binding’ (1986), 198.

124 From my work on the collection in the UBL alone, we may conclude she was right. See also: Scheper, ‘Endband varieties in the Islamic world’ (forthcoming).

Espejo and Beny

As part of a project researching the materials and production techniques in Arabic manuscripts of al-Andalus, Teresa Espejo and Ana Beny examined bound manuscripts from that region and period—the Iberian Peninsula from approximately the eighth to the fifteenth century. They found several manuscripts with a sewing and board attachment characteristic that varies distinctly from the predominant Islamic structure; therefore they named this type, made with a different technique, the al-Andalus binding.¹²⁵ Most importantly, the gatherings of the textblocks that the authors examined were not sewn in the same way as most manuscripts from other Islamic areas, although a link-stitch sewing technique was used. These structures are distinguished by the first and final pair of gatherings, which were not sewn on two stations. Instead, a more elaborate technique was used, resulting in a long running stitch using four positions. Moreover, since the sewing thread of these outer gatherings also passed through the cloth spine-lining, the spine-lining was connected to the textblock not only by the primary endband sewing, but even more securely, by sewing the outer gatherings through the spine-lining as well. As a third remarkable divergence, the textile lining was also used to cover the complete inside of the boards as a doublure, whereas the majority of the cloth spine-linings are just used as inner joint and board attachments. Although this specific characteristic seems to bear a strong resemblance to Mamluk bindings with textile doublures, the two structures have not been compared in a detailed study and therefore any conclusions on this particular detail would be premature. The examined al-Andalus bindings may also be distinguished from traditional Islamic bindings, because the covering material is not adhered onto the textblock spine-lining.¹²⁶

The sewing structure Espejo and Beny observed certainly seems to be an anomaly in the Islamic bookbinding tradition. In the UBL collections, however, I encountered two manuscripts with a similar construction.¹²⁷ Yet, it is not certain that these manuscripts originate from the Iberian Peninsula; at least one

125 T. Espejo and A. Beny, 'Book I from the collection of Arabic manuscripts from the Historical Archives of the Province of Málaga: An example of al-Andalus binding' (2009), 121–133. And, together with a third author, J.P. Arias Torres, 'Andalusi binding: A model of Islamic binding from the Iberian Peninsula, 14th–16th century' (2015), 157–173. The actual group of manuscripts with the 'Andalusi' characteristics included in the studies is small; it concerns one item from each century in the first publication, and six manuscripts in the latter.

126 A. Beny et al., 'Andalusi binding' (2015), 164.

127 Or. 241 and Or. 1313; for a description and further analysis, see the section entitled 'The traditional link-stitch sewing with sewn-on leather doublures' in chapter 5.

of them is thought to have been made in the Maghrib. The two techniques are not identical, as the materials used in the UBL manuscripts differ slightly from the al-Andalus bindings (leather was used for the spine-linings and doublures instead of cloth), nevertheless, a close sphere of influence is certainly suggested.

Espejo and Beny question the accuracy of the general assumption that Islamic bindings are case-bindings.¹²⁸ They rightly argue that, since the cloth lining is structurally attached to the textblock and makes up part of the cover, this designation needs to be reconsidered, at least for the al-Andalus bindings. Their research also demonstrates that cross-cultural exchanges influenced the Islamic bookbinding tradition.

Structure as a Side Issue

Many publications concerned with Islamic book culture or art history also consider bookbinding techniques to a certain extent. Usually, they either sketch the 'archetypical' structure briefly or discuss only certain details. These extended catalogues or individual studies focus on a certain period, a style, or a collection in which the technical aspects of the manuscripts comprise a few paragraphs. This, of course, indicates the significance the subject is usually accorded: the materiality of the manuscripts is considered interesting but is not the primary focus of attention. Hence, much of the information found in such chapters appears to be copied from the major sources, such as Bosch or Déroche, and the interpretation of the material aspects of the items in question may be limited. However, some contributions deal with structural aspects quite prominently and either provide new insights or illustrate how the construction is misunderstood; these are considered in the next paragraphs.

Raby and Tanındı

Turkish bookbinding in the 15th century (1993) covers the development of the design and use of covering materials of Ottoman manuscripts in the second half of the fifteenth and first quarter of the sixteenth century.¹²⁹ This well-illustrated work reflects the visual impact of manuscript bindings from this period. With respect to binding structures, the authors state in the introduction that "Like a modern cased binding Islamic covers were prepared separately

¹²⁸ T. Espejo and A. Beny, 'Al-Andalus binding' (2009), 130.

¹²⁹ J. Raby and Z. Tanındı, *Turkish bookbinding in the 15th century: The foundation of an Ottoman court style* (1993).

from the text block,” and continue one paragraph later with “The processes involved in the production of Islamic cased bindings have been described in considerable detail by Gulnar Bosch and Guy Petherbridge....”¹³⁰ Throughout the whole book this case structure is not questioned. Interestingly enough, in the first appendix to *Structural features of the Ottoman book*, the authors point out that their perception of the sewing structures sometimes diverges from the description in *Islamic bindings and bookmaking*.

The authors often encountered a sewing structure which, instead of a link-stitch sewing on two stations, was thought to be sewn on four stations, and according to the authors, this sewing involved additional stitches in which the thread passes over the head or tail edge from the outer positions.¹³¹ To the more technically specialised reader, this observation seems to be a clear misconception: the outer threads that pass over head and tail of the gatherings are the primary tiedowns. Had the authors been able to inspect the textblock spine or known what to look for, they would not have found the sewing thread passing from the middle link-stitch onto these outer positions because the two sewing structures are not linked. In fact, what they depict is exactly what Bosch described. Contrary to the suggestion of the authors, there is no change in technique that can be related to differences between the earlier, medieval Arab manuscripts that formed the basis for *Islamic bindings and bookmaking* and the somewhat later manuscripts from the Ottoman court binderies. They mistook the endband’s tiedowns for link-stitch sewing in the multiple instances where the primary endbands were sewn with thread similar to that used for the textblock sewing. When they were sewn with different thread, the tiedowns were not confused as being part of the textblock sewing. The misinterpretation was caused by lack of a full understanding of the binding technique.

However, Raby and Tanındı did notice a second, truly divergent sewing pattern, which they called ‘B.’ This pattern is described as being sewn on six stations, in line with the mistaken description of the predominant link-stitch sewing thought to be sewn on four positions. In fact, in pattern B only four stations are used; the outer positions are again related to the separate primary endband sewing. The manner in which this type B sewing structure is sewn corresponds with the link-stitch on four stations as described in chapter 2.

¹³⁰ Ibid., 1–2.

¹³¹ Ibid., 215–216. This is the so-called sewing pattern A, however, the drawing included quite clearly illustrates a pattern that can be identified as a link-stitch sewing on two stations with the primary endband sewing in place.

The authors remarked that pattern A was standard and suggested “that pattern B occurs only in manuscripts that have been restored.”¹³² This last observation is interesting; in chapter 2 we noted that this sewing structure also occurs occasionally in the UBL collections and indeed, from the survey results there appears to be a relation with the re-sewing of manuscripts.

Haldane

In *Islamic bookbindings*, Duncan Haldane mentions a few characteristics that are interesting, even though he did not address bookbinding constructions.¹³³ In describing the Islamic bindings in the V&A collection, Haldane divided the binding styles into Arab, Persian, Turkish, and Indian bookbindings. Within the Arab world, further categories were formed by Egypt and Syria (which Haldane considered the production centres of the finest Arab bindings), with the Maghrib on one side and South Arabia and Yemen on the other. He writes,

The majority of bindings in the Museum’s possession are loose covers which in part is a reflection on the different sewing techniques used in the Islamic world which often led to the binding coming apart from the text block. In some cases glue was used to attach the binding to the spine of the book which was even less secure.¹³⁴

This quotation illustrates the common perception about the weakness of the structure, while at the same time it shows a gap in understanding, since the bindings that ‘were attached to the spine with glue’ are singled out as especially fragile structures. It suggests that the author was not aware that the spines of *all* Islamic bindings were attached to the textblock spine with adhesive (with the exception of manuscripts that were never sewn and have wrapper bindings). Collected for their beauty and outstanding craftsmanship, these loose covers provided little information on their manufacture. Haldane’s discussion of ‘techniques’ refers to tooling, the cutting of filigree work leather, and painting and gilding, that is, all decorative techniques used to embellish the interior and exterior of the covers.

One of the major developments in Persia was the introduction of lacquer techniques for bindings. While the base layer of the first lacquer bindings

132 Ibid., 215–216.

133 D. Haldane, *Islamic bookbindings* (1983). The descriptions of the bookbinding styles in this case refer solely to the artistic and stylistic features; he only discusses the use of materials that play a part in the development of decoration and ornamentation.

134 Ibid., 7.

were composed of heavily chalked leather or, according to Haldane, parchment, soon thereafter paper boards, fixed with gypsum or chalk, were being painted and finished with multiple layers of lacquer.¹³⁵ In introducing the technique, Haldane used the term pasteboard twice; after that he referred to the core of the covers as “papier-mâché.”¹³⁶ The use of this term seems to have become part of the general vocabulary in relation to discussions of lacquer bindings, or indeed other Oriental lacquer objects. Since the term also appears to be used for the covers of lacquer bindings that are actually made of pasteboard—which are no different from the pasteboards used for non-lacquered bindings—this is confusing, if not misleading.¹³⁷

Along with the increasing influence of western styles on the decorative arts of the Ottoman Empire in the eighteenth and nineteenth centuries, we can see some technical adaptations or changes. In the section on Turkish bindings, the slipcase is one example. Its appearance is associated with European

135 Ibid., 70; the use of parchment as a substrate for lacquer bindings is neither referenced nor is an example included in the book, while examples of chalked and painted leather covers are provided. The source of this statement therefore remains unknown. As parchment had become a rare material for Islamic bookbinders by the fifteenth century, its use as a board material would be remarkable indeed.

136 Ibid., 70–71, 140; however, for object descriptions, concluding and illustrating each chapter, Haldane used the term pasteboard almost as often as *papier-mâché* when lacquer bindings were concerned: seven versus nine times in the Persian section; the three lacquer bindings in the Indian section are all described as being *papier-mâché*. This could point to a deliberate use of both terms: perhaps some boards were slightly damaged at the corners, revealing the material of the cores. If so, it signifies a difference between the two materials that is not specified. Did Haldane intend to define *papier-mâché* as a pulp substance, as opposed to pasteboard, which consists of sheets of paper pasted together? On the other hand, if the core material of these lacquer bindings was not always visible, the terms might have been used randomly. Be that as it may, it is noteworthy that the term *papier-mâché* seems to be used exclusively for lacquer bindings, though not consistently.

137 See N.D. Khalili, B.W. Robinson, and T. Stanley, *Lacquer of the Islamic lands* (1996); in this comprehensive work on lacquer objects, *papier-mâché* is used to describe the substrate (if it is not wood). Adam Gacek is more reserved, stating that the lacquer was applied on pasteboards “and possibly (especially in the later period) on *papier-mâché*”; A. Gacek, *Arabic manuscripts: A vademecum* (2009), 138. On page 29, however, in discussing book covers, Gacek states “The most common boards were pasteboards which consisted of layers of sheets of paper, often reused, placed one on top of the other and glued together. *The same technique was used for what is known as papier-mâché in connection with lacquered bindings*” (my italics). Avoiding any confusion, Déroche described the technique as being used on pasteboards, except for the few early examples made on leather drawn boards; F. Déroche, *Islamic codicology* (2006), 270. Moreover, when he discusses board materials he explicates, “Lacquer binding boards, ... are traditionally dubbed papier mâché: this term in fact disguises the familiar pasteboard made out of layers of sheets of sized paper,” 264.

influence and Haldane estimated its introduction in the first half of the eighteenth century.¹³⁸ In the same paragraphs, he uses the term “European format” to describe bindings without an envelope flap, which might suggest that the type without a flap did not occur in earlier times and is to be associated with western influence.

Porter

In *Peinture et arts du livre*, an instructive book that mainly covers the technical aspects and artistic considerations of Persian miniature painting, Yves Porter devotes one chapter to what he calls “Reliure et opérations particulières.”¹³⁹ The study is based on historical treatises dealing with the craftsmanship of illuminators and calligraphers. Although the Indo-Persian source from the nineteenth century that Porter used to explicate binding techniques seems almost too recent to provide much information about traditional techniques (*Resâle-ye jeld-sâzi*, dated 1812), actually it is very accurate in describing one of the characteristic features. No other primary source seems to explicitly distinguish between the sewing system using two stations (*yek-bandi*, which would translate as ‘one stitch’) and the one using four stations (*do-bandi*, ‘two-stitches’).¹⁴⁰ The description of the latter includes the making of a loop on the spine, when the thread from the gathering underlying the one that is being sewn is linked to the sewing thread. This accords with the Islamic link-stitch sewing on four stations as described in chapter 2 (figs. 30–32). And what is more, the source actually suggests that sewing on four stations is profitable for elongated books.

Referring again to *Resâle-ye jeld-sâzi*, Porter struggled with the description of how the endbands were made; he indicates that the source text leaves out some steps in the process and is, in parts, too technical. The procedure includes the adhesion of a leather strip on the spine after sewing the textblock, then the preparation of the boards, and continues with the sewing of the primary endbands. This seems to suggest that the leather strip is the spine-lining; had it

138 D. Haldane, *Islamic bookbindings* (1983), 140.

139 Y. Porter, *Peinture et arts du livre. Essai sur la littérature technique indo-persane* (1992), 117–124.

140 *Ibid.*, 119. The terms *yek-bandi* and *do-bandi* refer to the number of stitches visible in the fold-line of the gathering, not to the number of sewing stations visible on the spine. Both methods accord with the common link-stitch used for the majority of Islamic bindings. The highly unlikely method of sewing that Porter describes at the beginning of this chapter—each gathering is supposedly sewn individually and with an additional sewing these gatherings would be linked together on the spine—seems to be a result of the incomplete information in the source text. The erroneous explanation might also have been caused by his limited understanding of sewing structures.

referred to the endband cores, then the use of two strips would have been mentioned or one would expect that the position of where to put this leather—at head and tail—would have been explicated. The indication of leather, instead of cloth lining material, is all the more noteworthy as the treatise is a fairly late source; in this period, cloth appears to be more commonly used for spine-linings than leather, but the text suggests that leather was still an appropriate choice for this specific application, at least in this geographic region.

The last detail of interest is the description of the primary endband sewing. It is advised to leave “un ou deux doigts de dépassement”; Porter did not understand this, but it seems to indicate the distance between the edge of the textblock and the sewing position, or, to put it differently, the length of the tie-downs. According to the Indo-Persian source, usually the space of two fingers should be left, while for smaller books one finger suffices.¹⁴¹ This very practical instruction indicates the need for artisans to be flexible in their approach and to have a sound understanding of the material artefacts.

Equally interesting is the quotation of a sixteenth-century traveller from France, Jean Chardin, who described the habits and trades of the Persian people. After expressing his disappointment with the poor quality of papermaking, Chardin voices his astonishment about the work of Persian binders. He states that it will be difficult to believe, but these binders do not even know how to bind a book properly in one piece of leather. Instead, he says, they take two pieces that are glued together on the spine, to which he adds that, although they do this neatly, the seam will show in time. He cannot have realised how important this observation is to students of book archaeology, given the lack of other sources from this particular region and period. That Porter himself did not emphasise the value of the description is probably due to the fact that the binding craft was not his field and at the time, the two-piece technique had not yet been described; nevertheless in giving Chardin's observation, he provided a remarkable historical affirmation of the two-piece technique.

Porter also quotes William Hoey, the officiating city magistrate in the city of Lucknow, in northern India, in 1879–1880. As a licence and tax officer, Hoey describes and comments on the Indian trades and manufactures in the region, which included the bookbinders' trade. Hoey offers information on the costs of some of the materials and describes the use and the making of pasteboard, which he calls “country-made”—just as he qualifies the sheepskins used for covering the bindings as country-leather. His account does not add anything to our knowledge of techniques, but his overall impression represents the Orientalist view of the European as superior to the Oriental: “The work of the

¹⁴¹ *Ibid.*, 119–120.

oriental bookbinder has not the durability or finish of English work. His appliances are rude, and consist of a wooden screw-press, called *shikanja*, a long steel blade, called *saiifa*, for cutting the edges, and a long coarse needle, 'suja,' for sewing."¹⁴²

Gruber

In a collective volume containing eight contributions covering a variety of aspects of Islamic book arts, Christiane Gruber expressly introduced the manuscript as an artefact, not just a carrier of text.¹⁴³ Her description of the development of the Islamic book structure, from the horizontal format in the first few centuries of Islam to the vertical format from the tenth century onward, and its particular features, captures the character of the binding tradition.

The folios of the book are sewn together and then affixed to the spine, thus transforming the binding into a kind of skin that is inseparable from the quires of folios. In their technical treatises on the subject, a number of practitioners in fact describe the various parts of a bookbinding by comparing them to parts of the human body, thereby stressing the functional integrality of a binding's constituent members.¹⁴⁴

This recognition of the implicit strength of the construction and the total absence of a reference to the covers being a separate product is a refreshing approach.

Miller

The historian and conservator Julia Miller wrote *Books will speak plain* (2010) as a handbook for identifying and describing historical bindings.¹⁴⁵ The need for such a handbook illustrates that binding historians and other book scholars are increasingly aware that the materiality of books provides information about the objects, their history and use, and is therefore valuable. Miller, an exponent

¹⁴² W. Hoey, *A monograph on trade and manufactures in Northern India* (1880), 122–123. An interesting detail mentioned by Hoey is the use of marbled paper, called *abri*, and he observes that it takes two days to make twelve books.

¹⁴³ Chr. Gruber, *The Islamic manuscript tradition: Ten centuries of book arts in Indiana University collections* (2010), 3–50.

¹⁴⁴ *Ibid.*, 15; the practitioners referred to are the authors of the historic treatises, of which Bakr al-Ishbili's text is the most prominent example.

¹⁴⁵ J. Miller, *Books will speak plain: A handbook for identifying and describing historical bindings* (2010).

of the western book tradition but acquainted with the Oriental book as she participated in a conservation survey project in the Coptic Museum in Cairo,¹⁴⁶ incorporates some information about the Near Eastern binding traditions in her outline of the western book tradition.¹⁴⁷ However, she concentrates on the Coptic binding tradition, which has its own section heading and twelve pages, and clusters the other book cultures in the region under the heading 'Beyond Egypt.' Put in the shadow of Coptic bindings, the Islamic book structures are hardly explained; Miller mainly refers to Islamic book practices in relation to decorative techniques and designs.

An exception is made when she describes the western book in the nineteenth century:

... by the end of the nineteenth century, the structure of the bound book was remarkably similar to some aspects of fourth- and fifth-century Coptic bindings and almost identical to the style that was consistently used in Islamic binding since the twelfth century: unsupported, link-style sewing, limited spine linings, and a case-like construction.¹⁴⁸

As this European case-binding is generally dismissed as inferior to the earlier products of hand-bookbinders, the comparison also disqualifies the Islamic book as a sound structure. In the glossary, the Type Two binding is defined:

By the twelfth century, the earlier styles of Islamic binding [e.g., the box-binding] had merged into the style that remained constant through the rest of the Islamic hand-bookbinding tradition. The structure has these features: unsupported link sewing with relatively few sewing stations, cloth spine linings brought over as text-to-cover attachments, and a

¹⁴⁶ In 2009, Miller joined the team that conducted a conservation survey.

¹⁴⁷ J. Miller, *Books will speak plain* (2010), xii–xiii; Miller chose to include the Near Eastern book tradition of the first millennium since this book culture clearly preceded and influenced the western (European) binding tradition, and explicitly refrained from outlining “the long, rich, and interesting history of the many non-European binding traditions from around the world.” However, while describing the development of the western book tradition of the second millennium, she makes comparisons with the Islamic book Type Two, especially decorative designs as they occur on Islamic bindings from the twelfth or thirteenth century onwards.

¹⁴⁸ *Ibid.*, 177; two pages on the disapproval of the western variant of this structure is further explicated: “Modern hand binders did not care for the sewing style, the simple case construction, and the perceived weakness of the binding style.... a sewing-and-case structure designed to perform best on lightweight texts was often misapplied to books too heavy for it with a resulting high level of damage among such books.”

distinctive style of endbanding. The covers were generally made off the book with goatskin over pasteboards, made flush with the text block with a fore-edge flap on the lower cover. The case-to-text attachment is generally through a tight-back spine and the spine lining extensions. Most bindings have narrow hinge strips spanning the board and text block, and usually have paper or leather paste-downs generally referred to as *doublures*.¹⁴⁹

Note that she does not mention the function of the primary endband, or the use of leather as spine-lining material or the dual, structural function of this binding component.

The inclusion of ten pages of guidelines in the appendix, to conduct a physical condition assessment, especially directed towards Islamic manuscripts, seems contradictory to the minor attention paid to the Islamic structural features in the body of the book.¹⁵⁰ The rather extensive overview of characteristics in these guidelines, though not exhaustive, provides important additional material information lacking in the chapters outlining the history of binding. The guidelines to describe binding and structure were meant to support cataloguers with a limited knowledge of the manuscript's materiality, hence the elaboration on the materials and their properties (such as ink, leather, or boards), and structural details (such as accordion folds or limp bindings) are quite extensive.

D'Ottone

Early Yemeni bindings often blend into the category of so-called 'Mamluk' bindings, yet in some ways they are distinguishable. Arianna D'Ottone examined two collections of Yemeni manuscripts in the Vatican Library and the Ambrosiana Library and reflected on the historic sources and some recent literature on the subject.¹⁵¹ She focussed on the tooling of the covers in particular, and presented two conclusions. Her observations provide evidence that the tools were heated before stamping. According to D'Ottone, this method of tooling is still a matter of ongoing dispute, although the historic texts do point to the use of heat. Secondly, she observed the presence of decorated borders using epigraphical stamps, containing scripts with short dedications

149 Ibid., 442.

150 Ibid., appendix 3, 402–411.

151 A. D'Ottone, 'Some remarks on Yemeni medieval bookbindings' (2007). "As for the type of book covers these Yemeni manuscripts belong to the most common Arabic-Islamic type of bookbinding that is the bookbinding with the fore-edge flap ... even if sometimes this fore-edge flap has gone," 52.

or devotional inscriptions. This particular characteristic is thought to be indicative of Yemeni bindings.¹⁵² In referring to the historic documentation, D'Ottone understood from the text of al-Muzaffar that the leather decoration of bookbindings was executed before the leather was pasted onto the boards; from the sequence of the procedure al-Muzaffar described, however, it can be deduced that the leather is dyed and burnished, then the boards are mounted which is followed by more polishing, and only then are the covers marked for tooling, if tooling is required.¹⁵³

An Assortment of (Mis)perceptions

The 2010 catalogue *Treasures of the Aga Khan Museum* offers an appendix with a glossary of terms used in the arts of the book.¹⁵⁴ The entry “Islamic bindings” includes three drawings representing Déroche’s three categories but the interpretation of the types is different. The reference to Type Three is especially unfortunate, since this glossary designates the flapless type as a western-type binding, and even suggests that it may have cords or clasps. The drawing further indicates that the covers extend beyond the edges of the textblock, which is also a western feature. For additional information on the subject the reader is referred to Déroche, as if the information provided already derives from *Islamic codicology*. However, Déroche himself did not indicate a similarity between western bindings and the Islamic binding Type Three, apart from not having a flap. Although the drawings in both books resemble one another—the ones in *Treasures* are obviously based on Déroche’s—the original drawing clearly lacks the projecting boards.¹⁵⁵ Under the same entry in the glossary we find that “The earliest Islamic bindings were box bindings or case bindings.” Again, this illustrates that the perception of the Islamic manuscript as a case-binding structure is widespread and very persistent.

A variety of works refer to other myths of the structure’s weakness. In a work about Qur’an manuscripts, Colin Baker writes that “decorative endbands were not part of the primary sewing structure of the book, but, when used, were generally made with two coloured threads tightly woven together.”¹⁵⁶ This suggests that the endbands are optional, though they certainly were not; they are very much part of the sewing structure. Another example is the introduction

152 Ibid., 52–54.

153 Ibid., 50. See also A. Gacek, ‘Instructions on the art of bookbinding’ (1997), 63.

154 M.S. Graves and B. Junod (eds.), *Treasures of the Aga Khan Museum: Arts of the book and calligraphy* (2010), 351–354.

155 See F. Déroche, *Islamic codicology* (2006), 258 and M.S. Graves and B. Junod (eds.), *Treasures of the Aga Khan Museum: Arts of the book and calligraphy* (2010), 352.

156 C. Baker, *Qur’an manuscripts* (2007), 106.

to the Islamic bindings preserved in Malta.¹⁵⁷ “The book was chain stitched.... The book was then attached to the cover from the endpapers that were first tipped to the textblock, though they [the textblock spines] were sometimes lined with thin cloth. The result was that many bindings came apart from the textblock.” Somewhat further on, it continues, “The covers were cases made off the book.” The suggestion that textblocks were only incidentally lined is incorrect, as is the generalisation that endleaves were tipped on. When they wrote that covers were made as a case, the authors were likely copying, indiscriminately, from Bosch, Carswell and Petherbridge.

Structure as a Conservation Issue

Over the last few decades, several contributions on conservation topics have been published featuring discussions on Islamic manuscripts. Of course, topics include problems related to the condition of the textblock or binding, as well as observations concerning the structural form. For the present study, textblock-related problems, such as copper corrosion or ink flaking, are not relevant; therefore, I did not include papers on these issues. Of interest are all publications concerned with the structure of manuscripts and the materials used for their production, whether they provide conservation options or merely refer to the Islamic binding tradition. In reading this summary of these contributions, we should keep in mind that most of these authors are conservators trained in the western book tradition. Their perspective is formed subconsciously by a standard based on the products of western binding methods. The use of this standard to qualify structures and materials that occur in the Islamic tradition is a subject for debate, yet without a more thorough knowledge of the foreign book structure, decisions were based on this reference frame.

The 1980s and 1990s

Although the first more or less experimental conservation treatments must have been carried out earlier, the first published reports to be found in professional journals are from the late 1980s and early 1990s. Indeed, the first article even indicated a transitional period, as Islamic book conservation was moving towards a more professional level. In 1987, William Bull, a member of the Society of Bookbinders and Book Restorers, stated that the practice of rebinding

157 J.E. Critien, M. Camilleri, J. Schirò, *Fine bookbindings from the National Library of Malta and the Magistral Palace Library and archives, sovereign military order of Malta, Rome* (1999), 21.

Islamic manuscripts with western methods was widespread. He described the usage of the western method of sewing on supports and the construction of the 'hollow back,' of which he wrote, "Both of these western methods of binding are of course perfectly good in themselves, but it has surely been a mistake to apply them indiscriminately to Islamic manuscripts to which they are almost always ill suited in one way or another."¹⁵⁸ He recommended the use of an alternative structure; the Islamic structure itself was also dismissed, since "deficiencies are known to exist."¹⁵⁹ Bull acknowledged the individual character and subsequent conservation needs of each manuscript before he described the treatment of one particular case. The sewing structure he suggests consists of a link-stitch sewing on multiple stations with the outermost sewing stations close to head and tail, the exact number depending on the size of the manuscript. The textblock spine was then to be lined with alum tawed goat-skin. Additionally, the proposed new binding would be made with a hollow spine, using a flexible board in the hollow.¹⁶⁰ This construction was thought to provide protection and to enhance the book's functionality, especially with regard to the wish to achieve 'a flat opening.'¹⁶¹ These considerations and treatment testify to a growing awareness of the characteristics of the Islamic book and of the shortcomings of western binding techniques for these objects, yet, the proposed treatment was developed from a western point of view.

In 1990, in accordance with Bull's observations, David Jacobs and Barbara Rodgers wrote that many of the Islamic manuscripts in the India Office Library had been rebound in western styles, which were no longer considered appropriate and sometimes downright dysfunctional and harmful to the objects. Therefore, the Binding Studio of the British Library set about developing a new method of binding, keeping in mind the demands of library use.¹⁶² Their paper is an account of the new guidelines they developed and the methods used in that new context. Whenever resewing was required, the original structure informed the choice of the new structure. That is, the old sewing stations could be used, but often positions were changed and stations added in order to reduce the strain on fragile paper or to stabilise large-size manuscripts. As an additional safety measure, the chain stitch was often upgraded with an extra

158 W. Bull, 'Rebinding Islamic manuscripts: A new direction' (1987), 23.

159 *Ibid.*, 31.

160 *Ibid.*, 33–34.

161 *Ibid.*, 31–32. Bull explained that the Islamic *rahl* allowed the manuscript to open only to 90 degrees, but the flat opening (an angle of 180 degrees) was required because of the western bookstands used at the time.

162 D. Jacobs and B. Rodgers, 'Developments in the conservation of Oriental (Islamic) manuscripts at the India Office Library, London' (1990), 110.

twist or knot to prevent the thread from pulling the fragile spine-folds of the paper.¹⁶³ Although the new endband structures that were applied were made to conform to the traditional Islamic endband, the sewing structure was ‘improved’ according to western standards, but Islamic techniques were used. The method described to attach the boards and to cover the manuscripts in full leather is based on western techniques. As the drawing of the leather application shows, the leather was turned-in on all edges, including the head and tail of the spine.¹⁶⁴ Endleaves were added because they were thought to enhance the board attachment. It is also noteworthy that boards were made slightly larger than the textblock (so-called square), supposedly in order to protect the edges of the textblock better than the original boards—which were flush to the edges—ever had. Since all the manuscripts were to be stored in clamshell boxes, this extra ‘improvement’ of the structure is especially remarkable. In my opinion, this is a typical consequence of the western perception of what constitutes ‘sound structures’ combined with a rather uniform preservation approach, in which the individual requirements of these artefacts are not always recognised.

In the same year Scott Husby presented a paper at the conference of the American Institute of Conservation, on the treatment of a number of Islamic manuscripts that had been prepared for an exhibition (‘A jeweller’s eye,’ opening November 1988) at the Freer and Sackler Gallery of the Smithsonian Institution.¹⁶⁵ The mainly fifteenth- and sixteenth-century volumes suffered from inadequate rebindings in improper structures, or their condition “reflected ... most common problems in books from this time and area.... The very weak sewing structure so typical of traditional Islamic bookbinding had broken down.”¹⁶⁶ Because Scott Husby did not consider the link-stitch sewing structure a proper structure, he chose a different method when the textblocks needed resewing. Either a long-stitch sewn through a laminated support of airplane linen and Japanese paper was used, or a link-stitch was sewn all along the length of each gathering on more stations. The second option was subsequently combined with a spine-lining of Japanese paper and airplane linen. Remarkably enough it was decided to not replicate the endbands. Although considered attractive, “in order for the chevron pattern to really show, these

163 Ibid., 117–119.

164 Ibid., 125. Neither text nor drawing explain the reason for this explicitly, but as the making of turn-ins across the spine was such a routine procedure in western bookbinding, it probably was not given any particular thought. It does illustrate though, that the Islamic tabbed spines were not recognised.

165 S. Husby, ‘Islamic book conservation’ (1991).

166 Ibid., 45.

headbands need to be fairly wide which contributes to restricting the opening a bit and creates a point of vulnerability at the head and tail of the folios where the pages must flex around the tie down threads.¹⁶⁷ Clearly the interventive treatment was given serious thought. Yet, the function of the Islamic endband was not understood, and aesthetic considerations prevailed over practical solutions. While an endband could easily have been sewn on a small core, which would preserve the endband function without hampering the manuscript's opening, this was not considered worthwhile. The final result of this eclectic treatment reflects the general misconception of the traditional structure. The critical relationship of the endband sewing with the relatively simple link-stitch sewing and spine-lining was overlooked, and therefore a treatment was applied to 'solve' the problem through a western approach. The observation that wide endbands could cause tension and hinder the ease with which a manuscript can be opened may be true, but for conservation purposes one only needs a small endband core and tiedowns to connect each gathering and the lining; the visual quality of the secondary endband is—for conservation purposes—of secondary importance.

Finally, it is important to mention a treatment report of a late medieval Yemeni manuscript, published in 1996.¹⁶⁸ The manuscript had been rebound in an unsuitable western quarter-binding and the book did not function well because of the excess of animal glue on the spine. The manuscript's paper was degraded and damaged, and, according to the report, it was decided that the paper was to be leafcasted, and a new binding had to be made. The conservation approach is well-accounted for: "The conservation binding of the Yemenite Taj was designed to be sympathetic with Middle Eastern binding styles, but also durable and functional."¹⁶⁹ This reveals the biased the point of view: the durability and functionality of Middle Eastern binding styles cannot be relied upon. The subsequent choice for a supported sewing and a western binding structure is further explained in the following paragraph:

Middle Eastern bookbindings, it is safe to say, are typically structurally weak. The weak points in the classic form include the sewing (sometimes using silk, and no sewing supports), a flexible spine (using a single lining of cloth), and weak connections to the cover. Covers were usually made as a case, that is made separately from the textblock.¹⁷⁰

167 Ibid., 46–47.

168 G. Ruzicka et al., *A Yemenite Taj: A case history in cooperative book conservation* (1996).

169 Ibid., 8.

170 Ibid., 8.

The First Decades of the Twenty-First Century

The increase in articles and papers dealing with the examination and preservation of Islamic manuscripts of the past decade is indicative of the maturation of the field. As Nil Baydar phrased it, while addressing traditional features and conservation problems of Turkish manuscripts: "Although there are not enough trained conservators in Turkey who adopt an ethical approach to conservation, conservation has recently and gradually become a field of science."¹⁷¹ In this paper, Baydar only briefly touches on the method of board attachment and leather application, without actually indicating the technique(s) used to produce the book. Although the sewing structure is also not discussed in great detail, she states that sewing stations were made by cutting or sawing the spine of the textblock. Furthermore, Baydar says that this technique is not just Turkish but used throughout the Islamic world.¹⁷² The manuscripts in the UBL collection do not confirm this, nor do any of the literary sources to my knowledge. Usually, the gatherings are just pierced with a needle or perhaps pre-pierced with an awl. As a spine-lining material, Baydar only mentions textile and paper. The omission of leather is significant, not only because leather was the principal lining material in the first centuries of the Ottoman era; but also because this seems to indicate that the leather joints in those manuscripts are not recognised as being part of the spine-lining and, as such, a structural component of the manuscript.

In 2010, at another International Institute for Conservation (IIC) conference, Baydar presented some characteristics and techniques used in Islamic bookmaking that have only recently been recognised.¹⁷³ One of them, concerning structure, is the wrapper binding with unsewn textblocks.¹⁷⁴ Baydar mention specimens that were located in Cairo (Egypt), Constantine (Algeria), and Konya (Turkey), all through rather quick surveys in parts of the extended collections in the institutes involved. From this we must assume that more examples of this specific manuscript type will be found once someone starts to look for them.

171 The paper was a contribution to the International Institute for Conservation (IIC) congress in Baltimore, 2–6 September 2002. See N. Baydar, 'Structural features and conservation problems of Turkish manuscripts and suggestions for solutions' (2002), 10.

172 *Ibid.*, 7.

173 *Idem.*, 'Newly identified techniques in the production of Islamic manuscripts' (2010), 69–73.

174 This type is discussed in chapter 2. See also K. Scheper, 'The conservation of the Middle Eastern manuscript collection in the Leiden University Library. Results of a conservation assessment survey' (2008), 68.

At the same conference, Kristine Rose addressed the two-piece technique, which she observed during a conservation project of the Turkish collection at the Chester Beatty Library; this was the first time that attention was paid to the use of two pieces of leather to cover full leather Islamic bindings.¹⁷⁵ Nearly half of the thirty-two manuscripts in this collection that needed extensive treatment appeared to be constructed using this technique. None of those manuscripts were very large and although they differed greatly in age, dating from the sixteenth to the twentieth century, they were all produced with great care, and the overlapping pieces on the spine were hardly visible. Rose concluded that the occurrence of the technique is significant, for it does not corroborate the case-binding structure that is usually associated with the Islamic binding tradition. Rose's suggestion that this technique makes sense on a practical level because it offered ways to economise on materials is true, as is her remark on the possible use of the technique to allow for a better fit of the binding.¹⁷⁶

A third contribution at the 2010 IIC conference, by Silvia Pugliese, provided information on some other features.¹⁷⁷ Pugliese reported on the conservation project of the Oriental manuscript collection in the Marciana National Library, Venice. Roughly one hundred manuscripts with original Oriental bindings were examined, and the technical information was recorded. The thread used for the link-stitch sewing was analysed and appeared, in two-thirds of the cases, to be made from plant fibres while the remaining manuscripts were sewn with silk. Pugliese also mentioned the use of coloured thread for page-markers, which were stitched to the front-edge margins of the page. As a variation, she encountered bookmarks consisting of longer strands, tied to the head endband.¹⁷⁸ Pugliese observed that most spine-linings were made of undyed fabric, others consisted of either leather or dyed cloth. She described over two-thirds of the original bindings as being covered in full leather, but she did not mention, however, whether she noticed the two-piece technique; presumably this oversight was the result of her lack of awareness of the existence of this technique and the possible differences in composition that indicate that the technique was used. The remaining manuscripts were made with partial leather bindings that had coloured or marbled papers on the boards.

175 K. Rose, 'Conservation of the Turkish collection at the Chester Beatty library: A new study of Turkish book construction' (2010).

176 *Ibid.*, 48–49.

177 S. Pugliese, 'Islamic bookbindings in the manuscript collection of the Marciana National Library in Venice' (2010).

178 *Ibid.*, 53. In the Leiden collections these fixed page-markers are not uncommon, but the bookmarkers affixed to the endband were only encountered three times, and on manuscripts of fairly recent date.

The majority of the bindings were described as case-binding structures, and as most of them had a flap, they were categorised as Type Two bindings. More interesting is Pugliese's description of five limp bindings.¹⁷⁹ These limp bindings seem to be of Oriental origin and consist of brown leather without a flap, some of them had turn-ins, in others, the leather was cut flush to the textblock. The textblocks of these items are sewn with the predominant link-stitch and the leather is, as usual, directly applied to the spine.

As part of a graduate programme (2005), Katherine Beaty investigated the materials and the structure of an eighteenth-century Qur'an. Introducing the treatment of the Qur'an at hand, Beaty briefly described the book tradition and stated that "Islamic bindings are made off the book similar to a case binding."¹⁸⁰ This illustrates how a young professional relies on the literature available, whilst the counter-evidence may be found in the form of a real object on the workbench. Indeed, almost immediately following this assertion, Beaty described the damaged manuscript at hand as a full leather binding made in two pieces. She observed that "... when each board was covered, a flap of leather was left at the spine ... pared so thinly [that] the two leather surfaces blend together, so that the overlap is barely visible.... the flaps of each of the boards can be pasted over the spine individually."¹⁸¹ In fact, Beaty proved that the structure is not a case-binding by describing the technique that she observed, which had been used to make this binding. With respect to treatment decisions, familiar conservation techniques and materials—deriving from western book conservation—were preferred over authentic techniques. Thus, Japanese paper was chosen as a spine-lining material instead of cloth, even though cloth would better support the primary endband sewing and board attachment. Furthermore, the repaired cover was reattached by means of a paper hollow tube, decidedly a western invention.¹⁸² Beaty accounted for the

179 Ibid., 53. Images of these limp bindings were not included and given the lack of a more detailed description, a comparison with the Leiden specimens is not possible. (Unanswered questions include: Do these manuscripts have an endband sewing and are there signs of a spine-lining? Are they completely without boards and were doublures applied?) Still, the presence of such limp leather bindings in other collections seems to suggest a wider use of this particular binding technique. The limp bindings are discussed further in chapter 5.

180 K. Beaty, '21st century remedies to 19th century repairs of an 18th century Koran: Materials analysis, treatment, and housing' (2005), 4.

181 Ibid.

182 Ibid., 17. The initial use of hollow backs resulted from the desire of late sixteenth-century western binders to lavishly decorate the flat spines of their leather bindings with gold; tight spines inevitably flexed so much that rich decorations lost their lustre and a hollow back prevented this mechanical damage. The introduction of the hollow tube followed from this development. The paper hollow has its merits in book conservation. However,

alteration of the structure by explaining that this solution enhanced the opening of the textblock without putting stress on the spine.¹⁸³

It is worth noting that contributions from 2010 onward testify to an increased awareness of various characteristics of Islamic book structures and bindings. Conservators certainly notice the two-piece technique more often; other features that are now observed and described are tabbed spines and diverging endband structures.¹⁸⁴ Another quite important development is the inclusion of references to native repairs, since they can be regarded as being part of the scope of codicological study. A case in point is Herre de Vries' report of a conservation project he undertook in the Vatican Library during 2012.¹⁸⁵ The account of this project illustrates how conservators are intermediaries between the objects and their users and students. De Vries explains and stresses the added value of the historical repairs, both in terms of the socio-cultural information they may provide and in terms of giving clues about the date and the geographic origin of such interventions. These developments are absolutely crucial with regard to preservation and active conservation practices.

Model Making Practice

One of the best ways to try and thoroughly understand a book structure is to make models of it. When an opportunity presented itself in 2002 to do so under the guidance of an experienced conservator, I attended a *Fortbildungskurs* entitled *Der orientalische Bucheinband*, at the *Fachhochschule für angewandte Wissenschaft und Kunst*, in Hildesheim (Germany). The experience was extremely useful, not least because the manuscript structure we produced was not exactly Islamic. Notwithstanding all the images we looked at and the

since its use alters the functioning of an Islamic manuscript to such a large extent and also introduces new tensions in the structure, the application of a hollow is not an obvious solution. Apart from the structural consequences, the leather covering and specifically the spine endings need to be considered. A tab on a hollow would make an odd and hybrid solution, while a turned-in leather spine, as Beaty chose to make, is not an elegant option either, though it is consistent with the western interpretation of the binding.

183 For less explicit reasons, the method is also described as a current conservation option by Valentina Sagaria Rossi, see the reworked and extended manual based on *Manuel de codicologie*: F. Deroche and V. Sagaria Rossi, *I manoscritti in caratteri arabi* (2012), 36–38.

184 See, for example, M. Russo, 'Islamic bookbindings in the University of Turin: Some particular features and preservation issues' (2015), 47–65; and C. Colini, M. di Bella and M. Rubino, 'Bound by tradition: New ways and old paths in Yemeni bookbinding workshops between XIXth and XXth centuries' (2015), 38–63.

185 H. de Vries, 'Reading the book's history: Understanding the repairs and rebindings on Islamic manuscripts in the Vatican Library and their implications for conservation' (2016), 339–383.

characteristics we discussed, the final product was a hybrid binding, with both Islamic and western features. This was done intentionally, at least in large part. The instructor explained the adaptation of the sewing structure (we had to sew the gatherings through the cloth, used as the spine-lining afterwards) as an improvement to the otherwise weak structure. The leather turn-ins we made at head and tail of the spine—instead of tabs—were not explicitly accounted for, and none of the students questioned this particular aspect. In retrospect, I think the tab was just not recognised as a characteristic at the time. The way we applied a leather inner joint was also a typical western interpretation of a poorly-understood feature. Instead of using a leather spine-lining with flanges, or—the other possibility—an additional strip of leather pasted as a guard in the joint, we applied the strip of leather even before sewing the textblock. It was folded around the outer gatherings and sewn with the textblock, similar to the leather joint strengtheners used on western printed books in the nineteenth century.

Five years later another workshop was offered at the University of Melbourne. After a three-day symposium on the care and conservation of Middle Eastern manuscripts, a two-day workshop on structure was organised by the Centre for Cultural Materials Conservation, of the University of Melbourne, Australia, in November 2007. Again, I was fortunate enough to attend. Partly because of the wealth of information exchanged in the three days prior to the workshop, I expected a more authentic approach. Nevertheless, once more the model we were to make was adapted to western standards. Interestingly, the instructor justified the decision to change the structure (we used a link-stitch sewing on four stations the way Coptic manuscripts are sewn) for reasons of strength. It was argued that the damage of many manuscripts—detached boards, broken joints, deteriorated sewing thread—proved the flaws in the structure. However, it is debatable whether the additional stations, so close to the position of the tiedowns, really increase the strength of the structure significantly. Yet what such a change in structure would cause, should it be used conservation treatments, is confusion in the historic evidence; the Coptic structure would interfere with the object's cultural identity. I also questioned the necessity of aiming to increase the strength of manuscripts now kept under museum conditions, or those used sporadically in research institutes. Much of the damage many manuscripts suffer is closely related to intensive use, real wear and tear, combined with the natural aging of the materials. Nonetheless, I made the model according to the instructions given. Apart from the 'improved' sewing structure, we made turn-ins at head and tail of the spine, and the leather inner joint was applied (as a variant of the sewn joint strengthener in the 'Hildesheim model') by gluing the leather strip around the spine-fold of a loose

bifolio that subsequently was adhered onto the spine edge of the outer gatherings. Thus, the smaller side of the leather guard was hidden between two pages stuck together at the spine edge, and the other, broader side was used as the inner joint. The extra bifolio functioned as an endleaf in an un-Islamic fashion, adding to the final result: a hybrid model that gave the impression of being an Islamic manuscript, but, when closely examined, showed details not found on authentic manuscripts.

The inclination to 'improve' the original structure and adjust it using western binding elements appears to persist among western conservators. At another, more recent workshop on Islamic bookbinding that I did not attend,¹⁸⁶ many images of original bindings were shown and the 'general' binding technique was discussed, including information on the application of the leather covering with the one or the two-piece technique. Subsequently, a model was made using most of the original features, but again, for reasons of strength, some western binding elements were intentionally introduced.¹⁸⁷ It seems that this practice is not restricted to model making; the same approach can be seen in the conservation approach of many conservators who are rooted in the western book tradition.

Coming from that western tradition myself, the tendency to compare the two traditions is not at all unfamiliar to me. Indeed, my initial acquaintance with Islamic manuscripts and their sometimes poor condition made me wonder why the binding tradition appeared to be such a conservative one. I asked myself why, when so many items clearly did not survive the ages intact, was the construction not altered over time? For comparison, I looked at the materiality, the structure, and appearance of the western book, which displays major changes over the centuries.¹⁸⁸ For what reasons did Islamic bookbinders abide by this one structure, although they did develop new decoration patterns and

186 A one-week course was held at Montefiascone, Italy, 2011. One of the attendees was so kind as to discuss the produced model with me.

187 For example, the tab was not made, rather a turn-in at the head and tail of the spine was made instead. The instructor acknowledged that turn-ins are not generally found on Islamic bindings, but it was felt that the joints would be stronger with turn-ins, and therefore this adaptation was standard procedure for conservation and rebinding purposes.

188 That is not to say that the development in the western bookbinding tradition is an upward trend in terms of strength or quality. On the contrary, in large part the technical and material changes reflect the response of binders to developments in the book market, and the ever increasing demand for more and affordable books since the development of the printing press. In addition, it seems we easily forget that of the preserved medieval western books, also only a very small number of manuscripts survived in their original bindings, and these are often damaged or have been repaired to the same extent as their Middle Eastern counterparts.

embellishment techniques? Fortunately, conservation treatments offered the opportunity to see and feel the physical evidence of the varieties and the intrinsic strength of the constructions. Based on these original structures, I started to make more models, in which I refrained from alterations and supposed improvements. These model objects, with their new materials still in full strength, effectively show that the Islamic manuscript structure is not a weak one. The construction is the result of the aim to produce a manuscript which can be made fairly quickly, and yet is functional and durable. The flexibility inherent in the structure leaves all options open with regard to the final product; the use of modest or luxurious materials and decoration techniques was entirely up to the binder or commissioner. These observations answered my questions adequately.

The misinterpretation and depreciation of the Islamic binding tradition is of fundamental importance in the discussion of how these objects are best preserved. Usually, the Islamic tradition is explained in a single-model format, which overlooks all the distinctive variations, and then the format is disqualified as a proper structure. This point of view is the basis of many binding courses and conservation instructions, which has huge consequences for the care and conservation of Islamic manuscripts. The inclination to explain the Islamic manuscript structure by comparison with western techniques or bookbinding developments, and to compare isolated techniques with western counterparts without the context of the whole construction, should change.¹⁸⁹ Ultimately, the essence of conservation is *not* thinking in terms of single formats and uniformity, but instead, of individual manuscripts and heterogeneity. Accordingly, every item requires an individual approach carried out by an attentive conservation expert.

The Sum of the Parts

The literature on Islamic manuscript structures goes back nearly a thousand years. These historic documents have a clear and direct relation with most of the manuscripts produced in the Islamic world, either those that are contemporary with the treatises or those made in the ensuing centuries. The historic treatises not only inform us about bookbinding techniques, they also provide

189 At the thirteenth symposium of care and conservation of manuscripts in Copenhagen in October 2012, I examined this inclination to regard the western bookbinding tradition as superior to Islamic bindings; the paper was published under the same title: 'Neither weak nor simple: Adjusting our perception of Islamic manuscript structures' (2014).

a wider view of the bookbinding workshop, introducing the tools, equipment, and adhesives that were used by the craftsmen. These treatises are not precise enough to guide a novice in the trade through the whole process of manuscript manufacture; the instructions are sometimes almost fragmentary and none of the historic authors that we know of now describes the final stages of the binding procedure. However, the great value of these primary sources for the present research is that they serve as a benchmark for the physical objects that have survived and which I was able to survey. Although they do not describe every binding feature that may exist, many characteristics are represented and, most important, the differences in structure that I encountered appear to be actually documented. Thus, these historic documents validate my research findings and provide a further argument to reconsider the current characterisation of the Islamic binding structures.

The bulk of the secondary literature has been generated over the last fifty years, and has laid a firm foundation for further studies. Groundbreaking work was done by scholars who were not material specialists; their lack of expertise in this area explains some misinterpretations, but at the same time it makes their achievement all the more impressive. Over the last decade, the number of publications has seemed to multiply; these address diverse aspects of the physical manuscript. There appears to be a widely felt need to classify these manuscripts—this is clear from the general acceptance of the typology introduced by Déroche. Many recent reference works as well as publications on conservation issues refer to Type One, Type Two or Type Three bindings as appropriate. However, it has also become apparent that this typology does not suffice as a system for classifying the real differences in structure.

Multiplicity within the Tradition

An Account of the Methodology and Quantitative Results of the Survey

Methodology

General Procedure

In 2010 a pilot survey was carried out to gain information on the varieties in shape and composition that I found in the manuscripts in the Leiden collections written in Arabic script. I selected a preliminary sample of manuscripts by assessing the first hundred books of every thousand and examined all manuscripts with original Islamic structures and bindings—any minor repairs or adaptations notwithstanding—within this range. From this initial survey I could establish the structural and material elements which would need to be incorporated in a database for the larger survey on which the present study is based. The pilot study also provided a most welcome experience to build an adequate database for this purpose.¹ Additionally, the preliminary assessment answered some questions concerning the criteria for selection: what degree of historic interference or damage was acceptable, and when was a repaired manuscript qualified as no longer valuable for and therefore eliminated from this research? Lastly, decisions as to which features needed to be included and which details could or should be ignored were largely based on this pilot. Of course, I could not foresee all the functionalities that the database eventually required, and several anomalous features only gradually appeared to deserve their own entry field in a database record. Thus, as was to be expected, even after starting the assessment, small changes and additions to the database design proved to be necessary.

The database was designed to contain concrete and visible facts about the structure of each manuscript, in order to generate objective and consistent descriptions and allow for cross-searches and comparison. It was built so as to leave no room for subjective interpretation; for example, a binding is either covered in full leather or it is not—in which case it is probably a partial

1 General results of this initial survey were presented at the conference “New approaches to book and paper conservation,” Horn, May 2011, and published in the preprints: K. Scheper, ‘Refining the classification of Islamic manuscript structures’ (2011). For the initial survey Access 2000 was used. For the definitive survey, which formed the basis for present analysis, the database was extended and redesigned in Filemaker Pro 10.0v1.

leather binding, although there is an option to specify “other” for the few divergent volumes. Subjective qualifications were avoided. As a consequence, the ornamentation of the binding was not classified, because ‘rich,’ ‘fine,’ or ‘common’ are hard to measure or define. Moreover, it is extremely difficult to maintain a fixed, consistent standard for subjective qualifications over a long period of time, and as the assessment of a thousand manuscripts unavoidably stretched over a substantial period, unintended differences in classification would have to be expected. Nevertheless, it was accepted that now and then a remark would have to be made concerning the quality of the work—when it was remarkably clumsy or crude, or on the other side of the scale, very refined. The main reason for noting such impressions was to allow for easier reference or selection in a later stage of the survey, when cross-comparisons between manuscripts with similar features were made.

While setting up the project, it was tempting to combine the description of the physical make-up of the manuscripts with a condition or damage survey.² The underlying idea of a combined survey would be to make the most of the opportunity: the physical condition of many of these manuscripts may not otherwise be brought to a conservator’s attention. Given the intrinsic value of the selected volumes—they represent part of the history of Islamic bookbinding—their preservation is of major concern, and this argues in favour of an extension of the survey. On the other hand, within the overall Arabic manuscript collection the selection forms only a minor part, and other manuscripts that were not selected may have condition problems that are more urgent for different reasons. Additionally, it was not to be expected that extra means would be found to tackle the condition issues, so the records would only provide data that support a theoretical opportunity to address preservation problems, and not be directly applied to develop a conservation programme.³ For those reasons, I abandoned the idea of diagnosing the condition, and confined the survey to a coherent description of the material and structural composition of the manuscripts.

Every item in the Arabic manuscript collection was inspected in order to decide whether it should be selected for this study, starting with the first acquired volumes and ending with the latest acquisitions. The triage was first carried out on the basis of the book’s visual appearance; bindings evidently

2 The library of the monastery of Saint Catherine on Mount Sinai provided a model for such a combined survey project of bound manuscripts. See N. Pickwood, ‘The condition survey of the manuscripts in the monastery of Saint Catherine on Mount Sinai’ (2004), 33–61.

3 The UBL’s conservation workshop has a limited capacity and to embark on a conservation project such as this, extra hands and budget would have been required.

made in the West were put back on the shelves. All other items were checked for their authentic value, using the criteria described in chapter 1. When selected, a manuscript was examined and all required specific characteristics were subsequently recorded in the database. Simple optical techniques were used to examine the books. Raking light (oblique light) and the use of a magnifying glass proved especially helpful for discerning the two-piece technique. In some cases, rubbings were made when cloth hinges underneath the doublures were suspected but not visible: rubbing the surface with a soft pencil over a thin paper revealed the texture of the material underneath. Digital images, enlarged on the computer screen, shed light on details that remained difficult to discern with the naked eye, such as the pattern of a secondary endband.

After I completed a physical examination of all the volumes, I added the relevant bibliographical information from available catalogues and inventories to the records in the database, in so far as this data was available.⁴ Subsequently, the database was cross-searched and mined for information.

Explanation of the Database and Form Design

In short, six technical components form the basis of a coherent structure that we recognise as Islamic: sewing technique, spine-lining, endbanding, covering scheme, method of board attachment, and inner joint composition. These constitute the red line in the survey, and the database and form sheet were designed around these sections accordingly. As one of the main goals of the survey was to demonstrate the diversity within the Islamic tradition, I recorded the manuscripts' construction and the materials used with respect to these specific binding components in detail. Additionally, in order to pinpoint decisive variations or divergent methods that would enable me to classify sub-traditions, it was necessary to link the varieties in the composite parts to the available information on the origin of the manuscripts.

4 Title or short content description, language, date and origin (insofar as provided) were extracted from P. Voorhoeve, *Handlist of Arabic manuscripts in the library of the University of Leiden and other collections in the Netherlands* (1957, 2nd ed. 1980); J.J. Witkam, *Catalogue of Arabic manuscripts in the library of the University of Leiden and other collections in the Netherlands*, fascicules 1–5 (1983–89); J.J. Witkam, *Inventory of the Oriental manuscripts in Leiden University Library* (2006–2016), <http://www.islamicmanuscripts.info/inventories/leiden/index.html> (most recently accessed 12 June 2017); J. Schmidt, *Catalogue of Turkish manuscripts in the library of Leiden University and other collections in the Netherlands*, volumes 1, 2, and 3 (2000, 2002, 2006) and *Catalogue of Turkish manuscripts in the library of Leiden University and other collections in the Netherlands. Minor collections* (2012); T. Iskandar, *Catalogue of Malay, Minangkabau, and South Sumatran manuscripts in the Netherlands* (1999); E.P. Wieringa, *Catalogue of Malay and Minangkabau manuscripts in the library of Leiden University and other collections in the Netherlands*, volumes 1 and 2 (1998–2007).

The question then arose whether it would be possible to indicate other material characteristics with the potential to help establish the origin of a manuscript. To answer this question, and to allow for an analysis of the data which might provide insights that could not be predicted, more physical aspects needed to be incorporated in the survey. With enough data, trends in time and space might be revealed. A number of features were regarded as potentially informative, including the manuscript's format (if different from the general vertical format: oblong, square, or elongated; in addition to that the exact dimensions); whether the thread used for sewing and the primary endband sewing was the same or different; the secondary endband pattern; the finishing of the inner joints, such as the application of stubs, paste-downs or separate hinges; the use of region-specific materials; the treatment of the spine-ends; the absence of boards; the absence of the envelope flap; and the presence of page-markers.

To record the technical components regarded as essential for this research, a database was designed with 22 subject headings to describe each selected volume. The headings dealing with distinct parts of the binding were subdivided into a list of check-boxes to allow for consistent and quick recording.⁵ After entering the manuscript's classmark and dimensions, the item was examined for traces of rebinding, the presence of repairs—either native or western—or signs of a recent conservation treatment.⁶ When the volume deviated from the general vertical format, one of the checkboxes denoting the divergent format was checked: oblong, square, or elongated. This was followed by detailed recording of the visible technical features and materials used, for the categories 'method of sewing,' 'lining,' 'endbanding,' 'board attachment,' 'covering scheme,' 'type of interior covering,' and presence of an envelope flap.

In general, the fundamental techniques used to construct the book—the sewing, lining, and application of the primary endbands—basically reflect the tradition in which the bookbinder was trained. These steps in the binding process were influenced more by training than by budgetary issues or aesthetic considerations. Given that the results from the pilot indicated that the

5 See appendix 2 for an empty form-sheet of the database, as used to assess each volume.

6 The relevance of the evidence of rebinding is explained in chapter 1. I only selected items in which repairs did not interfere with the visibility of structural components to such an extent that it obscured their characteristics. However, a repair could obscure particular features, such as the application method of covering leather; in these cases, the repair was recorded. If the manuscript had been recently treated, that is, since 2000 when the UBL conservation workshop was set up, the treatment report was consulted to provide additional information on its former condition.

majority of the manuscripts were sewn with a link-stitch sewing over two positions, of course the remainder that differs is the category of particular interest. What sewing structure was chosen when the predominant link-stitch was not used, and why, and when? The section “sewing structure” consisted of check-boxes for various link-stitches, options for stabbed sewing, supportive sewing, and the absence of sewing. “Not visible because of too tight a structure” was also an option.

One of the surprising findings from the pilot survey was the frequent use of leather as spine-lining material, although this feature is not described in the relevant literature, with the exception of the primary sources. Since the lining is crucial for the stability of the textblock and overall binding structure, this structural element and the differences that were encountered in terms of the choice of material and method of application, and with regard to the board attachment, deserved to be a key aspect in the survey.

Although the application of endbands seems to have been remarkably consistent over the centuries, varieties occur which are worth examining. The most prominent anomaly emerging from the pilot survey was the Southeast Asian endband, which has a special feature in the form of tufts on the outer ends, at the joint. For this specific characteristic I included a check-box under the heading “endbands.” Less striking variations were found in the patterns of the secondary endband, and therefore a check-box for “chevron pattern” and one for “other pattern” sufficed. The pattern of those volumes that differed was then described in a text-field for remarks.

With regard to the appearance of the bindings, two main groups—full leather bindings and partial leather bindings—had to be distinguished that both ramify further. Full leather bindings were examined for evidence of the two-piece technique or the use of one single sheet of leather. Moreover, with the prospect of gaining more knowledge about the development of these different covering schemes, it was important to clarify which manuscripts were to be disqualified as useful informants in this respect, in order to avoid blurring the results. This required check-boxes to indicate bindings that are too damaged to detect the precise covering technique, or those that are lacking convincing proof of either the one piece or the two-piece technique.

The subdivision of the group of partial leather bindings extended to five subcategories. Some of these bindings have all their edges entirely covered with leather—which would offer best protection—while others have no leather strips on the horizontal edges. I found specimens in both varieties with and without a leather strip on the front edge of the envelope flap. It seems likely that economic motives were involved in this covering scheme, therefore, the material used to cover the board panels was also recorded, as the choice of

material could be another budgetary indicator.⁷ Relatively expensive materials like decorative cloth or marbled paper can be found, as well as cheaper materials such as rather plain, monochrome dyed paper. Finally, when partial leather bindings were further embellished with tooling or the application of leather onlays, I recorded this as well.⁸ In addition, I noticed there were partial leather bindings with a leather spine only, that did not comfortably fit in the *çaharkuşe* category.

Although the role of tradition, habit and fashion must not be underestimated, the treatment and finishing of the inside of the covers are of interest because factors such as economy and material strength are likely to have been of influence. The materials a binder could choose from were leather, textile, or paper, in several degrees of quality; these materials could be further embellished. Again, the decorative quality and luxuriousness of the materials and techniques used may be indicative of the status or value of the book, while the durability or availability of the materials would have been basic issues of concern. Especially for the less embellished bindings, it can be assumed that binders did not choose a material casually, since price differences would have been significant.⁹ Because of this, I recorded both the substance and composition of the interior of the binding.

Under the heading “spine endings” the outer ends of the spine covering are described. As noted, the specific features of the spine-ending bear information about the technique used by the binder to attach the boards to the text-block. Also, a recent study of a small collection of manuscripts from Xinjiang, now kept in the UBL, has revealed that the finishing of these spine-endings may provide a clue as to the origin of manuscripts. Both aspects have been expanded on in chapter 2. The key categories are “tabbed” or “turned-in”; the category “flush” indicates that the spine-end was not turned in, but leaves open the possibility that it once was tabbed. Unfortunately, due to severe damage on the outer ends of the spines, many bindings no longer reveal their original make-up. When the leather on the spine is torn or has crumbled away below

7 On the other hand, the full leather covering technique may have prevailed in peripheral regions where decorated papers were not a regular commodity.

8 Leather onlays were only recorded for the partial leather bindings, as these signify an elaborate technique for bindings that otherwise could be classified as being on the ‘cheaper end of the scale,’ whereas on full leather bindings this distinction is harder to make. Indeed, leather onlays are often found on full leather bindings which are not necessarily richly embellished, while many exquisitely tooled full leather bindings have no onlays.

9 It is generally thought that materials were more costly than labour, and leather more expensive than cloth or paper, though there are few written accounts that provide information on the costs of bindings. See J. Benson, ‘Satisfying an appetite for books: Innovation, production, and modernization in later Islamic bookbinding’ (2015), 369–370.

the endband, it becomes impossible to see whether a spine-end was tabbed or cut flush. However, from evidence on the inside of the boards, it is often possible to establish that the leather on these dilapidated spines was not turned-in. Many inner joints display part of the leather turn-in with a clearly cut edge adjacent to the spine, which proves that the leather was cut at the joints to allow for the leather on the board edges to be turned-in, indicating, at the same time, that the leather on the spine was left to extend (figs. 126–129). For these damaged bindings, a check-box “spine-ends not detectable” was required. All items thus marked could have been made with tabbed or flush spine-ends, but it was established that the leather on the spine was not turned-in.

A peculiar component not mentioned in the historic sources, nor clarified in the secondary literature on Islamic manuscripts, is the use of page-markers.¹⁰ They are frequently encountered in the UBL collections and this element seems to demonstrate a fairly consistent tradition in technique and use of materials. Although this is a feature of the textblock, it seems that page-markers were applied by the bookbinder, or perhaps the owner of the volume, rather than the copyist. Since so little is known about their application, even though their use may be obvious, I decided to record all occurrences of manuscripts with page-markers. A check-box was added to indicate their presence in a particular manuscript; in addition, in the ‘remarks’ field, I noted how and of what material the page-markers were made and their precise location.

The presence of a fore-edge and envelope flap was recorded straightforwardly: either a flap was extant or traces of the former presence of a flap were visible, or the volume was made without a flap. The doublures of the fore-edge and envelope flap were recorded separately, as these linings more often than not consist of separate pieces and different kinds of materials. When no board was used in the fore-edge flap this was noted in the remarks field. The width of the joints adjacent to the fore-edge flap was only measured when the difference in width between the two was significant, in which case, this was recorded in the remarks field.

Check-boxes were used to record all these visible components, while text fields were used to register data like classmarks, measurements, origin, date, and comments. An image field was included to contain photographs of the cover or other specifics. The object was measured from head to tail (height),

¹⁰ As far as I am aware, Adem Gacek is the only author who describes them, however briefly, under ‘Notabilia and finger tabs.’ A. Gacek, *Arabic manuscripts: A vademecum* (2009), 168–169.



FIGURE 126 *Or. 894 (1659). A limp leather binding; the leather covers are lined with one sheet of paper onto which the turn-ins are made, there are no boards. The spine ends are damaged and it is not possible to say whether they were tabbed or cut flush.*



FIGURE 127 *Or. 894 (1659). The leather covering extending beyond the boards was cut at the joint in order to make the turn-ins. The cuts are clearly visible at head and tail, adjacent to the joint. In this case, the turn-ins are not covered by a doublure or an endleaf.*

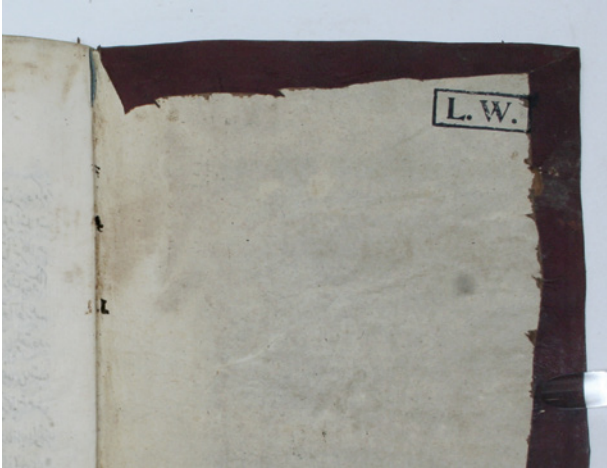


FIGURE 128 *Or. 894. Detail of the front cover. On the right side of the joint, the cloth spine-lining flange shows through the paste-down. At the head, the turn-in of the leather attests to the practice of cutting the leather at the joint position, to allow for the making of the turn-ins.*



FIGURE 129 *Or. 511. The cut in the leather that was made to accommodate its turning-in over the board is visible. The leather was cut at an angle (a wedge between tab and turn-in was cut out), leaving a small corner of the back board uncovered. It indicates that the covering leather was not turn-in on the spine.*

spine to fore-edge of the textblock (width), and front cover to back cover (thickness); the thickness of the fore-edge flap is not included in these dimensions.¹¹

In order to allow for the unexpected, a separate text field was included to record additional observations. This remarks field was also introduced as a place to record any other particular feature which occurred so sporadically that it required no field of its own, or to describe the exact execution of a specific feature, such as a divergent secondary endband pattern. Furthermore, remarkable characteristics were noted here, such as paper filigree in pages of a textblock or leather of a surprising colour. In this field, subjectivity was allowed, in fact, it could not be avoided. For example, in this field I noted when the covers had a more than average difference in board thickness, a more than average difference in thread thickness or remarkably long or short link-stitches or tiedowns. In this I followed the logic of the three-level assessment Nicholas Pickwoad described: when you have an image in your mind of what is ordinary—in the case of board-thickness ‘medium’—then thin or thick boards stand out.¹² Lastly, specific treatments like a painted or dyed textblock edge were recorded, as well as a divergent shape of the flap, the use of uncommon board material, the presence of a leather strap at the point of the flap, the presence of an enclosure or anything else that may be more than just specific to the manuscript, that may be specific to the region or time. By searching key words within this text field, I could easily retrieve comparable observations later.

The fields ‘content,’ ‘date,’ and ‘origin’ were only filled in after completion of the autopsy, so as to avoid any presupposition that this information could invoke while still examining the manuscripts. While consulting the collection’s catalogues and inventories to add this data, it became clear that not all these sources provided information about the manuscripts’ origins with the same level of detail. Only the more recent ones, those of Schmidt (on the Turkish manuscripts) and Witkam (which cover classmarks Or. 14.001–14.471) can be regarded as thorough in this respect. In the other sources, dates are generally included, as well as the name of the copyist, but references to the place where the manuscript was copied are not always mentioned. Hence, when a manuscript’s description does not include information on origin, I do not know whether it was omitted in the manuscript’s colophon or if an origin *is* given but was not reproduced in the description. The *Inventories* of Witkam deserve

11 A substantial number of manuscripts have lost their envelope flap, so to include the thickness of the flap would necessitate two measurements: one with and one without the flap. Secondly, the shape of the flap is sometimes distorted or so ill-fitting on the book that it distorts the shape of the textblock or the position of the front cover when closed.

12 N. Pickwoad, ‘The condition survey of the manuscripts in the monastery of Saint Catherine on Mount Sinai’ (2004), 39.

special attention in this respect. The manuscripts that he described based on autopsies contain all provenance information he encountered; he noted these volumes with an asterisk preceding the Ar.-number that is given in square brackets. The other item descriptions based on older catalogues (such as the CCA, CCO,¹³ and Voorhoeve) potentially have further information. As a supplementary source, I used the descriptions of Max Weisweiler, because he also focussed on provenance for his binding research.¹⁴ Finally, some of the latest acquisitions were described by Arnoud Vrolijk, curator of the Oriental manuscripts and rare books since 2006, and I used his descriptions when applicable. To indicate whether or not a specific manuscript description contained full provenance information, an additional check-box was added to the database.

The Malay Collection

Finally, I assessed a specific part of the Southeast Asian collection, the so-called Malay collection. This part of the Leiden Oriental collections contains many manuscripts written in the Malay language, though not solely; there are other manuscripts written in languages such as Javanese or Buginese. In fact, given that the collection consists of many manuscripts from Indonesia, the collection's name does not refer to the origin of manuscripts.¹⁵ The extension of the survey to this part of the UBL collections was motivated by the rather specific material characteristics of the Southeast Asian manuscripts found in the Arabic, or Middle Eastern collection.¹⁶ With clear identifiable physical features, the bindings from this part of the Islamic world stand out as a group; however, within the Middle Eastern collection this group is relatively small, with only 39 volumes. During an initial search in the Malay collection, I found a significant number of manuscripts with similar features. In order to select manuscripts by the criteria used for the main survey, I only selected manuscripts in Arabic script with bindings displaying the physical features of the Islamic tradition. Although the languages may be different and the objects

13 The CCO stands for *Catalogus codicum orientalium Bibliothecae Academiae Lugduno-Batavae*, compiled by R.P.A. Dozy and P. de Jong (1851–1877), CCA for *Catalogus codicum Arabicorum Bibliothecae Academiae Lugduno-Batavae*, compiled by M.J. de Goeje, M.Th. Houtsma, and Th.W. Juynboll (1888–1907).

14 M. Weisweiler, *Der islamische Bucheinband des Mittelalters* (1962), 176–188.

15 Like the manuscripts in the Arabic collection, which are not exclusively written in the Arabic language, but often in Persian or Ottoman Turkish, they do not necessarily originate from the Arabic world. The designation *Arabic* collection refers to the script in which at least the main part of a volume was written.

16 Volumes from the Indonesian archipelago were sometimes placed in the Middle Eastern collection when they were (predominantly) written in Arabic, instead of in Malay or Indonesian languages.

were made at a long distance from the Arabic world, the selection criterion was not different from the survey of the Arabic manuscripts, which includes many manuscripts in Ottoman Turkish and Persian and other languages.¹⁷ Accordingly, Malay manuscripts in Arabic script with original, regional bindings can be considered as belonging to the same cultural tradition,¹⁸ thus they were selected and examined, and the information was processed in exactly the same manner as the manuscripts from the Arabic collection. However, the data retrieved from this additional assessment was not included in the overview of the general characteristics and figures with respect to the number of occurrences, resulting from the main survey (which included 1,056 volumes); the analysis of the data gained from the Malay collection is only represented in the paragraphs on Southeast Asian material. The reason for this is that the assessment of these Southeast Asian manuscripts serves as a comparison with the Southeast Asian volumes in the Arabic collection that displayed seemingly anomalous features. This indeed proved a good method to evaluate these features and conclude that these are regional-specific characteristics. For information on the provenance of these collections, I used the *Inventories* of Witkam, as well as Wieringa's *Catalogue of Malay and Minangkabau manuscripts in the library of Leiden University* and Iskandar's *Catalogue of Malay, Minangkabau, and South Sumatran manuscripts in the Netherlands*.¹⁹

Excluded Textblock Features

The present study strongly focuses on the structure and technical aspects of the binding, but it should be noted that many physical aspects of the textblock were not incorporated in the survey. Aesthetic characteristics, prone to subjective judgement, were excluded as well. In the paragraphs below I explain these decisions.

Although the stylistic characteristics of an illumination may possibly be related to a certain region or period, it is rather difficult to classify the decorative styles and techniques used to beautify the bulk of manuscripts produced outside the well-known court ateliers. The complications are twofold. First,

17 The criterion of script may appear somewhat arbitrary for the Southeast Asian region, nevertheless it provided a way to restrict this sub-survey to a manageable portion of the Malay collection.

18 See also the conclusion of M. Plomp, 'Traditional bookbindings from Indonesia: Materials and decorations' (1993), 591.

19 E.P. Wieringa, *Catalogue of Malay and Minangkabau manuscripts in the library of Leiden University and other collections in the Netherlands* (1998); T. Iskandar, *Catalogue of Malay, Minangkabau, and South Sumatran manuscripts in the Netherlands* (1999); J.J. Witkam, *Inventories* (2006–2016).

specialist knowledge is necessary to assess the illuminations. The artists who executed these borders and frames were trained in different schools and they all have their own characteristic elements, both in colour palette as well as style, which may look almost the same to the untrained eye. My eye certainly qualifies as untrained in this respect and I do not have sufficient knowledge of Arabic to read inscriptions, dedications, or simply to distinguish between an illuminated title or an ex-libris. One could argue that the presence of illuminated opening pages alone would be an important aspect to document, however, the condition of many manuscripts renders a useful recording of this feature difficult. When texts have been resewn, rearranged with other texts or when they have been badly distorted, the former presence of an opening page may be obscured. Obviously, the presence of a visible title page *can* be described but the possible absence of one is more difficult to prove. As a consequence, every volume would have to be meticulously examined for traces of formerly present leaves, and even when remnants of leaves are found, one could not be certain that the missing leaves were illuminated. Illuminated opening pages are also known to have migrated from one manuscript to another. Moreover, with such uncertain evidence, inscriptions of owners or stylistic indications become less meaningful. Ultimately, the assessment would require significantly more time, without necessarily generating much useful information.

Similarly, I evaluated the usefulness of other textblock elements and the effort required to assemble the information. Although some scholars have pointed to the thickness of the gatherings as a subject requiring further study,²⁰ I did not include this feature in the database. In many manuscripts, the gathering structure is not homogenous, so every gathering would need to be checked for its assemblage. Moreover, from the pilot survey a relation between the gathering thickness and sewing structure did not emerge. For the same reasons, manuscripts were not examined for the occurrence of non-conjoint or 'coupled' leaves, a bifolio comprising two single sheets adhered together at the spine-fold. Such leaves are used quite regularly, and possibly more often as middle folios than the inner or outer folios of a gathering. There is no reason to assume, however, that this might influence the construction of the book with regard to sewing, lining, and covering in any way. Nevertheless, an incidental remark was made when a manuscript appeared to be made of many coupled or otherwise assembled leaves, not because of a link with the manuscript's structure, but because the particularity may be relevant in another context, in future studies.

The other textblock characteristics I excluded are the writing surface, the presence of coloured papers or other paper decoration techniques, the type

20 COMSt Newsletter 5 (2013), 2.

of inks, and codicological aspects concerning the use of a ruling board, the number of lines per page, and rubrication. Of these, perhaps the decision to not include the nature of the writing substrate is most in need of explanation. For would it not be useful to know if a manuscript was written on Islamic or western paper, and if the paper was handmade or machine made? Indeed, the type of substrate would provide insight to a certain extent, for example, western papers were not used before the fourteenth century, and machine-made papers cannot have been used until approximately 1800. It is also known that the industry of Islamic papermaking declined gradually in the Ottoman period. However, there are also uncertainties. In some regions—especially the peripheral ones—traditional papermaking continued since the import of western paper did not easily reach these areas; this means that the use of either Islamic or western paper provides no reliable indication of the date of production. And there are more significant uncertainties. No secure method of dating handmade Islamic papers exists as they lack watermarks; although some characteristics may point to fabrication in the Middle East, North Africa or Central Asia, we cannot easily identify the regions or periods of the papers displaying such characteristics. Therefore, any conclusion based on such a vague and assumed origin would be, at the least, provisional, and at worst, provide illusory information.

As for European handmade papers, the watermarks of course can be a great help when identifying the paper maker and period in which the paper was produced, provided that the watermark matches a watermark description in one of the watermark reference books or databases. Accordingly, such papers provide a *terminus post quem*. However, European papers were shipped in large quantities to Istanbul and probably elsewhere, but there is no clear overview of how the commodity was traded from there. As a consequence, the watermarks do not add further information on the provenance of a manuscript. The same is true for the trade in machine-made paper, to which it must be added that machine-made paper does not always contain a 'watermark'; therefore, a *terminus post quem* is not easy to establish, other than to note that machine-made paper from woodpulp was not produced before the early nineteenth century. In conclusion, the type of paper does not provide clear information about the origin of the manuscript, whereas it would be time-consuming to incorporate this matter into the survey. Given that many volumes are composite manuscripts (approximately one-quarter of the corpus), describing the various papers accurately would require a different approach, including a description of the separate texts, which was not considered profitable enough for the present study. As a result, the writing substrate was not included under any of the form headings, since that would suggest that a coherent and

thorough examination had been undertaken. Nevertheless, when a textblock consisted of dluwang or machine-made paper it was noted in the “remarks field,” since that information straightforwardly points to an identifiable region and a time-period of origin respectively.

The handwriting itself is of codicological use. Manuscripts can be written in a ‘formal,’ that is, calligraphic, or an ‘informal,’ personal hand.²¹ However, most calligraphic script types are linked to rather wide regions and periods, and although many varieties within the different styles are known, progressive developments of types render it difficult to be very precise; moreover, a coherent framework to classify scripts still awaits development.²² Apart from that, distinguishing between the calligraphic hands requires palaeographic training. The catalogues consulted only sporadically clarify the script types. *Nasta’liq*, *naskh*, and *maghribī* script are the types most often included in the object description. It seemed meaningful to mention the *maghribī* script in the database, but not the others. *Naskh* developed from the late tenth century onwards and became so widespread, and developed into so many regional varieties and forms that its application is not helpful for locating manuscripts. *Nasta’liq* appeared in late fourteenth-century Iran, and although this is known as the Persian script par excellence, it was also widely used in regional variations in Mughal India and Ottoman Turkey. Given the breadth of this area, it adds only general information which cannot be used to locate manuscripts written in this style. It is true that *maghribī* script is also related to a rather large geographic region, including southern Spain, North Africa, and sub-Saharan Africa, so it may not be very precise, but its use does distinguish the Islamic West from the Islamic East.²³

Covering the other features mentioned above I can be brief. The use of a ruling board (*miṣṭara*) is so universal in the Islamic world that it does not offer clues about origin, and the same can be said of the use of soot ink, and even iron gall ink, or a mixture of both. Rubrication too is a common scribal technique, and is therefore not included, and although some coloured inks might offer slightly more information, technical analysis would be required, which was beyond the feasibility of the present study. The use of coloured and decorated papers may hint at the value or significance of a manuscript, but too

21 A. Gacek, *Arabic manuscripts: A vademecum* (2009), 241–243.

22 The need for further research is explained by F. Déroche, *Islamic codicology* (2006), 205–211.

23 *Ibid.*, 147–149.

little is known about this topic to use it as a firm guide; in fact, I found several examples, at least, in which the use of coloured papers appears to be arbitrary.²⁴

Finally, I have not recorded the presence of written titles on the tail edge of the textblock. The information value of this characteristic on the use of these manuscripts is clear, however, it does not tell us anything directly related to the making of the book. Indeed, this usually abbreviated title or catch-title was probably applied only after the volume was placed on a shelf in a certain collection, possibly long after the manuscript was made.

Exclusion of Binding Decoration

This study focusses on the technique of Islamic manuscript making, not on art historical aspects. There are multiple reasons for not including stylistic characteristics of the binding's ornamentation. First, lack of a proper terminology for binding decoration hampers recording this information. As a consequence, the decorative elements can only be included by writing elaborate description, combined with images or rubbings. Such an approach certainly may lead to the development of a more adequate vocabulary; however, this work could not be undertaken within the scope of the present study.

To make a meaningful record of the ornamentation of the binding, it would be necessary to measure the quality of the work as well. The occurrence of different stylistic shapes and trends is not, in itself, informative enough. Indeed, it seems that when decorative schemes were initially developed, they were executed with high craftsmanship. However, as such schemes were copied and spread, the execution of the work and quality of the tools could vary enormously. There is, however, no objective instrument by which to qualify the workmanship.

Additionally, the study of binding decoration is complicated by the fact that it is known that binders travelled, bringing along their tools to different parts of the world. Also, stamps and tools that were discarded by one binder could be sold to another, and tools could be copied. What is not known is to what extent these trades and movements occurred and how they influenced the binding profession. As only a relatively small number of bindings can be traced to a certain workshop, the so-called court atelier production, we are left with an extensive number of less distinguishable bindings and decoration techniques.

24 See, for example, Or. 26.676, in which several leaves are made by adhering two short pieces of differently coloured paper in order to form a full page. See also Gacek, *Arabic manuscripts: A vademecum* (2009), 276, and Déroche, *Islamic codicology* (2006), 60–61.

Without further understanding of the binding trade and movements of artisans, the majority of these books cannot offer much usable data on the basis of decoration alone.

The last argument concerns the scope of the present study, which includes re sewn manuscripts. Such manuscripts can either retain their original binding, or a new cover might have been provided in the process. To further complicate the situation, the reuse of other and possibly older boards is also not unknown. Even meticulous examination does not always conclusively indicate which solution the binder chose. For this reason, there is a substantial number of bindings that we cannot rely on to be contemporary with the manuscript. If the decoration of bindings was to be examined and combined with the other data, it would be better to conduct a sub-survey, to include only the manuscripts preserved with their first sewing and binding. That way, a study of decorative characteristics could generate data about time and place, and these results could eventually be part of a framework for understanding stylistic features. For the present study, however, the benefit of such a sub-survey did not outweigh the time required to incorporate this issue.

Excluded Binding Features

For book-archaeological research, even seemingly small details can provide interesting information. However, not every feature was considered potentially valuable for building a framework of information on the Islamic bookbinding tradition at this stage of that process. If neither the pilot survey nor practical experience acquired from conservation treatments had previously drawn attention to these characteristics as being important, they were not included in the present study. These characteristics are listed below.

In order to refrain from subjective interpretation, the materials were not described by colour. General colour qualifications, even with the aid of a colour chart, are open for debate, as many colours have faded or yellowed under the influence of light, storage conditions, and other deterioration processes. In most cases it is impossible to establish to what extent discolourations occurred, but even if we disregard this obstacle, whether a leather or paper is described as dark red or olive green seems to have little relevance. Thus, I did not systematically record the colour of the covering materials or the sewing thread. However, I included remarks on incidental occurrences, such as the use of several colours of sewing thread in one volume. I also noted whether such instances seemed intentional or if it was evidently done in an arbitrary way, as the latter corroborates my belief that in general, colour schemes were not used in sewing. This is contrary to the assertion of Jacobs and Rogers that binders

did use some colours intentionally.²⁵ With regard to the secondary endbands, colour schemes were not included either, at least not initially; certain manuscripts were re-examined as a set at a later stage, and as such, the colours of their endbands could become an issue. Also, regardless of the precise colour, I recorded whether or not the link-stitch sewing and primary endband sewing were carried out with the same thread.

The thickness of the sewing thread was not measured, because a trustworthy—or scientific—assessment of the thread thickness would require multiple measurements throughout the book, adding considerably to the required time investment while the use of such data for this specific study remains questionable. Nevertheless, when the sewing thread proved to be substantially thicker or thinner than average, it was noted in the remarks field. Thus, I recorded threads diverging from what was expected (and considered average), following the logic of the three-level assessment described earlier. In the case of thread thickness, the average is relatively thin, so what stands out are those that are ‘very thin’ and ‘thick’ or ‘coarse’ thread.

The nature of the threads, whether animal or vegetal, was not described because it is impossible to always discern, with the naked eye, whether a thread is made of linen, cotton or silk. To establish this with certainty, it would be necessary to undertake an analytical examination of fibres under a microscope. Quite similarly, with regard to the leather covering, I decided not to include the species of animal. Although in some cases one can be fairly certain by visual examination of the leather grain alone that a book is bound in sheep or goat skin, a large number of bindings are covered with leather that cannot be easily identified. These skins are neither convincingly sheep nor goat; the hair follicle pattern may hint at hair sheep but could also belong to a sheep-goat (the offspring of a sheep and a goat), while it is equally possible that certain goat species have skins that resemble the follicle pattern of hair sheep. To my knowledge, no reliable and conclusive study exists on this subject. As sheepskins are considered the cheapest hides available, it is unfortunate that we cannot always determine the animal which was the source of the leather, since the economic aspect of the matter could prove to be interesting. Apart from goat and sheep, other species that can be expected to have been used include donkey, mule, camel, and different types of cervine.

25 D. Jacobs and B. Rogers, ‘Developments in the conservation of Oriental (Islamic) manuscripts at the India Office Library, London’ (1990), 117; they do not support their statement with arguments or figures; the issue is elaborated on in chapter 2. Elaine Wright concludes likewise, see: *The look of the book* (2012), 370 n. 9.

Another feature that I did not record is the exact length of the link-stitch sewing stitch or its relation to the height of the textblock. There does not seem to be a relationship between this and the size of the manuscript, as examples of small books with remarkably long stitches as well as large books with short stitches were found. The length of the tiedowns of the endbands was also excluded as a survey issue. Apart from the fact that the length of the tiedown may vary throughout the book—so to register meaningful data all the warps would need to be measured to determine an average length per book—this characteristic typically seems to be a result of arbitrariness or personal routine.

I did not record whether the tiedowns were bundled in order to sew the secondary endband, and if so, in what quantity they were bundled, though it would certainly be interesting to focus on the making of endbands in a further study, since characteristics like this may provide further insights.²⁶ At the same time, the decision to bundle the tiedowns in pairs of two, or groups of three or four threads, was likely affected by the quality and thickness of the thread that was used for the secondary endband sewing and the thickness of the gatherings. Thick thread requires more space between the stitches than thin thread; thin gatherings lead to closely spaced tiedowns which sooner require their bundling. Economics could be another influencing factor; an increase in the bundling of tiedowns would diminish the number of movements the binder needed to make and thus speed up the sewing process. With these variables, a direct relation between the bundling of the tiedowns and a binder's method or local tradition is not to be expected.

Another aspect of the endband sewing that was not systematically studied is the system of fastening the threads. Knots were found tied on the textblock spine as well as in the spine-fold of the outer gatherings, and even sometimes in the spine-fold of tipped on endleaves, but I have not identified whether there is a predominant method for attaching the thread.

Laminated paper sheets are used in a majority of the boards, and for obvious reasons, wastepaper was regularly used for this purpose: even when paper was not scarce, discarded paper would have been less expensive. The use of wastepaper, however, was not systematically examined, as access to the boards depends on the condition of the covering leather or the presence of damage at the joints or corners, which means that this feature is not equally accessible for all manuscripts. The thickness of the boards is another aspect that was not

26 Such a more in-depth study of endbands was recently undertaken, resulting in an essay that includes a more detailed description of the making of Islamic endbands and many drawings and images of the various patterns. See: K. Scheper, 'Endband varieties in the Islamic world' (forthcoming).

methodically measured, as the covers are a composite entity. The board thickness varies according to the number of sheets used, and the thickness of the original paper. Small differences can hardly be measured since the thickness of the leather is also included in the measuring process, which adds another source of variability. Of course, when boards were omitted altogether that was considered an important factor, to be recorded in a check-box.

As pointed out earlier, awareness of the differences in the covering scheme is crucial to understanding the manufacturing of a manuscript. Small details in the finishing of the covering however were not recorded, for instance, the treatment of the corners on the inside of the board, which can be mitred, overlapping or pleated. As the boards are flush with the textblock, the doublures cover almost the entire inside of the covers; they leave only a small rim of the turn-ins visible and this hinders the examination of the corner treatment. A second aspect that was not examined is the finishing of the turn-ins after pasting them onto the inside of the boards. The turn-ins may not have been finished at all, or might have been cut in situ so as to end up with nice straight edges (although in general the neat paring of the leather does not necessarily require this extra step). In either case, which was the most common method has not been ascertained.

Notwithstanding these considerations, it is easy to imagine that future study of the development of Islamic book-history will require a more detailed assessment of the manuscripts. The examination of the items may then be expanded, for example, to include facts about discarded and reused manuscript material in binding components, or focus on colour use and other aesthetic aspects. Should this ever happen, it will be fairly simple to extend the current database with additional sections or more check-boxes per heading. The fact that the present design of the database is not unalterable, but flexible and extendable is a further argument for the decisions now made.

Excluded Categories

As the survey clearly focuses on construction, manuscripts without a construction were excluded from the study. Consequently, North and West African manuscripts that consist of single loose leaves only—folios instead of bifolios—were not included. Even though they may be enclosed in original wrappers and pouches of leather or textile, the lack of structural elements means these items are not relevant for the present study. Indeed, the fact that manuscripts from these regions commonly exist of loose folia, held together by means of wrappers, satchels, and pouches, is well known. These particular artefacts form an isolated category that cannot be compared directly with bound

manuscripts.²⁷ They are also fundamentally different from the unsewn manuscripts with connective strips and wrapper bindings. Firstly, the latter exist of gatherings of folded bifolios, and the connective strips provide a kind of linkage between the gatherings. Additionally, the wrapper bindings of these textblocks display a strong similarity to the bindings of bound manuscripts, both in their making as well as in their physical appearance. In fact, these items could easily have been sewn and bound in a later stage, possibly even with the use of the former wrapper binding, whereas the manuscripts that consist of single leaves necessarily remain unsewn, unless, of course, they were sewn with a stabbed technique. However, the stabbed structure would then allow further treatment like lining and board attachment, although endband sewing would still be complicated. In principle, such stabbed manuscripts are included in the survey, the most important reason being that it is extremely hard to distinguish stabbed volumes of former loose, unsewn leaves from regularly (originally) stabbed manuscripts when textblock spines are lined.

Another category not included in the survey are those manuscripts from the Middle East which, though (partly) written in Arabic and bound in the region, belong to a different cultural or religious tradition. When bindings displayed characteristics attributed to the Syriac or Byzantine tradition, they were deselected.

Finally, I excluded manuscripts with a concertina structure, or so-called accordion books. The very nature of this codex type, which usually contains a collection of calligraphic examples or miniature paintings, hinders our ability to determine the binding's relation to the content in terms of date and origin, but more importantly, the construction of the album leaves consists of flexible cloth hinges without sewing, spine-lining or endbanding. Therefore, the structure is not comparable with sewn textblocks.

Considerations Regarding the Degree of Validity of the Findings

All the techniques described in chapter 2 have a section in the database. The frequency with which these composite parts occur and the various details are dealt with in the next section. Every binding included in the survey added information to the final, quantitative results. Still, some manuscripts were more

²⁷ With this specific genre, the decorative patterns and techniques on both wrappers and pouches are often rather different from the decoration schemes found on bound volumes. Also, the closing system of these wrappers diverges from the traditional binding; the former has a leather strap attached to the point of the envelope flap. This is used to wrap around the packed manuscript and necessitates that the flap closes over the front cover instead of being tucked underneath.

useful than others. This depended, most of all, on the combination of two factors: whether a manuscript could be attributed to a certain date or place of origin and whether its binding could be related to the textblock as the original one. Manuscripts providing both these essentials were used to map the multiplicity of the Islamic binding tradition. These results are found in chapter 5.

This group of 'extra informative' manuscripts in the corpus was identified when data regarding a manuscript's place of origin was included in the corresponding database records, as described above. As it turned out, only seventeen percent of all entries had a location of origin. Fortunately, copyists noted down a date (of their work) much more often, more than half of the volumes are dated.²⁸ Subsequently, I had to confirm the genuineness of the binding as the original structure for all datable manuscripts and those with a known place of manufacture. This was an important step, for in order to be able to use the characteristics of the binding and construction as a method of tracing the origin of other artefacts for which no colophon information is available, the authenticity of these bindings and sewing structures needed to be established. Therefore, the first, original binding structures were distinguished from 'second' structures,²⁹ that still belong to the Islamic manuscript tradition but do not necessarily correspond to the information provided in the colophon. To do so, the spine-folds of the gatherings were checked for the presence of paper repairs, especially underneath the tiedowns or closer towards the middle of the fold. When small patches of paper were applied in the spine-fold, this clearly indicates that the gatherings have been re sewn. In my corpus, 249 manuscripts had been repaired in this manner. Furthermore, unmended spine-folds were checked for traces of former sewing stations, although this proved to be more difficult; in soft, fibrous Arabic paper, such previously used holes are particularly hard to detect, as they tend to close again under the pressure of a new

28 When catalogues or inventories mentioned the occurrence of several hands and dates, the latest date was included in the database.

29 It is not always possible to determine whether rebindings are a second, or perhaps a third or even fourth rebinding. When only one other pair of sewing stations is visible, it seems that we are dealing with a first rebinding, but in fact the binder could have used or stayed very close to the former sewing positions, thus obscuring traces of the earlier sewing. Furthermore, evidence may be hidden underneath the fold-line repairs; patches of paper can cover one or multiple former sewing stations. 'Second' therefore should be read as 'not the first' sewing structure. It is also important to note that in such cases, the binding itself is not necessarily new or younger than the manuscript. While the manuscript may have required new sewing thread, the leather cover could have remained quite unscathed and could therefore have been reused by the binder. By the same token, he could have used an existing cover more or less the same size as the textblock, and only adjusted the width of the spine to make the binding fit.

sewing, or from flexing during subsequent usage. Even so, in 156 textblocks such proof was found. In total then, I can be certain that 316 manuscripts of the whole corpus have a second (or later) sewing.

Another feature that indicates rebinding is a typical method some binders used to safeguard annotations in the margins. It was not uncommon for the edges of the whole textblock to be trimmed after resewing, in order to improve the ease of browsing and enhance the neat appearance of the book. To prevent the loss of parts of annotated folia, the margin could be cut perpendicular to the edge so that the part of the paper containing text could be folded towards the middle of the page. Although the presence of such folded margins does not necessarily prove that the textblock was trimmed and bound at least twice, it appears that most of them were. However, the manuscripts were not methodically checked for this characteristic and it is likely that specimens were overlooked; therefore, this feature was not used as specific indication of rebinding.

The distinction between 'first' and 'later' binding structures does not affect or compromise the quantification of the overall results in this chapter: every volume included is a product of the Islamic binding tradition. Therefore, the findings can be quantified to provide information on the predominant structures, materials used, the varieties, and anomalies. The aspects of the original structures become essential only when we focus on the group of manuscripts from known regions and dated—in the next section—to procure stronger indications as to the origin of these different structures and materials and remarkable characteristics, and to establish trends in the use of these materials and techniques.

Survey Results—Quantitative Analysis

Datable and Localisable Manuscripts

Out of the approximately 6,000 manuscripts in the Leiden Arabic collection, eventually 1,056 volumes were selected and examined. Of those, only 457 have a catalogue or inventory description that we can trust to be exhaustive in terms of information in the colophon with regard to both date and place of origin. As mentioned above, the other catalogue or inventory descriptions often include a date, but there may actually be information available about the origin that is not found in the descriptions. For easy reference, the first group will be called A and the remaining manuscripts, 599 in total, will be referred to as group B. Comparing the percentages of located manuscripts in group A with those of group B, it appears that the first group contains a relatively large number of

manuscripts with information on origin. Therefore, we can assume that more data could become available if catalogue descriptions of the remainder of the manuscripts were supplemented. However, we will also have to accept that a large number of copyists simply did not provide information on their whereabouts. Additionally, the lack of a date or place of manufacture may be a result of damage to the manuscript; as the colophons are often written on the last page, they are prone to wear and tear and may have gone missing altogether. Even in group A, only 62 volumes (14% of the group, 66.5% relative to the total number of locatable manuscripts) contain a precise reference to the city or village of their origin. In group B no more than 30 manuscripts (5% of the group, 33.5% relative to the total number of locatable manuscripts) appeared to identify a place name. In total, I was able to locate another 77 manuscripts by different means; in these cases, a broader area of origin was mentioned in the catalogue or inventory description (32 manuscripts in group A, and 45 in group B; 7% in both cases).

As indicated above, copyists tended to include a date of completion far more often than the name of the place where the work was executed. In our sample, 588 manuscripts are dated. Another 72 were given approximate dates by the specialist describing the items. In addition, for 41 manuscripts there is a *terminus ante quem* thanks to the inscription of an owner, and in nine cases the manuscripts have a clear *terminus post quem* due to the historical nature of the work. In eleven cases the manuscripts were not exactly undated but the information provided was so unspecific that the information is not useful, or the colophon date was doubtful (possibly the copied date of an earlier copy) or simply impossible, as in the case of a manuscript that was already acquired by the library prior to its date (Or. 734). As a consequence, 335 manuscripts (32%) remain completely undated. In group A, 274 manuscripts contain a precise date in the colophon; this is 47% relative to the total number of dated volumes, in group B the number is 314 or 53%.

Sewing

Apart from the work of the copyist, the making of a codex starts with assembling and sewing the gatherings. In our sample, 950 manuscripts were sewn with a link-stitch. Of these, 850 were sewn with the predominant link-stitch on two stations (80% of the total, 89% of the link-stitched volumes). The other 100 manuscripts were sewn with a link-stitch sewing on more stations, 49 on four stations and 51 on three, five or more stations.³⁰

30 See chapter 2 for the ways in which the link-stitch on four stations diverges from the link-stitch on three or five stations.

The remaining manuscripts are either sewn differently (not in a link-stitch), or were not sewn at all. There were 38 manuscripts sewn with a stabbed sewing technique, 2 of these were overcasted and 19 were side-sewn. The exact pattern of sewing of the other stabbed manuscripts was difficult to establish. A smaller group, 30 in total, was sewn on supports, but 14 of these are clearly a repair sewing of western origin; in these manuscripts the holes of the former link-stitch sewing stations are still visible. The other 16 volumes sewn on supports bear evidence of Oriental origin. Of those, 10 were sewn on leather or parchment strips, the majority of them are sewn across and only 2 are sewn around the support, including 1 manuscript that is sewn on one leather support, which is an odd, uncommon structure. Thin cords were used with the other 6 volumes; 1 of those was sewn with a two-on system and the other 5 were sewn gathering by gathering.³¹

In 9 cases the sewing was so tight that the spine-folds could not be examined without causing damage, so I could not determine the type of sewing. In 27 instances the manuscripts were not sewn at all. In this group, 12 volumes had connective strips adhered onto the textblock spine, these strips consist of leather (6 instances), cloth (2 instances) or paper (4 instances). I could not find any traces of connective strips or adhesive residues on the other unsewn manuscripts. One manuscript has individually sewn gatherings but there is no connection between the gatherings, and the binding of this textblock is wrapped around it without any form of attachment.³² In terms of structure, this manuscript can be considered unsewn, which means that in the further analysis of the data, the group of unsewn manuscripts with wrapper bindings is reckoned to consist of 28 volumes.

Of the 149 manuscripts in which I recognised former sewing stations of a link-stitch on two stations, 3 are now stabbed, 11 sewn on four stations, and 12 on supports.

With regard to the sewing thread, it appears that with the majority of the sewn manuscripts (643 volumes or 62.5%), a similar thread as the one used for the link-stitch sewing was also used to sew the primary endbands. With 275 (27% of the sewn manuscripts) manuscripts, the thread of the tiedowns is different from that used to sew the gatherings. Several manuscripts were sewn

31 With two-on sewing, two gatherings are sewn simultaneously; when the thread then passes the sewing support on the spine, it changes over to the other gathering. Though the manuscripts sewn on supports are original Islamic structures, they attest to the influence of western bookbinding techniques. This phenomenon is discussed further in chapter 5.

32 In the University of Michigan Library a similarly sewn manuscript was noticed, see: E. Kropf, 'Historical repair, recycling, and recovering phenomena in the Islamic bindings of the University of Michigan Library: Exploring the codicological evidence' (2013), 26–27.

with different colours of thread, in which case I added a remark because the tiedowns, naturally, could not match all of these different sewing threads. In all other cases, either none or not enough of the tiedowns remains to make the comparison, or the manuscript did not open sufficiently to enable an examination of the thread. Since these statistics include resewn or repaired volumes, could the divergent endband threads be an indication of replacement endbands? I did not find evidence for this assumption. Of the original volumes with tiedowns in a colour different from the sewing, only 10% of the volumes display repairs to the spine, which would allow for, and thus could indicate, a replacement endband.

Spine-lining

The majority of the textblock spines, 1,004 in total, are lined; the materials used for lining are leather, cloth, paper, and dluwang, sometimes in combination. Leather was used in 227 manuscripts, nearly 22%. In 12 cases in which the leather lining is combined with leather doublures, there is no visible edge in or close to the inner joint, which seems to indicate that the spine-lining extends beyond the edges of the spine to also form the doublures; this technique makes up 5% of the leather doublures. For want of access to the spine, in most cases I could not determine if, in these instances, the spine-lining is made of one or two separate pieces of leather. All volumes with a leather lining attest to the usage of the leather flanges to strengthen the board attachment on the inside, except for one rebound volume and one volume sewn on supports. In the volume that had been rebound, the flanges of the primary leather spine-lining were cut and a second cloth lining was applied, with the extending sides used for board attachment; for the volume sewn on supports, the sewing supports were used for board attachment which hindered the application of the flanges to the inside of the boards.

For 636 manuscripts, cloth was applied as spine-lining material, indicating that this is the most common method: this group makes up 60% of the total.³³ It appears that the flanges of the cloth were also usually adhered onto the inside of the boards, to strengthen the board attachment; 476 manuscripts attest to this practice, that is, three-quarters of the cloth linings. However, for 89 manuscripts, 14% of the total with cloth linings, the flanges of the lining

33 In chapter 5, the dates of the manuscripts are combined with this data, which points at a preference for leather in the earliest centuries while cloth was favoured from the second half of the seventeenth century onwards. This may be an additional explication of the lower instances of leather now encountered: it is likely that older manuscripts were rebound (with an increased chance that the binder used cloth for the lining) or did not survive altogether and therefore we would expect to find more instances of cloth linings.

were pasted along the gutter of the outer textblock leaf. For 34 manuscripts, or 5% of the group of textile linings, there are no extensions of the cloth lining; it seems that in these cases the lining was cut at the shoulder of the textblock. For the remaining 6% of the specimens with a cloth lining, there was no damage to give access to the structure, nor was it possible to detect the cloth flanges underneath the doublure or along the spine edge of the textblock; in these cases, I could not determine the construction of the board attachment.

When cloth was used and the colour or weft pattern of the fabric was clearly visible, a note was made in the remarks field. However, it was not possible to systematically record every cloth-lined manuscript in detail because often only a small part or just a few threads of the cloth were actually visible. Nevertheless, the examined specimens attest to the use of coloured (blue, red, black, green), chequered (mainly blue and natural coloured), and block-printed textiles. In four instances, the cloth was used on the bias.

Paper or dluwang was observed on 64 manuscripts. Half of these linings consist of multiple layers, in which case it was not always possible to deduce whether one or the other or a combination of both was used. Also, paper linings were found to have been used together with cloth or leather, as the materials in combination provided additional strength.

With 96 manuscripts in the sample (9% of the total), the spine-lining material was inaccessible, so it could not be specified. In another 52 cases (5% of the total), it appeared that no lining at all was used. Taking into account the 28 unsewn textblocks that have to be deducted from this number, this leaves a group of 24 sewn and bound manuscripts without a spine-lining; this is approximately 2.5% of the total.

Endbands

A little over 900 specimens, 86% of the total, had the predominant Islamic endband, or at least clear traces of this type. This consists of tiedowns and a secondary endband sewn over a core with two, and sometimes three threads. The large majority attests to the sensible use of the spine-lining, which is applied before the endbands are sewn and is thus incorporated into the sewing structure: in 721 cases I established that the primary tiedowns were sewn through the lining. Deducting the 28 unsewn manuscripts, this is 70% of the total. It should be noted that this percentage would be much higher, if, in all cases, I would have had access to the sewing structure on the spine of the manuscripts. However, this structural connection could not be confirmed for 130 volumes because the cover spine and inner joints were in sound condition. Additionally, in another 58 cases, so much damage was found with the spine-lining and tiedowns that the evidence of the structure could no longer

be determined. In two cases, the tiedowns seem to have been sewn before the spine-lining was applied; at least one of these manuscripts was repaired and resewn and the structure had been meddled with. In only 24 cases, sewn manuscript structures lacked a spine-lining and therefore the primary endbands were sewn directly through the paper gatherings, without the support of the lining material.

In the group with the predominant endband structure, 749 manuscripts have a secondary endband with a traditional chevron pattern. Within this group, I encountered an irregularity twice, when different colour schemes were used for the head and tail endband. For 38 manuscripts, a pattern other than the chevron, though closely linked in production to the dominant type, was found: vertically striped endbands occurred 8 times, and those with diagonal stripes 11 times (see figs. 111–113 in chapter 2).

Another, more prominently divergent endband structure is of a type sewn in one colour only, in which the thread direction of the secondary endband differs from all other secondary Islamic endbands. In this type, the sewing thread is wound around the endband core, as with the endband anchoring threads, but multiple windings are performed between the tiedowns, so as to completely cover the core. It resembles a western primary wound endband, however, this Islamic version seems to be applied on top of a traditional (Islamic) primary endband, and this distinguishes it from the western tradition (figs. 130–132).³⁴

In 3 cases the endband sewing does not conform to any known type: the anchoring threads and decorative sewing consist of a single colour only and it remains uncertain whether these endbands were made with a primary and secondary sewing, or if they were sewn according to another, unknown sewing scheme. Two other endbands stand out because the secondary sewing is also attached to the leather tab.³⁵ With 2 endbands the sewing was so dense that I could not detect the precise pattern, 5 times the endbands were not visible because they are tucked underneath a firmly shaped leather tab. Another 22 sewn and bound manuscripts (2% of the total) were made without endbands.³⁶

34 Typically, this western wound endband sewing anchors the endband core to the textblock and as such it is the primary endband; it was either left uncovered or a secondary endband sewing or saddle stitch connecting the covering material was applied. See J. Szirmai, *The archaeology of medieval bookbinding* (1999), 206–210.

35 This type of sewing, which connects the endband to the covering material, brings to mind the Carolingian and Romanesque thong or tab endbands. See J. Szirmai, *Archaeology* (1999), 121–125, 160–161.

36 As is explained later, this mainly concerns structures with two or three gatherings only, with very long link-stitches or link-stitches on four stations, probably to save time and because it is not really feasible to make a proper traditional endband on two or three



FIGURE 130 *Or. 1647. The tiedowns are visible on the endband core, and additional loops of thread were wound around the core in order to cover the hole strip of leather.*



FIGURE 131 *Or. 1654. The endband, of the divergent 'wound' kind, appears to be original; the tiedowns are found in each gathering.*

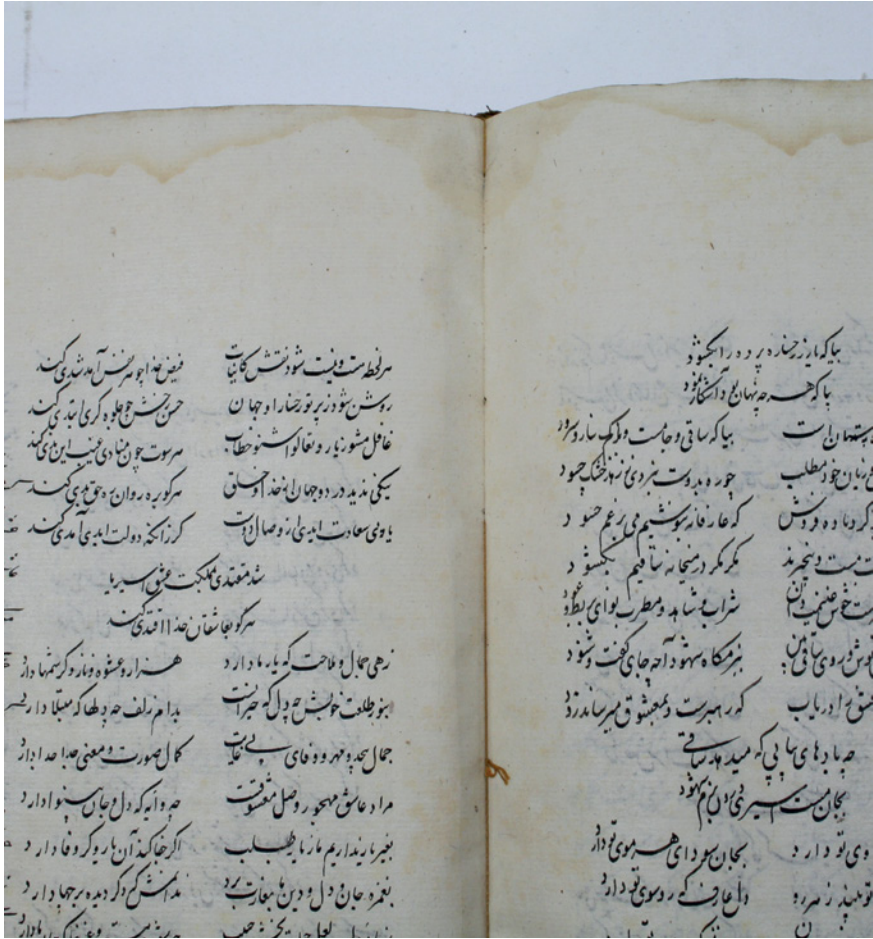


FIGURE 132 Or. 1654. The yellow tiedowns are of the same kind as the sewing thread used for the link-stitch.

In the group with the predominant Islamic endband structure there were 25 instances (2.8% of the total) in which the tiedowns were not sewn regularly through the spine-folds of each gathering, instead they were sewn more sparingly or more crudely, often randomly piercing the textblock.

Fringed endbands were found 18 times, 3 of which were made with three instead of two colours. The fringes were formed either by the secondary sewing

tiedowns only. Occasionally, the endbands were also omitted on the stabbed sewn manuscripts, and on some of the relatively recent manuscripts sewn on cords.

thread, forming loops at the turning point at the joints, or by the core material consisting of silk threads or thin colourful cloth strips, that were left to extend beyond the joints. In 4 cases, the secondary sewing thread was wrapped around the endband structure horizontally after completing the weaving. Thus, the thread is tied to the base of the endband and lies on the edge of the paper (see fig. 118 in chapter 2). This technique was combined with fringes only once.

A category of its own is the saw-cut endband; in the survey, I encountered 16 endbands of this type. They are characterised by a cut in the textblock edge from board to board, a few millimetres away from the spine. A single thread is laid in this incision (in most cases at least) and thus the tiedowns are secured in place: they cannot move in the direction of the spine. This type of endband either has a leather endband core with uncut outer ends or does not have an endband core at all, though in some cases the cloth spine-lining was left to extend beyond the spine and then included in the bulk of the core. Typically, the colours used for the secondary endband sewing are white and red. In one of these specimens, a small strip of red fabric was used instead of thread.

The vast majority of the endband cores are made of a strip of leather, however, in 11 instances the core is made of either a stiffer material, like rolled parchment (two times) or rigid twig-like plant fibre (3 times), or a flexible cord or bundle of threads. With the exception of the endband types in which the cores are used as a decorative, frilly element, the extending ends (the slips) of the endband core are usually cut after the secondary sewing is done. However, in 11 cases the leather endband slips were not cut, but were either pasted onto the outer textblock leaves close to the gutter, or onto the textblock spine. In 2 textile endband cores the outer ends also extended; in 1 case they were found pasted underneath the doublure and in another case they were adhered onto the outer leaves of the textblock.

Covering

The basic categories of covering schemes are full leather and partial leather bindings, but these categories are not useful without further subdivisions because the two main groups are rather complex. As pointed out before, the group of full leather bindings is divided into those made from one piece of leather, and those made with the two-piece technique. However, during the assessment, a third category came to light: a composite, full leather binding made with multiple pieces of leather, not randomly applied, but following a specific scheme which has characteristics in common with the partial leather bindings. Although this third group is small—consisting of only five bindings—the technique and composition are very particular, as I explain below.

Apart from the 5 composite leather bindings, 683 bindings were fully covered in leather. Of those, 319 volumes were bound with one piece of leather only, while the two-piece technique was used for 243 volumes. Due to severe damage, I could not determine what technique was used in 45 cases, and in 73 cases of full leather manuscripts, old repairs prohibited the analysis. For the remaining 3 bindings I could not find any convincing evidence in favour of one of the techniques. The vast majority of the leather used had been tanned, but in 4 cases the covering appears to be alum tawed skin instead.

The five composite full leather bindings are intriguing and require further description. The technique itself is easily overlooked because the final result is not decidedly different from that of a typical well made decorated full leather binding; this fact alone left me wondering why such a complicated technique was chosen. And these composite bindings are indeed complicated. The leather used to cover the centre panels of the covers and the envelope flap is a different colour than the leather used to cover the board edges, the spine, and the fore-edge flap (provided there is a flap). Furthermore, the two central board panels abut the edges of the pieces of leather covering the board edges and the spine; they do not overlap the pared leather on the edges and spine as is usual with partial leather bindings. In addition, all the leather pieces are pared to the same thickness, so that the difference between them cannot be felt. Finally, the edges are tooled, as if to further disguise the fact that several pieces of leather were used.

The understanding of this technique becomes even more complicated, or puzzling perhaps, when we realise that two divergent methods of production can be distinguished. What is most surprising is that the covering scheme in which the board edges are not covered with strips of leather that are turned-in. Rather conversely, this part of the exterior is made with the turned-outs of the leather doublures (figs. 133–136).³⁷

37 Turn-out is term introduced in the terminology for describing Islamic manuscripts because of this particular practice of covering the edged of the boards. It follows from the term 'turn-in' which denotes the application of the leather covering material that is brought over the board edges from the exterior to the interior. In a comparable way, in this case the leather doublure is brought over the board edges from the interior to the exterior; hence 'turn-out'. The use of leather doublures, so much larger than the textblock so that their protruding edges could be used to turn-out over the board edges and cover part of the exterior boards, seems an unlikely technique. However, the Leiden examples are not the only ones that attest to this practice. The Library of Congress houses at least one other example; I thank Paul Hepworth for bringing this specimen to my attention, by sharing a photograph taken by Yasmeen Khan, conservator of the Rare Book collections of the Library of Congress. Apart from the two specimens included in the survey, there



FIGURE 133 *Or. 1570 (1560, though resewn). A composite leather binding. The leather doublures were turned-out to cover the outer edges of the exterior, instead of the leather covering being turned-in. Separate pieces of leather were used for the spine and fore-edge flap, and to cover the boards.*



FIGURE 134 *Or. 1570. Detail: the upper corner of the front board. The arrows point at the abutting edges of the pieces of leather.*



FIGURE 135 *Or. 1570. The envelope flap. The red arrows point at the edges of the turned-out black leather doublure, where they abut the red leather which covers the rest of the envelope flap. The black arrow points at the edge of this red leather, adjacent to the fore-edge flap, which is covered with the same black leather as was used for the doublures. Thus, the red leather panel on the flap is fully framed by the black leather.*



FIGURE 136 *Or. 1570. Inner joint of the front cover. The leather doublure shows no trace of an edge on the interior. The silver frame lines do not cover or disguise a cut edge, instead, the leather extended beyond the board edges and was turned out, in order to cover the edges of the exterior.*

Both types of composite leather covering schemes are quite similar to that of a *çaharkuşe* binding, except that the board panels are covered with leather, instead of paper or cloth, in a different colour than the spine and edges, and that this material does not overlap but exactly fits the adjoining strips of leather on the edges. Though they could be categorised either way, for the present study these bindings were not counted as *çaharkuşe* bindings, but as full leather bindings. Ultimately, it seems fair to say that it was the intention of the binders to produce a cover that resembled a normal full leather binding, not a *çaharkuşe* binding.

The group of partial leather bindings is quite heterogeneous. The most important category is the *çaharkuşe* binding. Strictly speaking, *çaharkuşe* bindings have leather strips on all edges, a leather spine, and leather on the fore-edge of the envelope flap, provided there is a flap. All partial leather bindings made without a flap but with leather strips on all edges can also be classified as *çaharkuşe* bindings. There are, however, other variants which force us to stretch the definition of a *çaharkuşe* binding quite a bit. In the first variation, there are bindings on which leather strips were omitted at the head and tail edges of the boards. Although these coverings can no longer pass as a 'leather-frame binding' in the strictest sense, this type of binding clearly evolved as a simpler version of the *çaharkuşe* type. But then, to complicate matters even more, in both these *çaharkuşe* groups we find bindings without leather strip(s) covering the edges of the envelope flap (figs. 137–139). For want of a better term and for the sake of expediency while undertaking the assessment, I refer to these bindings as *çaharkuşe* bindings, with an annotation that either the leather strips on the board edges and/or the leather strip on the fore-edge of the envelope flap were omitted. This way, it was possible to immediately distinguish these bindings from other partial leather bindings such as the lacquer binding and the simple paper binding, which are discussed below. However, when writing about bindings belonging to this category, it seems better to describe the composition of the partial leather bindings in detail, and refrain from using the term *çaharkuşe* when it does not accurately describe the composition of the binding.

As mentioned above, not every partial leather binding is a *çaharkuşe* type. The exemptions are bindings with only the spine covered in leather³⁸

is another example in the UBL collections—Or. 8350 – that was, unfortunately, too damaged and interfered with to be selected for the present study.

38 Even for these bindings, the term 'half leather binding' as used in the West is not appropriate, for that designation implies the use of leather on the corners. According to western bookbinding descriptions, a volume with a leather spine only qualifies as a quarter leather binding, which I also considered a meaningless term to describe Islamic bindings.



FIGURE 137 *Or. 151 (1539). A partial leather binding with leather strips covering the edges of the board, but not the fore-edge flap.*



FIGURE 138 *Or. 795 (1635, Damascus). A partial leather binding without leather strips on the horizontal edges and the fore-edge of the envelope flap; only the fore-edge of the front board and the fore-edge flap are covered in leather, in addition to the spine.*



FIGURE 139 *Or. 86o. A partial leather binding without leather strips on the horizontal edges and the flap, although the fore-edge of the front board is covered in leather.*

(fig. 140, and for comparison with a partial leather binding of the *çaharkuşe* type without a flap, fig. 141). Of course, this leather also covers the outer joints and overlaps the boards from a few millimetres up to a centimetre, where it is adhered. Yet, with these bindings, no other part of the exterior of the binding is covered in leather: neither head nor tail edges nor the fore-edges of the boards. These bindings were not provided with a flap and therefore there is no second strip of leather covering the fore-edge flap. With regard to their outer form and appearance, a further division must be made because two very different genres are found in this category with leather on the spine only. The first is the lacquer binding, usually considered a special type at the higher end of the book trade (fig. 142).³⁹ The other is one of the cheapest bindings conceivable, with thin boards simply covered in paper and no other embellishment whatsoever.

39 Usually, lacquer bindings are described as a separate type of Islamic binding. Indeed, with their painted boards they obviously form a special category. However, when we want to define manuscript structures on the basis of the materials and techniques used for the



FIGURE 140 *Or. 765 (seventeenth c.). A partial leather binding with a leather spine only. The boards are very thin.*



FIGURE 141 *Or. 859. A partial leather binding with very small strips of leather on the edges. The boards are very thin, and the binding has no flap.*



FIGURE 142 *Or. n.957 (eighteenth century, Persia). A partial leather binding with lacquered boards. The boards were attached using the two-piece technique (the arrow points at the edge of the outer layer which is starting to come loose).*

In total, there are 361 partial leather bindings (34% of the total). Of these, 345 are a *çaharkuşe* binding type. The most common subdivision of this type, with leather strips on all edges, was found 129 times. In 39 instances, it was impossible to tell whether a full *çaharkuşe* binding had a leather strip on the fore-edge of the envelope flap, due to the loss of the flap. In 79 specimens the strip of leather on the fore-edge of the envelope flap had clearly been omitted; 30 volumes were simply made without a flap but all the edges were covered with leather.

The *çaharkuşe* binding, without leather on the head and tail edges of the boards, is a little less common, with 98 occurrences. A relatively small number (26 volumes) of these partial leather bindings did have the front edge of the

construction, the term lacquer binding is inadequate, as all lacquer boards appear to have been attached by means of the spine-leather; the inner joint construction can vary and is discussed in chapter 5. It should also be noted that lacquer bindings occur with and without fore-edge and envelope flap. When they do have a fore-edge flap covered in leather, technically speaking they can be classified as *çaharkuşe* type on which the horizontal edges of the boards are not covered with leather. However, this clearly does not solve the problem of terminology satisfactorily.

envelope flap covered with a strip of leather, whereas in 59 volumes a leather strip was omitted on the front edge of the envelope flap. In this group, 9 bindings had only a remnant of the fore-edge flap left, which made it impossible to establish whether the fore-edge of the envelope flaps had been covered with leather. The remaining 4 partial leather bindings of this type were made without a flap, but leather was applied to the fore-edges of the boards. While this would seem to reflect an economic motive, not covering some of the board edges with leather does not necessarily mean that these bindings were made in the cheapest way, as 37 of these partial leather bindings were covered with decorated paper.

In total, 217 *çaharkuşe* bindings are covered with decorated paper and 119 have monochrome coloured paper coverings; 19 bindings are tooled, in 12 instances a stamp was pressed on a leather overlay, and 3 others have a paper onlay. Although most of the decorated papers are marbled, some papers were made with block-print or stencilling techniques, and brocade papers were found a few times. A relative small group of 5 volumes have a cloth board covering instead of paper, and the paper coverings of 2 bindings are painted with traditional frame lines and a central medallion, as if they were tooled. One volume is no longer classifiable because the original composition of the covering has been interfered with over time, and one binding is remarkably decorated with paper cuttings in different colours adhered to a primary covering of silk.

Another remarkable phenomenon is that 25 *çaharkuşe* bindings were made with the two-piece technique, which is 7% of this category, a considerable number. These particular examples are significant because they support the theory that partial leather bindings are built-on structures, see also chapter 2.

The other 16 partial leather bindings have spines covered with leather. Of these, 7 bindings have lacquer boards. The other 9 volumes have thin boards and are simply covered in paper—albeit decorated: 8 are marbled and 1 has a block-printed paper covering. It is of particular interest to look at the composition of the leather spine. With the lacquer bindings, the two-piece technique was used 5 times, while with the paper covered boards, the leather spine consists of one piece of leather only. The reason for this difference is quite easily explained when taking into account the making of the lacquer boards, which is elaborated on in the next chapter.

A small mixed group of covering types makes up a rest-category, which consists of 7 manuscripts, including 2 full paper bindings and 1 full cloth binding, 1 manuscript with a cloth wrapper binding, and 2 leather bindings additionally covered with cloth—presumably not originally. Finally, 1 partial leather binding was found with the layout of a western half-leather binding.

Treatment of the Spine at the Head and Tail

Unfortunately, a substantial number of bindings are damaged at the spine to such an extent that we can no longer determine the treatment of the leather covering at the head and tail: 394 manuscripts, almost 37% of the total, do not offer any information on this aspect of their manufacture. It is clear, however, that with the remaining manuscripts, the majority of the leather spines—410 volumes—were made with extensions at the head and tail. The spine-ends of 58 manuscripts were described as ‘semi-tabbed,’ a category that I introduced to denote spine-ends from which the leather does not protrude in a tongue-like fashion but is clearly cut, although it is not quite flush with the boards. These spine-endings are folded neatly over the endbands, and do not extend beyond them. Within the group of tabbed bindings, two specimens stand out because they have fringed tabs: cuts were made in the extending leather parallel to the length of the spine. Another variant has spine-ends with long indented tabs, as if a cord had been tied around the length of the spine over the joints and tabs at the head and tail, a feature found in a small group of only 5 manuscripts. In addition, 29 repair spines were recorded as tabbed.

The occurrence of tabs is not solely related to either the one-piece or the two-piece technique, tabbed spine-ends are found on all full leather bindings. On bindings made with the two-piece technique, however, they were found slightly more often than on the full leather bindings made in one piece. The numbers of (surviving) tabs were around 50% in both groups. Tabs occur equally often on partial leather bindings.

The spine-ends of 148 manuscripts are now cut flush with the boards. Sometimes the tattered edges appear to hint at the former existence of a tab, but with these bindings there is no convincing evidence that tabs were the original form, nor is there proof that the spine-ends were originally clipped.

There are 75 instances of turned in spine-ends; 28 of those are found on the loose wrapper bindings containing unsewn manuscripts, as was to be expected, and 1 is a wrapper binding on a sewn textblock. The other 46 bindings with turn-ins—4% of the total—form a group of bound manuscripts which were regular in all other aspects.

The Fore-edge and Envelope Flap

The large majority of manuscripts have or had a fore-edge and envelope-flap, 871 volumes or 82.5% in total. The remaining volumes were made without a flap. Of the flapless bindings, 66 have no or hardly any boards, which is 35% of this group. This is a very high percentage, given that only 6.3% of the whole corpus consists of covers without boards. Comparing full leather bindings with

partial leather bindings, the number of flapless bindings in the former is relatively high: 18% while only 11% of the partial leather bindings were made without flaps. In relation to the presence of flaps, there is a negligible difference in the percentages between the full leather bindings in one piece and those made with the two-piece technique.

Inner Joints

As described above, 227 manuscripts have leather spine-linings and in 207 of those cases the extending sides, pasted onto the inside of the boards, are still visible as the inner joint. For 12 of these volumes, it appears that the spine-lining extensions continue across the inside of the boards to the fore-edge and thus form the doublure proper.

While the extensions of cloth linings were also commonly used to strengthen the board attachment. In 460 of the 476 cases, we find that the cloth inner joints were subsequently covered one way or another. There are only 16 occurrences in which the cloth flanges are visible, often with resewn manuscripts. A variety of methods were used to finish the inner board covering and joint. In 34 instances, a leather stub from the leather doublure was pasted over the inner joint; in 46 instances, a separate leather strip was pasted in the joint, along the gutter of the outer leaf of the textblock and onto the board. I did not find examples of a cloth strip used for the same purpose. However, paper strips consisting of plain, coloured or marbled paper were used 170 times. In 52 instances these added strips, both paper and leather, were pasted on top of, instead of underneath the doublure, which may point to a repair procedure rather than an original structure. In 19 of those cases I explicitly noted that the inner joints were probably a later addition. The most common covering of the inner cloth joints, however, is an extended paper doublure (that is, a doublure with a stub), a tipped-on endleaf or a paste-down of the outer leaf of the outer gathering. Below I describe the varieties in the structures of the endleaves.

In 170 manuscripts the situation of the inner joint could not be detected, due to damage and missing parts, or because of interfering repairs. A last, diverse group is formed by bound volumes in which the inner joints remained uncovered, 25 in total. In this group we mainly find manuscripts with lacquer covers and limp leather bindings. In both these binding types the omission of an inner joint can be understood and clarified when the binding structure is understood. With the lacquer bindings and the limp leather bindings, the inside of the covers often lack a lining or doublure. The interior of lacquered boards are often painted, directly onto the board's surface, and some of the limp leather bindings consist of the thick leather covering only; they do not have a core nor a lining (see chapter 5, 'Limp leather bindings'). Bookbinders

may have decided not to adhere the extending side of the spine-lining onto these painted boards or the flesh side of the leather coverings; instead, the flanges were trimmed or pasted onto the outer leaves of the textblock.

Doublures and Endleaves

In 851 manuscripts or 81% of the total, the doublures consist of paper.⁴⁰ The majority of these, 401 in total, were plain papers; a somewhat smaller number of manuscripts—317—have doublures made of coloured papers, and in 133 manuscripts decorated papers were used. Among the decorated papers, marbled papers are predominant, with 107 occurrences. Of those, 6 are monochrome blue on cream paper, in 1 volume the marbled papers that were used to cover the inside of the front and back board and flap differ from each other. In 3 manuscripts the marbled doublures consist of remnant pieces pasted together to make a full doublure. The other decorated papers used as doublures are block-printed (this occurs 10 times), dyed, gold sprinkled paper (9 times) and brocade papers (gold stamping on a multi-coloured surface, found 2 times). Another substantial group, 140 in total, is formed by leather doublures. In this group we find the 12 doublures that are probably the extensions of the spine-lining piece(s). Also, several block-stamped leathers were found (14), and a few were painted with floral patterns. Only 7 manuscripts have cloth doublures. In 5 instances the inside of the board consists of a painted surface. Presumably this painted layer was applied to a thin ground of gesso, perhaps on an additional layer of paper but quite possibly directly on the inside of the board; no paper fibres are visible underneath the paint, nor can any other surface structure be detected. In 24 manuscripts the inside of the covers are lined with dluwang, mostly found as a paste-down, and 14 manuscripts have no covering of the inside of the boards at all. The remainder is not included in the overview of traditional methods as they have western repair endleaves.

Leather was the primary choice of material for lining the fore-edge flap; it is flexible, and evidently stronger and more durable than cloth. This leather lining of the fore-edge and envelope flap is sometimes continuous with the doublure, 80 of the 140 leather doublures of the back board extend beyond the joint and also form the lining of both flaps. Another 55 manuscripts have leather doublures of the fore-edge and envelope flap, combined with paper or

40 In these numbers, I did not include western repair endleaves, which usually take the form of a tipped in bifolio or sewn endleaf section, and are clearly recognisable as non-native because of the sewing thread or other changes in the manuscript's composition, or distinguishable because of the characteristics of the paper and its incompatibility with the original materials.

cloth doublures on the boards; in 51 of these cases the lining of both flap parts consists of a continuous piece of leather, in only 4 cases the envelope flap and the fore-edge flap are lined with separate pieces of leather. Including the 140 full leather doublures and 55 leather flap linings already mentioned, leather was used to line the fore-edge flap and adjacent joints 642 times, which is 74% of the total number of bindings with flaps. The use of cloth is not uncommon, with 95 occurrences. Paper was noted as the lining of the fore-edge flap 102 times, but part of this group also has leather strips pasted in the joints, presumably for reasons of strength. The application of the paper covering the core in the fore-edge flap was probably a way of economising: small left-over strips of leather could be used for the joints. Some of the paper linings of the fore-edge flap are later additions or repairs. Dluwang was found 19 times.

In 28 manuscripts the edges of the doublure, stub or separate inner joint are in some way decoratively cut. The technique occurred with three block-stamped leather doublures which appear to be the earliest examples, the edges of the stubs of these doublures were cut neatly and symmetrically (see fig. 94). The decorative cut edges of the paper doublures vary widely in quality; some are fine and delicate, others are crudely executed.

According to the definition of doublures, they cover the inside surface of the boards, but structurally, in contrast to a paste-down they are not part of the textblock. As a consequence, the paper linings of the board that also cover the inner joint and have some attachment with the textblock need to be examined carefully before they can be classified either as a doublure or an endpaper. A paper leaf with a stub that was first adhered onto the inside of the cover, then onto the inner joint and along the gutter of the outer leaf of the textblock qualifies as a doublure; this structure was found in 138 volumes. However, a paper lining of the cover that is made from a guarded leaf with a stub folded around the outer gathering and thus sewn with the manuscript, qualifies as an endleaf. Although the shape of the entity is the same, applied this way it becomes a different element: a paste-down. This technique occurred 20 times. In 44 cases, I found that a method resembling this structure was formed when the outer leaf of the outer gathering, one-half of the bifolio, was pasted down. Still another method involves the use of a bifolio pasted along the gutter of the outer gathering, of which the outer half is used as a paste-down. This tipped-on bifolio was recorded 97 times, quite regularly only at the front of a manuscript, combined with a paste-down of the outer leaf at the back. I explain this further below. Finally, in 9 cases, a paper guard sewn with the outer gatherings was used to cover the inner joints, and in one case, a guarded leaf was sewn with the outer gathering with the stub of the leaf on the external side of the

textblock, pasted onto the inside of the board before a doublure was applied. Ten manuscripts had been re sewn with additional endleaf sections.

Bindings Without Paste-paper Boards

About 6% of the bindings, 70 manuscripts in total, were made without boards. The majority of these still have a traditional binding in terms of turn-ins and doublures. For 9 manuscripts in this group it is clear that there are no boards at all, as these manuscripts have no doublures. On the inside of the covers we see the flesh side of the leather and there are no traces of adhesive to suggest the former presence of doublures: these bindings were intentionally made as limp leather coverings. For the rest of the group the lack of a board cannot be definitively ascertained because the leather has turn-ins and the inside is covered by the doublures, but the thinness and in most cases the limpness of the covers indicate an absence of boards, although some of these covers may be lined with one or two sheets of paper. Those sheets may have been useful when the turn-ins were made. Nevertheless, I considered these very thin covers boardless. A significantly large part of this boardless group was made without a flap: 66 specimens or 94%, versus 17.5% of the total corpus that never had flaps.

The boardless bindings are almost always covered in full leather. In 17 instances the two-piece technique was used. One specimen without boards is a cloth wrapper binding and one is a çaharkuşe binding; this is quite remarkable, as the paper covering lacks the strength of leather; it seems likely that one or two sheets of paper were used to line the covering before the doublures were adhered. Two other partial leather bindings have leather spines only and thin, flexible paper boards.

Another divergent set of manuscripts appears to have boards made of leather instead of paste-paper. I found at least 12 specimens of this type. Because the finishing and tooling of these covers is the same as that of leather covered paste-paper boards, we can only determine the nature of the core substance when the covering material is damaged so that we have access to them. The last group of manuscripts with divergent boards, however, are recognisable by their outer appearance. This group contains boards made of a woven mat of plant fibre, probably rattan or bamboo, with a pattern of that material visible and tangible on the inside of the boards. The rattan strips are approximately half a centimetre wide and the grain of the woven sheets is at a 45-degree angle with the horizontal and vertical axis of the board. Although several volumes with boards such as these were encountered in the Arabic collection, only 2 were recorded for the survey.

Oblong Bindings, Page-markers and Other Phenomena

In the survey, 9 oblong bindings were recorded. These are denoted as *safina* format: the gatherings are sewn along the short side and usually the item is rotated clockwise when read, because the text is written parallel to the spine.⁴¹ The items are all relatively small, 11 × 21 centimetres on average, and typically thin and light with lightweight bindings, which gives them a highly portable character. While these oblong formats clearly diverge from the common vertical format, I also found differences within the large group of verticle bindings. There are two types: 83 manuscripts are denoted as elongated, and 5 volumes are rather squarish. The average size of the elongated manuscripts is close to 25 × 16 centimetres, and some of these bindings have thick boards. The squarish formats have an average size of 13.5 × 12 centimetres. In the next chapter, I elaborate on the shape of the books and the ratio of the board length and width in relation to the origin of the items.

Only a small number of manuscripts, 29, have page-markers attached to some of the textblock leaves. These page-markers are made of textile, paper or leather. Although each of these materials is fixed to the fore-edge of a folio, different methods by which this was achieved were recorded in the survey. Paper and leather page-markers are adhered onto the surface of the paper, while threads are laced through the paper. As a consequence, the paper and leather page-markers might disappear once the adhesive deteriorates or dries out, without leaving much of a trace. As the threads are more strongly connected to the paper, they are less prone to loss. I only encountered leather page markers twice, in very different shapes. In one case, they were cut in a crudely shaped half-mandorla form, made from a larger, presumably discarded piece of tooled leather, the other manuscript has small rectangular shaped leather tabs with gilded edges. Small strips of paper used as tabs were found twice, once in combination with laced on threads. In several cases, the threads themselves also occurred in combinations, pointing to different occasions when these page-markers were applied. For example, in Cod. Or. 2C, blue silk threads are knotted in a triangle and black threads are laced on with a simple loop. Finally, in some manuscripts all the page-markers are knotted to the fore-edge margin in descending order, starting close to the top of the leaf. In other manuscripts, the page-markers are more or less bundled in the middle of the fore-edge, which renders it more difficult to select a specific one. Still others have them applied rather randomly across the fore-edge.

41 In Turkish the term is *cönk*.

Three times I found a flexible reading aid, a braided cord of coloured threads, fastened on the textblock spine. Six textblocks were encountered with decorated edges. These were painted in gold, with floral patterns, and sometimes the pattern was applied when the textblock edges were first coloured with blue or red dye.

In Conclusion

The figures do indeed suggest that there is an archetypical Islamic binding that has remained constant irrespective of time or place. The chief sewing structure is a link-stitch sewing, with 950 occurrences out of the 1,056 manuscripts in the survey. Over a thousand manuscripts attest to the use of a functional spine-lining that stabilises the sewing and endband structure, and provides support for the board attachment. The endband sewing consistently comprises a primary and a secondary sewing. Approximately two-thirds of the bindings are covered fully in leather, while one-third of the volumes is partially covered in leather. Both categories indicate that the binding was manufactured on the textblock, and as such they are clearly counter-indicative of the case-binding theory. The large majority of the bindings have a fore-edge and envelope flap. Yet, from the survey we also learn that alongside this unity there is variety.

In and of itself, the overview of materials and techniques does not yet help us to retrace the history of the Islamic bookmaking tradition, but it does illustrate the richness of the culture and the diversity of the artefacts. Despite its constancy, the Islamic bookbinding tradition appears to be anything but static and monomorphic. This knowledge may help us to look beyond what we expect to see, and make visible a wider range of sewing systems, an exciting variety of covering schemes, surprising materials, and intriguing endband structures and patterns; that is, it may reveal characteristics that deviate from the archetype but cannot be dismissed as anomalies. These are variations that also belong to the Islamic manuscript tradition. In the next chapter, I examine the extent to which this awareness may help us to distinguish local traditions.

Mapping the Variations in Time and Place

Datable and Locatable Features and a Further Interpretation of the Findings

So far, the quantitative overview of the survey results has outlined the diversity of materials and techniques used to make books in the Islamic world. The UBL collections already confirm that there is significant diversity. Now, when we focus on only those manuscripts that retain their original binding *and* whose origin is known, we can recognise certain trends, and draw tentative or even firm conclusions that gradually paint an image of the development of the Islamic bookbinding tradition. These specific manuscripts provide building blocks for the codicological framework. From the changes in the use of materials and methods in this select group, we can see patterns that occur and start to explore the reasons behind these transitions.

Sewing

The Ratio of the Different Sewing Structures

As stated, not much is known about the sewing schemes in the first centuries of the Islamic tradition, and the UBL collection does not have any examples from this period. However, since the development of the so-called Type Two binding, it is clear that the predominant sewing structure consists of a link-stitch on two stations; the first chart illustrates the ratio of the different sewing structures in general, without being corrected for repair sewings (chart 1).

When undated and re sewn volumes are excluded from the survey results and the remaining data is divided according to sewing structure, and then arranged by date of occurrence, it becomes clear that the link-stitch sewing on two stations is predominant throughout the centuries (chart 2).¹ Chart 2 also illustrates the gradual introduction of an important variation on the unsupported link-stitch sewing, the specific version on four stations. In addition, it demonstrates the relatively high number of variant sewing structures in the eighteenth and nineteenth centuries, and the fact that the unsewn textblocks

1 In chapter 1, I outlined the history of the Oriental collection and explained that few acquisitions were added during the eighteenth century. Even though the collections increased significantly in the nineteenth century, and especially in the twentieth century, the effect of the 'quiet eighteenth century' is visible throughout the results.

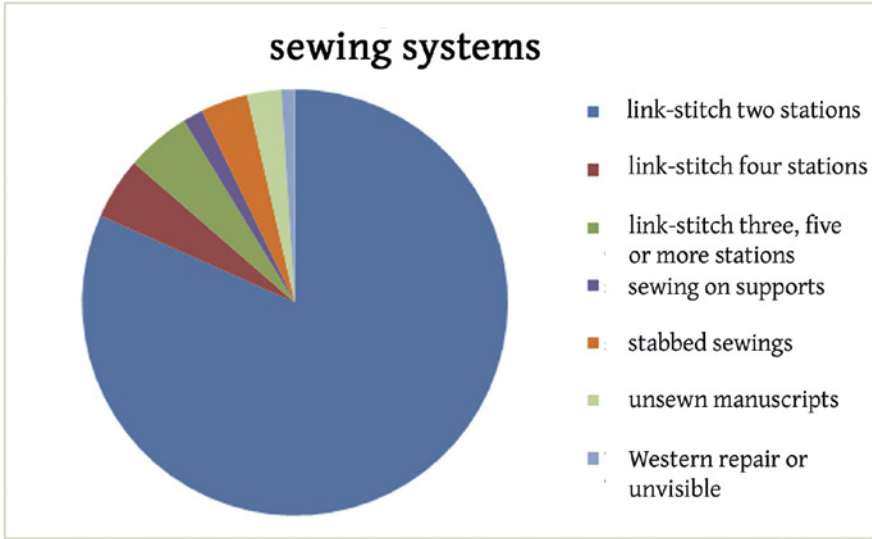


CHART 1 *Subdivision of sewing structures in the whole corpus of the Arabic collection, 1056 manuscripts.*

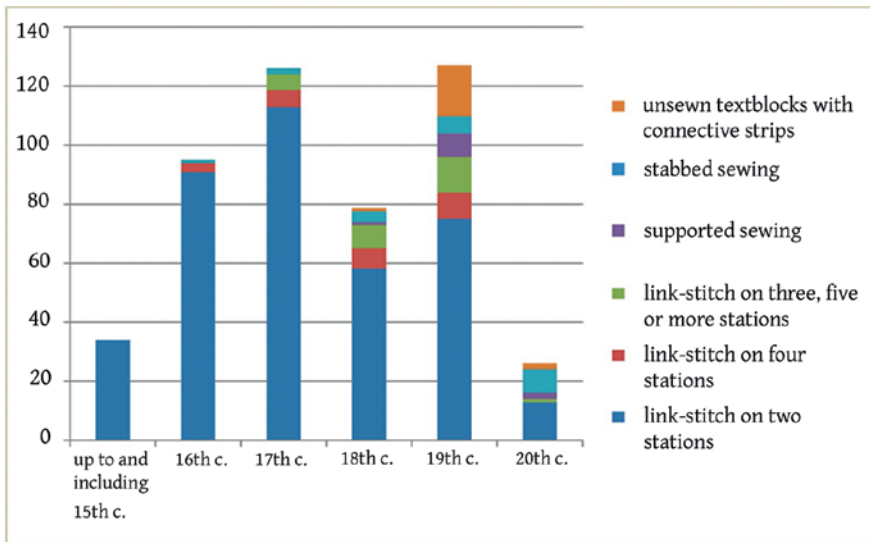


CHART 2 *Occurrence of the different sewing structures as used throughout the centuries, with exclusion of the resewn and undated manuscripts.*

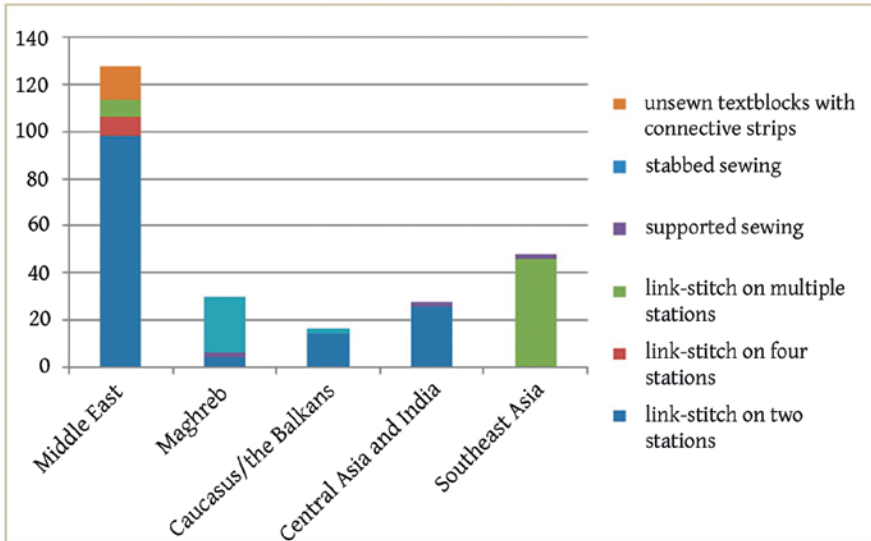


CHART 3 *The occurrence of the diverse sewing structures in the Islamic world, according to the located manuscripts in the survey selection, with the exclusion of resewn volumes.*

with connective strips were almost solely used in the nineteenth century. The twentieth century shows the continuous use of the dominant link-stitch, as well as a variety in techniques, though the number of stabbed manuscripts increased.

As explained in chapter 4, the information on place of origin is more limited than the data on dates; this hinders the ascription of sewing structures to regions. It is clear, however, that the link-stitch sewing on two stations is predominant in most regions of the Islamic world, though it seems to have less relevance in certain parts of North and West Africa.² Remarkably, in Southeast Asia this sewing scheme was not found at all (chart 3).

The Traditional Link-stitch Sewing with Sewn-on Leather Doublures

Two volumes, Or. 241 and Or. 1313, were sewn with the link-stitch on two stations, yet they are described separately since their sewing structures include a

² In the UBL collections, the majority of the manuscripts explicitly described as having a North African origin are stabbed Berber manuscripts. These manuscripts are often nineteenth-century volumes and therefore, the overview of the Maghribi sewing structures is probably not representative of the actual production of the manuscript structures from that region. Furthermore, the link-stitch sewing is seldom found in sub-Saharan Africa, where the manuscripts largely consist of loose leaves and are kept in wrapper bindings and pouches or bags.

piece or two pieces of leather, as long as the spine and as wide as the covers. After sewing and binding, these pieces of leather were used to cover the inside of the binding (figs. 143, 147–148), but they clearly also have a significant function in the construction. The outer gatherings of both manuscripts have six sewing stations, and when these first and last gatherings were sewn, the thread passed through the leather lining several times. In Or. 241, the smaller of the two volumes, this divergent sewing structure was only used in the outer gatherings and all the other gatherings were sewn with the common link-stitch. In Or. 1313, however, we find that the second gathering was sewn on four stations, and this gathering seems to function as a stepping-link between the outer gatherings and the rest of the textblock (figs. 144–146). Both textblocks are connected to the leather lining with these divergent sewing tours only, the other gatherings are sewn on two stations regularly and the leather lining is not incorporated into their sewing.

The structures bear a strong resemblance to the al-Andalus structure, differing only in the material that was used for the lining: leather, instead of cloth.³ Unfortunately, the manuscripts are undated and neither volume has a colophon in which a precise place of origin could be mentioned. However, Or. 241, a fragment of the Qur'an, written in a large Maghribi script, is described in Theodor Nöldeke's *Geschichte der Qorâns*, which suggests a North African origin and dates the volume in the fifteenth century.⁴ Or. 1313 is the fourth volume of a set, the commentary on Maliki Islamic law by Abu al-Hasan al-Saghîr; this information makes it possible to date the volume after 1155. The second volume of the same set is kept in the Bibliothèque Nationale, BNF 1054, which, according to Baron de Slane is dated to the thirteenth century.⁵ He also described the manuscript as "Maure-Espagnole." Or. 1313 is written on Islamic paper, but Or. 241 is copied on western paper which provides a watermark. It consists of a hand or glove, topped by a star-like shape; papers with this watermark were made in Spain from the second quarter of the fourteenth century onwards.⁶

3 T. Espejo and A. Beny, 'Book I from the collection of Arabic manuscripts from the Historical Archives of the Province of Málaga: An example of al-Andalus binding' (2009), 121–133; A. Beny et al., 'Andalusi binding: A model of Islamic binding from the Iberian Peninsula, 14th–16th century' (2015), 157–173.

4 Th. Nöldeke, *Geschichte der Qorâns* (1860), 348. The date is further supported by a *waqf* (bequest statement) dated 911 AH (1505 CE).

5 M. de Slane, *Catalogue des manuscrits Arabes* (1883–1895), 131.

6 O. Valls I Subirà, *Paper and watermarks in Catalonia* (1970), 404. After describing the widespread use of the sign of the hand or glove in later centuries and in various countries, Valls I Subirà states, "Returning to the fourteenth century we find hands topped by a flower or star, used over a long period, and—during the fifteenth century—with letters in addition." The watermark in Or. 241 does not have letters accompanying the watermark. This particular



FIGURE 143 *Or. 241 (r) and Or. 1313 (l). The two leather bindings show a certain likeness in the decoration scheme.*



FIGURE 144 *Or. 1313. The first gathering is sewn on six stations and the sewing thread passes through the piece of leather used for lining the text-block spine, which also covers the inside of the boards. A primary endband was sewn as well.*



FIGURE 145 *Or. 1313. The second gathering is sewn on four stations, and it seems the next gathering is sewn simultaneously.*



FIGURE 146 *Or. 1313. The sewing thread in the third gathering; its stations are positioned in accordance with the inner stations of the previous gathering.*



FIGURE 147 *Or. 1313.* Although a few leaves are missing, the sewing thread and multiple stations, also piercing the leather, are visible.



FIGURE 148 *Or. 241 (r)* and *Or. 1313 (l).* The leather spine-lining, secured with the sewing thread, was used to cover the inside of the binding. The edges of the covering leather were turned-in over these doublures.

Both volumes have full leather bindings made in one piece, and in both cases the turn-ins of the covering were pasted over the leather doublures, which are in fact the paste-downs from the sewn-on spine-lining. It is noteworthy that the turn-ins cover the doublure, as this is similar to the technique used with cloth doublures and is not found with any of the other leather doublures in the UBL collection (which are always applied after the turn-ins were made). The leather bindings are blind tooled with small tools and their designs are comparable. The leather doublures are not decorated. Or. 241 seems to have no boards, the covers of Or. 1313 were strengthened with laminated waste paper sheets and are relatively flexible. The latter also has a flap, while Or. 241 has none, although the fore-edge turn-in of the back cover appears to be meddled with, which may indicate a later interference and could point at the former presence of a flap. Both manuscripts have common primary endbands, though the endband cores of Or. 241 consist of parchment. The secondary endband sewing of Or. 1313 is diagonally striped.

As we lack concrete information on the origin of these manuscripts and their bindings, their position in the al-Andalus binding tradition is uncertain. Was this type of construction, which included a lining-doublure in the sewing structure, developed in the Maghrib or in al-Andalus? Were both leather and cloth used for this purpose in al-Andalus, although leather was not found by Espejo and Beny? Or does the use of leather bear a stronger relation to book-binding in North Africa? The sewn lining-doublure structure of these two manuscripts concurs with the description in the thirteenth-century Maghribi treatise of al-Ishbili. Does this mean that the al-Andalus variation of using cloth in this sewing structure evolved from that structure, which may have developed in the Maghrib in the thirteenth century? At this point, the development of this specific structure remains tentative, and the two manuscripts may have been made in the Iberian Peninsula; it is certainly possible that al-Andalus bindings were transported to the Maghrib.

Traditional Link-stitch Sewing on More than Two Stations

The variant link-stitch sewing that is most closely related to the predominant sewing technique on two stations is the link-stitch using four stations in which the sewing thread does not pass continuously in the spine-fold; the technique was described and illustrated in chapter 2.⁷ This technique was used

watermark type was not found in the early Italian papers of Fabriano, see J.E. Labarre et al., *Zonghi's watermarks: Monumenta chartæ papyraceæ historiam illustrantia* 3 (1953).

⁷ This paragraph also explains the significant technical difference between this particular link-stitch sewing, and the link-stitch using multiple sewing stations in which the thread remains

for resewing damaged manuscripts, but also as a first sewing structure in new manuscripts. As an original structure, it has been confirmed in manuscripts with an established Ottoman provenance; other items lack clear information in their colophons.

In and of itself, a link-stitch sewing on four stations was not a new invention. We know of such sewing systems from the Coptic and Ethiopic traditions, and it can also be found on Syriac and Byzantine manuscripts. All these traditions seem to have their own particular method, including a specific method of board attachment, which makes it possible to distinguish between them; the structures can actually be used to determine the manuscript's cultural origin. The Coptic structure, sewn with one needle, consists of a continuous thread in the spine-fold of the gatherings while the sewing thread forms regular chains on the spines of the textblock; the Syriac book attests to a similar method of sewing, though other material characteristics make it possible to distinguish them from Coptic structures. The Ethiopic manuscript is sewn instead with two sets of threads and needles: one thread only moves between sewing stations one and two, the other between three and four. The Byzantine structure can be distinguished by the textblock, which is often sewn in two halves; both start by attaching the sewing thread to the boards, the halves then connect in the middle of the textblock spine.⁸ Additionally, in all these traditions the sewing thread is also used to connect the boards to the textblock, which is uncommon in the Islamic tradition.⁹

Particularly distinctive for the Islamic sewing on four stations is the passing of sewing thread between the second and third station on the spine side of the textblock. This follows from the sewing scheme: when the thread exits from the second station, it links with the sewing thread from the previous gathering, but does not return into the same station, as is common in the Coptic, Ethiopic, and Byzantine structures. Instead, the thread loops around the sewing thread from the previous gathering passing over the spine, and it enters at the third sewing station, to continue on to the fourth station, thus forming the

inside the fold-line of the gathering. With the latter, usually three, five or more stations were used, although a few specimens with four stations were encountered.

- 8 I made this comparison in a paper I presented at the 'International meeting of bookbinding' in Istanbul (November 2012), published as 'Preserving the Islamic manuscript as an artefact: Some object characteristics and treatment considerations' (2014), 98–104. Technicalities on the Coptic, Ethiopic, and Byzantine structures can be found in J. Szirmai, *The archaeology of medieval bookbinding* (1999).
- 9 In part of the early Coptic codices, leather thongs, instead of sewing thread, were applied for board attachment; this does not affect the observation that the Islamic tradition stands out in terms of sewing and board attachment.

second stitch inside the spine-fold. When the thread exits again at the fourth station, it makes a loop around the previous link-stitch on the spine and then continues on to the next gathering to be sewn. Of course, when a binding is undamaged, the threads on the spine-side of the textblock are not visible, but the difference between a link-stitch on two and on four stations is clearly visible inside the gatherings, as is the difference between this specific sewing scheme and that used in Coptic or Byzantine structures.

The discovery that the Islamic tradition has its own particular sewing scheme (the link-stitch on four stations), apart from the link-stitch sewing on two stations, which distinguishes it from neighbouring bookbinding traditions, is a significant result in itself. It can be assumed that Islamic binders knew of these variant sewing schemes used in other cultures, and perhaps even used them as a starting point to develop their own technique. Why and how exactly this development took place is as yet uncertain. Nevertheless, this distinctive Islamic sewing scheme is useful in building a codicological framework. Accordingly, awareness of this phenomenon concerns conservation specialists.¹⁰ But how can the survey findings help us understand the rationale for its usage?

Initially, this particular sewing scheme seemed to represent a repair practice, as the oldest examples are found in re-sewn manuscripts from the twelfth to the fifteenth century. In some of these manuscripts the paper in the spine-fold was repaired with small patches of paper, which was evidence of the earlier sewing; in other instances, former holes can be found underneath the current sewing thread. Either way, the binder decided to use a sewing pattern that would bypass the weakened part in the paper spine-fold. Obviously, this resulted in a stronger and more durable structure.

The first occurrence of manuscripts originally sewn on four stations dates from the middle of the sixteenth century.¹¹ This means that these manuscripts were not sewn with the variant link-stitch on four stations to spare the possibly damaged paper close to previous sewing stations. However, not every

10 I elaborated on the unfavourable consequences of conservation techniques which alter the sewing structure at two conferences for conservation specialists: the '14th Symposium on care and conservation of manuscripts' in Copenhagen (October 2012) and the 'International meeting of bookbinding' in Istanbul (November 2012). See: 'Neither weak nor simple: Adjusting our perception of Islamic manuscript structures' (2014), 253–269, and 'Preserving the Islamic manuscript as an artefact: Some object characteristics and treatment considerations' (2014), 98–104.

11 These original examples are of particular interest. Raby and Tanındı mentioned the link-stitch on four stations in their study on fifteenth-century bindings and explicitly stated that this particular sewing structure was only encountered in "restored bindings." See J. Raby and Z. Tanındı, *Turkish bookbinding in the 15th century* (1993), 215–216. The oldest examples are Or. 5 and Or. 945, dated 1553 and 1566 respectively.

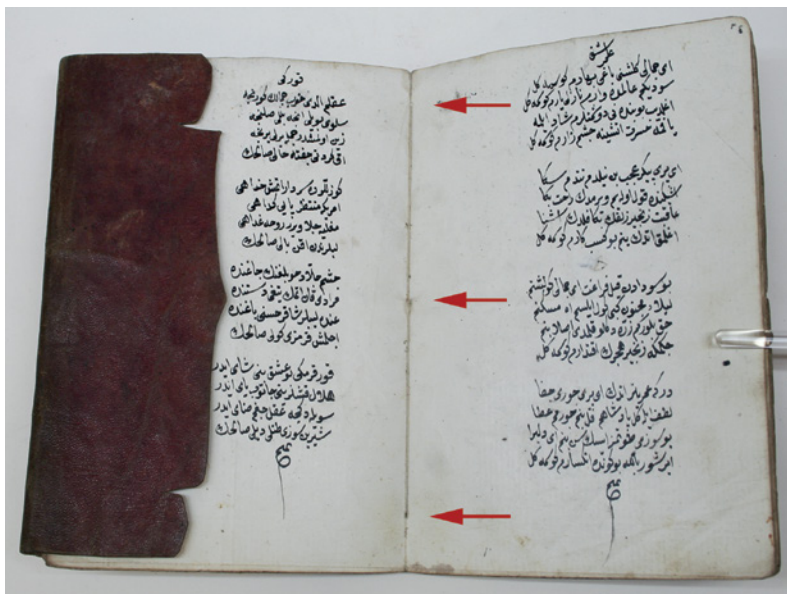


FIGURE 149 Or. 1676c (after 1817). An example of a thin textblock, consisting of two gatherings only, sewn on three stations.

volume with these original sewing structures displays characteristics that help explain then the use of the divergent sewing schedule: they may have an average format, thickness, and gathering structure, and a normal textblock substrate that does not justify the conscious change in sewing structure. In those cases, it seems that the structure was chosen because the binder preferred it as a sewing technique that was superior to that of the link-stitch on two stations. Two of these specimens have dyed textblock edges, with vegetal patterns painted in gold, suggesting that indeed these items were made with much care.

However, when an entire manuscript consists of only two or three gatherings, it is evident that the method is used intentionally, for technical reasons. Several thin volumes have their few gatherings sewn on four stations, while two specimens—Or. 2190 and Or. 1676C, both consisting of two gatherings—were sewn on three stations (fig. 149). As the outer stations are placed relatively close to the head and tail, this results in a fairly stable structure. In most of these thin manuscripts the outer sewing stations take over the function of the primary warp stitches, and in these instances the items have no endbands. They were too thin to allow for a proper endband, and so this sewing structure is a functional alternative for the predominant one.



FIGURE 150 Or. n.058. (1863) An example of a textblock consisting of thin machine-made paper, sewn on four stations and provided with endbands.

Another good reason for using the link-stitch on four stations is found in nineteenth-century volumes, written on flimsy machine-made paper, such as Or. n.058 (fig. 150). It seems that they were intentionally sewn on four stations, as the doubled number of stations would have lessened the risk of tearing, both during the act of sewing as well as later when the manuscripts were used. These volumes were further strengthened with traditional endband structures, which affirms their careful manufacture; in the nineteenth century we see a decline in the consistency of the making of the primary endbands, but these volumes have tiedowns in all gatherings.

However, apart from being a replacement sewing method and one used for particular thin or fragile manuscripts, the technique using four sewing stations may have evolved, eventually, into an economic method to produce volumes with multiple gatherings. Three manuscripts, Or. 6.632A–C, dated 1859 and purchased in Yemen, appear to have a very irregular primary endband sewing, with the tiedowns applied rather sparingly. In these volumes, the sewing on four stations makes sense as the outer positions supply strength to compensate for the omission of tiedowns. In one other example, Or. 14.098, dated 1790,



FIGURE 151 Or. 2761 (1655, Palestine). The textblock is sewn on six stations and has traditional endbands.

the outer stations are also located relatively close to the head and tail, so the primary endband sewing could be omitted altogether, which represents a significant way to economise.

Three manuscripts display the use of the same sewing scheme, except that six stations were used; the thread between the second and third, and between the fourth and fifth station passes over the spine side of the textblock. Or. 2761 is an interesting example of this technique, since it is an elongated manuscript, measuring 31 × 11 centimetres (fig. 151). As such, it corroborates the theory that

multiple stations were used intentionally for larger manuscripts.¹² On the other hand, Or. 14.515 was sewn on six stations in the same manner although it has a regular size. The last example, Or. 11.121, consists of one gathering only, which explains the absence of an endband and the use of sewing stations close to the head and tail instead. In addition to the evident material differences between these three items, there is no apparent coherency in their origin, as they date from 1655 (copied in Palestine), 1749 (place unknown), and 1873 (copied in Iraq).

Unfortunately, not all examples were dated, and the lack of sufficient data on the origin of manuscripts for which this divergent link-stich was used prevents us from identifying the chronological development of the use of this technique. Based on the current findings, the sewing scheme on four stations seems to have started as a repair technique, but then proved useful enough that binders started applying it as an original sewing structure in their regular binding practice.¹³

A Divergent Link-stitch Sewing on Three or More Stations

Though belonging to the family of unsupported sewing, the link-stitch sewing on three or more positions, in which the thread passes continuously in the spine-fold, forms a distinctive sewing method. Obviously, it comprises at least one additional sewing station—compared to the predominant sewing scheme—and therefore provides extra stability to the sewn textblock. This type of sewing seems to be directly related to the Coptic sewing system.

Of the 42 specimens with this sewing structure, only three were made in the Middle East. Each of these volumes was sewn on three stations. They appear to belong to an identifiable category, because the manuscripts contain Christian texts (the Four Gospels, *Imitatio Christi* by Thomas à Kempis, and a composite volume comprising of a dispute between a monk and a Muslim, and a sermon by St. John Chrysostom), and two of them can be located: they were copied in Aleppo and Tripoli in Syria.¹⁴ The origin of the third one is unknown, but the laminated paper boards consist of wastepaper containing text in Syriac

12 See, for the historical source on this method, Y. Porter, *Peinture et arts du livre. Essai sur la littérature technique indo-persane* (1992), 119.

13 Evyn Kropf noticed the technique while describing material characteristics of the Islamic manuscript collection in the Michigan University Library, see her essay: 'Historical repair, recycling, and recovering phenomena in the Islamic bindings of the University of Michigan Library: Exploring the codicological evidence' (2013), 15. She confirmed its usage on quite thin or particularly tall or elongated volumes, often without endbands, and recorded cases where the four-station sewing represented a repair technique (personal email exchange 11 June 2013).

14 Or. 701 and Or. 2084.

script.¹⁵ This information enables us to link all three manuscripts to the Arab-Christian community and helps to explain the use of a sewing structure akin to the Coptic—as it is associated with the early Christian bookbinding tradition.

From the survey, it appears that all the other manuscripts sewn with a link-stitch method on multiple stations with a thread that passed continuously in the spine-fold, originated from Southeast Asia. It is, however, difficult to imagine how the Coptic tradition might have influenced the development of the regional-specific variety in Southeast Asia, given the vast divide in their geographical and chronological occurrences. The reconstruction of the spread of the manuscript culture is complicated by the loss of the oldest manuscripts made in the Southeast Asian region. There is a large gap in our material evidence: the oldest surviving manuscript structure with a multiple link-stitch sewing dates from the seventeenth century. We should consider the possibility that the people of Southeast Asia developed their own sewing technique, which was grafted onto the traditional Islamic bookbinding methods, with their own signature, and was designed to reach a similar visual result—a flat, tight spine. Other remarkable and creative divergences in binding details indicate that binders were motivated, or even felt an urge, to develop an individual style. However, this explanation alone is not entirely satisfactory.

The increase in the number of stations in the sewing also increases the time needed for the sewing. Since economic considerations influence a bookbinder's approach, material aspects also may have played a part in these developments. A significant portion of the manuscripts from Southeast Asia is written on dluwang; although the oldest manuscript in the UBL collection from this region, dated from the seventeenth century, is not entirely written on dluwang, its endleaves and lining of the flap consist of dluwang, which attest to the early use of this material. Notwithstanding its flexibility and strength, perhaps the professional binders noticed that the material was more prone to tearing than paper, and as a consequence, they adapted their sewing system.

Interestingly, the craftsmen of the Southeast Asian book tradition did not turn to the Chinese tradition for inspiration. Chinese books, which consisted of very thin papers, have the fold-line of the bifolios positioned at the front-edge so that only one side of each paper can be written on. This construction dictated the use of the stabbed sewing technique, since there were no spine-folds at the spine side to sew. Malay manuscripts in Arabic script clearly were

15 Or. 18.274. The sewing of the latter displays a further characteristic belonging to the Syriac tradition: the linking stitches on the spine connect three rather than two gatherings, thus, the sewing thread forms longer loops and the chain has a more compact shape.

not based on these constructions, nor did the binders borrow the stabbing technique.

Sewing on Supports

Sixteen manuscripts have an original sewing structure using supports, and within this group, two trends are discernible. The volumes were either sewn in Southeast Asia, in which case they were sewn on flat strips, or they originated in the Middle East or North Africa, in which case they were sewn on two cords. All of the Southeast Asian volumes date from the nineteenth century. Sometimes their sewing supports consist of strips of leather, but in a few cases the material is not visible and caused no discolouration, so the use of parchment cannot be excluded.¹⁶ Mostly the gatherings were sewn across, which is the more economical method, though in two instances the thread passes around the supports. The extending slips of the sewing supports were used to strengthen the board attachment; they were pasted onto the inside of the boards. The lack of data on provenance means we do not have any information on the origin and development of this structure, which is very different from the regular Southeast Asian link-stitch sewing on multiple stations. It is quite possible that the introduction of supports is related to the arrival of Europeans in the region.

The volumes in the other group, sewn on two cords, are also relatively recent. The oldest manuscript was copied in 1859 (Or. 11.524), followed by two more nineteenth-century volumes (Or. 12.645 and Or. 11.969), then two manuscripts dated 1902 and 1924 (Or. 22.934 and Or. 23.341). The cords are so thin that they do not appear as ribs on the spine. In two cases, I found a saw-cut in the spine-folds which allowed for recessed supports. The gatherings have four sewing stations, with the two cords more or less positioned where the two link-stitches normally would have been, and the outer linking stitches closer to the head and tail (fig. 152). The extending slips of the supports were pasted on the inside of the boards, except for one specimen with laced-on boards, a technique which seems to reflect a direct European influence. Two of these volumes display a further western feature, as the leather on their spines is turned-in, and the boards of one specimen are cut slightly larger than the textblock; otherwise, the outer appearance of these manuscripts accords with the Islamic tradition, including the presence of an envelope flap.¹⁷ These combined features give these relatively late manuscripts a somewhat hybrid character, similar to

¹⁶ This group of supported sewing structures was illustrated in chapter 2, figs. 48–50.

¹⁷ The technique of sewing on supports may have been borrowed from western binders; Islamic bookbinders stayed close to their own tradition, as is attested by the overall

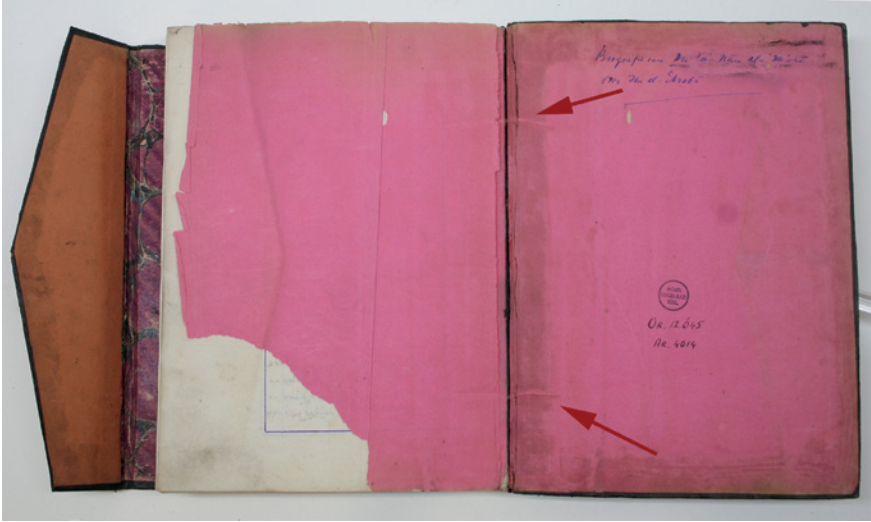


FIGURE 152 *Or. 12.645 (1888). The textblock is sewn on two cords, the arrows point at where the extending slips were pasted onto the boards.*

that of many Arabic printed books from the same period, as became apparent from a preliminary examination of the UBL printed Oriental collection, which is elaborated on in the next chapter.

Stabbed Sewings

The most prominent aspect related to the group of stabbed bindings is the high number of Berber manuscripts. The total corpus contains thirteen Berber manuscripts, and twelve of these are stabbed. In two cases, we can confirm the presence of a former link-stitch on two stations; the stabbed sewing in the other volumes seems to be original. Two other originally stabbed manuscripts, in Arabic, also originated from North Africa, and one is from Macedonia. Four other volumes, which were purchased in Yemen, have a stabbed sewing technique combined with the deviating saw-cut endband structure, which includes an extra stabbing position near the head and tail. In a few cases, the textblock spine was lined with cloth prior to the stabbing and the extensions of the cloth were folded in the direction of the textblock; then, when the sewing thread pierced the stack of gatherings it also passed through this cloth. After sewing, the extending sides of the lining were folded backwards in the direction of

construction, the application of endbands, and covering schemes. In the West, books from this period sewn on thin supports almost exclusively have hollow spines.

the boards and pasted onto the inside of the boards, for firmer attachment. Notably, one of the manuscripts now sewn on two cord supports was formerly stabbed (Or. 23.341). As stabbed textblocks do not open very well, this structure could indicate that one of the manuscript's owners felt that the stabbed sewing hampered his use of the manuscript, and wanted to improve the functionality of the book. It is also possible that stabbed sewing was a temporary means of keeping the textblock together, until it was sold and brought to a binder.

The relatively small number of stabbed textblocks hinders our ability to draw conclusions. It is clear that this sewing technique was a cheap and quick repair method, but it would be premature to suggest a theory for its use as an initial sewing method. Most likely there are several reasons, including the tradition in West Africa in which many loose-leaved manuscripts circulated, the possible absence of professional craftsmen in peripheral areas, and the economy of labour.

Tackets

Only one manuscript was found with tackets in its separate gatherings, Or. 25.723, dated 1787. This is a composite volume, a collection of texts on astronomy, and of the five texts only the third and the last one were tacketed.¹⁸ The individual tackets consist of small stitches made with a thread, and each gathering is secured with two tackets, close to the head and tail (figs. 153, 154). I cannot deduce whether these tackets were mainly used to assist the scribe in preparing the textblock for decoration, the pricking and ruling of the folios, or if they primarily served to keep a gathering together while it was circulated for copying purposes; the use of tackets in Islamic manuscript culture has yet to be studied.¹⁹ In our specimen, it is remarkable that although the text is finished, open spaces indicate that illustrations were planned, but never applied. Were these particular gatherings held together by tackets to allow for distribution to the craftsman who was to add the drawings? If so, one wonders why the illustrations in this manuscript were never made. In order to verify the occurrence of tackets in Islamic manuscripts and understand their function, it seems logical to first examine illustrated volumes, or, as in the example of Or. 25.723, manuscripts that were intended to be illustrated. A subsequent comparison with items only containing text may then shed light on the usage of tackets for this reason.

18 A tacket, in this context, is a provisional or temporary sewing stitch that keeps the individual bifolios of a gathering together when the textblock is not yet completed.

19 See J.P. Gumbert, 'The tacketed quire: An exercise in comparative codicology' (2011), 305–308.



FIGURE 153 Or. 25.723 (1788). The tacketts are visible between the link-stitch and the tiedowns.



FIGURE 154 Or. 25.723 (1788). Detail of one of the tacketts.

Unsewn Manuscripts

As noted, unsewn manuscripts in wrapper bindings must not be confused with African manuscripts consisting of single leaves. Rather, the unsewn manuscripts with connective strips are volumes consisting of proper gatherings, usually made of four or five bifolios; the use of the word 'unsewn' explicitly points to the fact that these objects *could* have been sewn but were not. At best, the gatherings were held together with connective strips of leather, cloth or paper, pasted on the spine of the textblock. The twenty-eight specimens in the UBL were mostly made in the nineteenth century, the oldest is dated 1739, and two are from the very early twentieth century. Only a small number have identifiable locations of production: three separate volumes and a set of four originated from Egypt, all the others are of unknown origin. In this respect, it is interesting to quote the Arabist Edward William Lane (1801–1876), who lived in Egypt for many years:²⁰

The leaves of the books are seldom sewed together; but they are usually enclosed in a cover bound with leather; and mostly have, also, an outer case (called *zurf*) of pasteboard and leather. Five sheets, or double leaves, are commonly placed together, one within another; composing what is called a *karra's*. The leaves are thus arranged, in small parcels, without being sewed, in order that one book may be of use to a number of persons at the same time; each taking a *karra's*. The books are laid flat, one upon another, and the name is written upon the front of the outer case, or upon the edge of the leaves.²¹

Lane saw this practice in Egypt in the second quarter of the nineteenth century; this corroborates the period of manufacture of most of the unsewn manuscripts identified during the survey.

The relative age of these objects of course influences the condition of the paper. Some of the unsewn textblocks are rather heavily used while others are not completely pristine, yet they certainly do not show signs of much use. In chapter 2, I suggested that this method of keeping the textblocks together could well have been a retailer's practice; the connective strips pasted onto the

20 The quotation was brought to my attention by Russell Jones, who used it in one of his studies of Malay manuscript structures. See: R. Jones, 'Malay manuscripts: Gatherings and soiled pages' (1999), 99.

21 E.W. Lane, *An account of the manners and customs of the modern Egyptians, written in Egypt during the years 1833–1835* (1836), 1:265. The description is illustrated with a pen drawing of books and the implements for writing. The unsewn nature of the book itself is not visible; the drawing represents a book safely stored within its slipcase.

spine of the gatherings would have provided just enough coherence for potential customers to consult the textblock. However, this kind of usage does not explain the degree of dilapidation of the most heavily damaged items, unless the unsewn manuscript was eventually sold but not taken to a binder by its new owner. On the contrary, this person must have used the volume in its more vulnerable, unsewn condition. Lane's observation provides another possible answer. Russell Jones explains the comment as an indication that the loose separate gatherings were used for study purposes, as several students could use a single manuscript simultaneously.²² Another possibility is that the separate gatherings were circulated for copying practices. Such a practice may explain the thumbbed condition of some of these volumes. However, the application of the connective strips contradicts these ideas. The strips were pasted onto the textblock spine and thus, they are adhered to the outer bifolio of each gathering. This obviously makes the free distribution of complete individual gatherings more difficult. Were the connective strips then applied in a later stage or only in specific situations?

When I checked the manuscripts for quire signatures, I found such markings in half of the volumes. These signatures support the theory that the loose gatherings were used or circulated separately. With regard to the content, it appears that these were rather common or popular texts. The combination of these observations suggests that these unsewn manuscripts with wrapper bindings were, indeed, bookseller's items. He could store them in the shop in this fashion since the loose gatherings were well protected and presentable. And while waiting for potential buyers, he could perhaps lend the loose gatherings to students or people who wanted to make their own copy of the work, thereby potentially making a little money from these items in another way. Then, when a customer presented himself, the bookseller could offer various solutions, depending on the needs and budget of the customer. In addition to offering to have a completely new copy made, the bookseller could send the gatherings on hand to a bookbinder to have them properly bound. A more economical option would be for the buyer to purchase the manuscripts in the wrapper binding as presented in the shop. Should the prospective owner choose the latter option, it is possible that the connective strips were added at that moment to join the gatherings together, probably just enough for the anticipated personal usage of the manuscript.

Other questions concerning this particular type of manuscript remain. When did the wrapper binding come into use? Where was it first used and is the theory above correct? Equivalent types of the type have also been found in the

22 R. Jones, 'Malay manuscripts' (1999), 100.

printed collection of the UBL; these have connective strips and wrapper bindings with a flap quite similar to the unsewn manuscripts, see chapter 6, 'The transition to printed books.' The occurrence of unsewn printed books with wrapper bindings certainly needs to be looked into further as well.

Spine-lining

Material

We have seen that after sewing, almost all textblock spines were lined with either leather or cloth. Leather linings were most common in the earlier centuries. In total, 227 volumes were originally lined with leather, of which more than 160 are dated. The vast majority of those were made before 1650. No more than 8 manuscripts from the eighteenth century were lined with leather, and there are only 2 occurrences in the first half of the nineteenth century, the latest in 1821. By contrast, cloth linings were used throughout the ages. In the centuries up to 1500, textile was used as often as leather. Though the use of leather was dominant in the sixteenth century, during the seventeenth century we see a decline in its use compared with cloth. In the first quarter of that century, I counted 25 leather and 14 cloth linings; from 1626 to 1650 there are 13 leather and 18 cloth linings; from 1651 to 1675 there are only 8 leather versus 28 cloth linings; and in the last quarter of that century, 2 leather versus 10 cloth. After that, cloth became the predominant lining material; in the eighteenth century, it was used on 58 dated manuscripts (88% of the dated volumes in this period) and in the nineteenth century, on 88 dated manuscripts (98% of the dated volumes), with 21 occurrences in the twentieth century when leather was no longer used (chart 4).

Function

The primary function of all spine-linings is to offer stability to the sewn textblock, and to provide support for the primary endband sewing. For the majority of bindings, the lining material was also utilised to strengthen the board attachment. It is only with regard to this second function of the lining that we can find a difference in the use of leather, compared to cloth. When leather was used, the flanges were always pasted onto the inside of the boards, except for a manuscript that was rebound, at which point the original leather flanges were cut and a new cloth lining was applied over the leather lining still on the spine (Or. 469), and in the case of one volume (Or. 25.300) dating from the nineteenth century. The latter was sewn on supports and the leather lining does not extend beyond the sides of the spine, presumably because the support

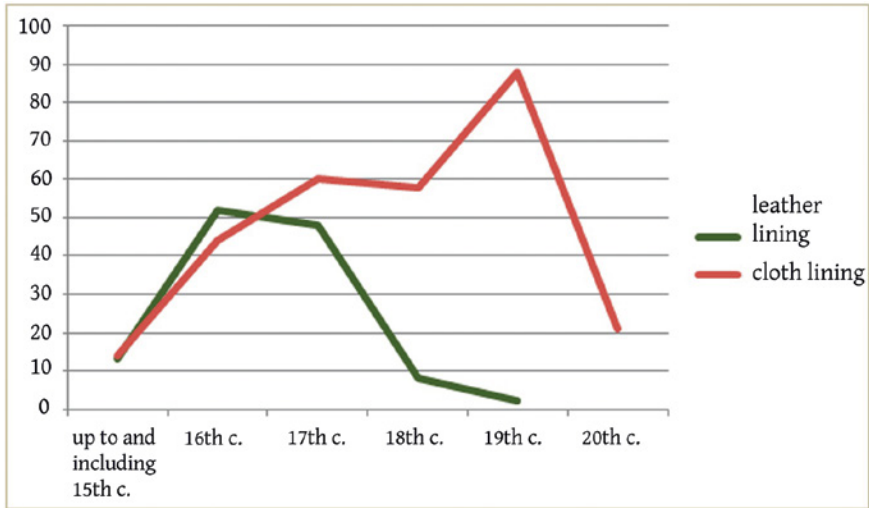


CHART 4 *Comparison of the numbers of bindings with leather linings and cloth linings over the centuries, resewn volumes excluded.*

slips—which were pasted onto the inside of the boards to support the board attachment—interfered with the application of the flanges. For almost all the other volumes, the leather inner joints formed by the extended sides of the lining were left visible. In nineteen instances the leather inner joint was covered by a paste-down, a stub from the doublure or a separate inner hinge, but most of these additional inner joint materials seem to have been applied as repairs.

There are some remarkable differences in the way the extending sides of the cloth lining were treated. First, only 77% of the cloth-lined volumes with an original sewing structure show clearly that the flanges function as board attachment. Although this may seem a high percentage, the flanges of leather spine-linings were always attached to the boards, with the exception of the two instances described above; the difference in the application between the two materials is therefore noteworthy. In the group of cloth linings, when the extending sides were not pasted onto the boards, then the flanges were pasted onto the outer leaves of the textblock. This composition was found in 59 instances (14%); in 17 other cases (4%) the extending sides were cut off entirely. It is difficult to establish a trend in this alternative treatment of the lining. In the group with the flanges pasted onto the gutter of the textblock, the variant sewing structures are in line with the general numbers, although no Southeast Asian sewing methods were found. Within this set, it is remarkable that such a high number of bindings were made without a flap: 26 of the 59 volumes (44%,

more than twice the average). Although only a few of these manuscripts have a clear provenance (4 items were copied in Turkey, 2 in Bukhara, 1 in Kabul, and 1 in Pakistan), most of the flapless bindings are on manuscripts written in Persian. With regard to date, 2 manuscripts were copied in the seventeenth century, 9 in the eighteenth, 17 in the nineteenth, and 2 in the twentieth century. This seems to point to a development over time, a development which may have taken place mainly in Iran, the Indian subcontinent, and Central Asia. The decision to paste the cloth flanges onto the textblock instead of onto the boards may have been made for technical reasons, perhaps to avoid tension on, and eventually damage to the endbands. For it must have been noticed by binders—as they repaired older works—that cloth linings became detached from the textblock spines over time, in which case the endband threads were prone to break or cut the paper, because the leather covering would pull the cloth lining away from the spine.

It is difficult to find a common factor in the relatively small group of manuscripts with cloth spine-linings of which the flanges were cut in the joints (or that perhaps never extended beyond the width of the textblock spine). The technical motivation for this practice is not known; why would binders want to cut part of the material that could otherwise be used to strengthen the construction? It is possible that previously, some of these textblocks had a regular construction; if the joints started tearing but the sewing structure remained intact, a binder might have cut away the remnants of the flanges and pasted the intact textblock into a new binding, or into a repaired version of its old binding. The inner joints of these bindings were either finished with extra strips of paper or leather, or they were covered with a paste-down. In the group of cloth linings cut along the joint, I noted a similar large percentage of flapless bindings (47%). However, in these cases, there does not seem to be a strong relationship to the eastern areas of the Middle East and Central Asia.

In four cases, I found a cloth lining cut on the bias; the threads of the fabric are not aligned with the spine but instead, the fabric is cut diagonally to the grain. It is tempting to think that some binders used this method of lining application because it results in stronger joints; the fabric in the joint is less prone to tearing because of the direction of the threads. However, the number of these occurrences is very small, and besides there is one instance, Or. 6292, that clearly indicates a random application of the cloth. This manuscript was lined, after resewing, with two pieces of cloth; the edges overlap in the middle of the spine. The threads of the piece of lining that covers the upper half of the spine are aligned in the common horizontal and vertical direction, while the lower piece was applied on the bias. This suggests an economic usage of scraps of cloth rather than an intentional technical motivation.

On 24 specimens, not including the unsewn manuscripts, there were no linings at all. Of these, 8 are thin manuscripts, up to 1.0 centimetre including boards; this explains the absence of the lining, as well as the absence of endbands on 6 of them. Five others were made with a stabbed sewing and no endbands or an irregular primary endband, in which case the omission of a spine-lining is not surprising either. The group also includes 2 Malay manuscripts which were sewn with a link-stitch on multiple stations and which have a leather covered binding with a flap, but the binding and textblock are not structurally connected, nor do they show traces that they were formerly attached. On one of these bindings, the inside of the leather spine is even covered with the same paper as the doublures. This strongly suggests that the cover was originally made as a wrapper binding, in which case the functionality of a spine-lining is not required.

Finally, there is a remarkable difference between lining types in Southeast Asia and those in the rest of Islamic world. In Southeast Asia, the linings are multi-layered and often so stiff that the spine-folds of the gatherings are hardly accessible. In certain cases, I found a combination of layers of leather, paper, and dluwang. The rigid lining seems to have been used primarily to secure the tiedowns and the shape of the book; only part of the layers were used to strengthen the board attachment.

Endbanding

Patterns

It is evident that the chevron sewing is by far the most frequently used pattern in secondary endband sewing. Usually, the weft thread passes underneath coupled tiedowns; they can be bundled in twos or threes but I also found alternating patterns such as 1-2-1-2. Whatever the exact division, the regularity of the sewing patterns demonstrates that binders did not sew the secondary endbands randomly. I only noted four manuscripts with endbands at the head and tail that differed in colour or pattern; these cases may be the result of later repairs, unforeseen circumstances such as running out of the right colour or simply the inexperience of a novice craftsman.

While the predominant endband type is found throughout the centuries and in all the regions of the Islamic world, it is quite clear that in Southeast Asia specific variants were developed (chart 5). These variants are discernible by several distinctive characteristics, although not all of these features are necessarily found in each endband. The first feature is the fringed sides of the endbands, made from either the endband core or the secondary sewing thread.

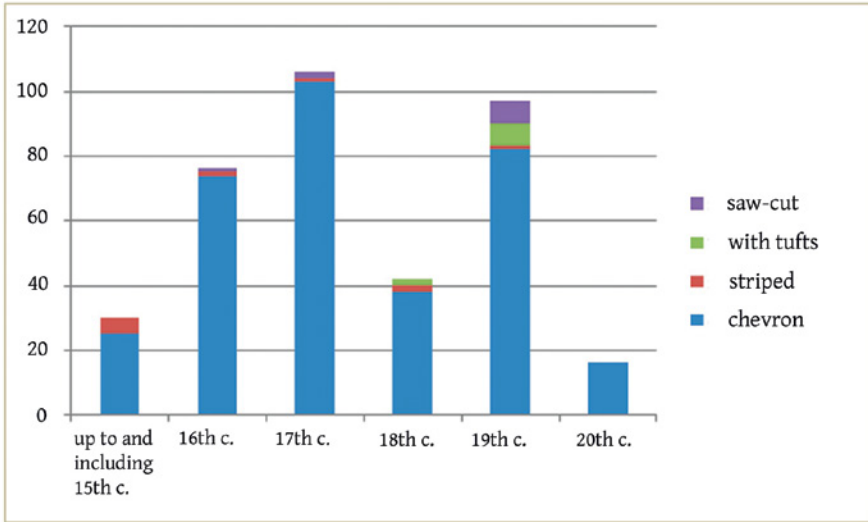


CHART 5 Occurrences of secondary endband patterns on dated manuscripts.

A second characteristic is the way the secondary endband thread may be tied around the base of the endband once or twice, after sewing. Thirdly, the endband core often consists of thread or strips of cloth and sometimes of bamboo-like plant material. Finally, the secondary endband may be sewn with three or even four colours. Perhaps equally important is that none of these features was found on manuscripts originating from other regions, therefore, it seems reasonable to conclude that they are part of the Southeast Asian tradition.²³ As such, they represent valuable characteristics in the material framework.

Some of the manuscripts produced and bound in Yemen have endbands that were made in a different manner as well: the saw-cut endband, which is another noteworthy variant within the group of traditional, chevron-type endbands. The difference is a technical alteration of the primary sewing that rather stands out, therefore, I elaborate on this type is further in the paragraph on saw-cut endbands.

Apart from the chevron type, I distinguished several other secondary endband patterns, which are nevertheless closely linked to the predominant type. The majority of these divergent endbands evidently use the same type of thread for the link-stitch sewing and the primary endband sewing, indicating that these endbands are part of the original manuscript structure. We can

23 See below, images also appear in chapter 2, figs. 115–118.

therefore use information on the date and place of production of these manuscripts, if known, to map the variant patterns. Structurally, these endbands were made in the same way. Technically, the weaving of the variant secondary endband patterns differs only slightly from the chevron. The changes in the pattern resulted from the change in the direction of crossing (that is, interlocking) the two threads after the first row, or because two needles were used and both threads pass under and over the tiedowns.²⁴ The simplest alteration, changing the direction of the interlocking threads every other row (as compared with the chevron) created a vertically striped pattern. The diagonally striped pattern required, in addition, a second needle in order to have both threads move over and under the warp threads alternately. There is a relative high occurrence of these striped patterns in Mamluk times, which corroborates the early literary sources in which different patterns are mentioned. We know the origin of only a few of the manuscripts on which they were made; the earliest original striped pattern is found on a manuscript dated 1369 and according to Weisweiler it originates from Iran, others were made in Egypt or Syria.²⁵ Two of the early specimens display flaws in the pattern: part of the rows consist of inverted sewing, resulting in a few chevron stitches amongst the striped design (figs. 155, 156). It is feasible that similar errors originally led to the development of the variant patterns. Striped endbands were still made in the Middle East in the eighteenth and nineteenth centuries, in Yemen, and also as far away as Southeast Asia. Another variety was created by changing the colour of the active sewing thread with every pair of sewing tours, this caused an alternation in the chevron pattern, that is, it created a chequered pattern (fig. 157). This may be the variant that was referred to in the historic treatise of Bakr al-Ishbili as the 'chessboard-like pattern.'

The eight specimens of the divergent 'basic wound endband type' display a strong resemblance. They were only found on Persian manuscripts, although two of those also contained Arabic text (one of the volumes being a dictionary, the other a *diwan*); one of them is localised in India. Regrettably, the three dated volumes have traces of former sewing, which renders the dates unusable for dating the endbands and bindings. The bindings certainly seem to be related; two of them have exactly the same centre stamp and flanking stamps (Or. 1654, Or. 1672), which seems to point to one and the same workshop. The eight bindings have a full leather covering in common, though the application technique differs: two specimens were made with the two-piece technique,

24 For details about the various methods, including drawings, images and work descriptions, see K. Scheper, 'Endband varieties in the Islamic world' (forthcoming).

25 M. Weisweiler, *Der islamische Bucheinband des Mittelalters* (1962), 181.



FIGURE 155 *Or. 2072 (1404). A diagonally striped endband pattern with mistakes in the sewing tours adjacent to the spine.*



FIGURE 156 *Or. 546 (1224, though resewn). A diagonally striped endband pattern with mistakes in the sewing tours close to the spine leather and in the centre, where part of a chevron pattern is formed.*



FIGURE 157 *Or. n.913 (1630, Syria). A chequered chevron pattern, the red and blue-greenish chevrons alternate every second sewing tour.*

the others are covered in one piece of leather, including the ones decorated with the similar stamps. Does this indicate that a bookbinder used the one and two-piece technique capriciously? Or did two different bookbinders, each with his personal preference for a specific method, work on a set of bindings using similar materials and endbanding technique? This remains speculative, and unfortunately, we do not have further clues as to where or when the work was conducted.

Tiedowns

The Islamic manuscript tradition is characterised by consistency, especially with regard to the function of the endbands. As explained above, bookbinders significantly enhanced the strength of a relatively simple but quick sewing structure in this way. The quality of the whole structure therefore depended on the number of tiedowns in relation to the number of gatherings; as long as the ratio was 1:1 the construction was sound. It is only in the second quarter of the nineteenth century that the application of the primary endband structure started to change. I noted thirteen volumes that were not provided with as many tiedowns per endband as gatherings. The earliest occurrence of this 'careless' primary endband sewing is a manuscript dated 1844, purchased in Yemen; none of the manuscripts is locatable by information provided in the colophon. When these items were studied closely, it appeared that the

tiedowns were applied sparingly, and were also not always sewn in the inner bifolio of the gathering. On the contrary, they seem to have been applied by randomly inserting the needle in the textblock, a practice which could even result in a tiedown positioned between gatherings.

Why did binders disregard a step in the process that had proven itself over so many centuries? Did they no longer realise how crucial the primary endband was for the longevity and strength of the binding structure? It is tempting to account for this development by pointing to the influence of western binders, who started economising on the number of endband anchoring threads from the end of the fifteenth century onwards. However, by this time (the second quarter of the nineteenth century), western binders had economised further and often only applied stuck-on endbands made of cloth. The lack of information on the origin of these volumes prevents us from drawing further conclusions. The three items purchased in Yemen suggest that the decline in technique may have developed in the peripheral parts of the Islamic world. Binders in these regions were perhaps no longer as well-trained than craftsmen in the larger cities. It is possible that when the underlying importance of certain steps in a process has not been learned, those steps are more prone to erosion. Apart from that, the absence of tiedowns centred in the spine-fold is rather logical for the saw-cut endband type (which was found in Yemen, see below). With these items, the thread in the kerf prevents the gatherings from opening well into the gutter, so the binder had no easy way to discern the centre of the gatherings. In these instances, the tiedowns mainly serve as an anchor for the secondary endband sewing.

Endband Cores

As leather was the standard material for endband cores, it is especially interesting to look for trends in the few anomalous materials—parchment, thread and textile strips, and twig-like plant material. The twig cores as well as the textile strips were encountered only on Southeast Asian manuscripts. Though strips of leather were also used in this region, a significant number, more or less one-third, contain the alternative materials. The two manuscripts with parchment endband cores do not seem to share other characteristics. Or. 241 is undated, but probably fifteenth century and Or. 546 is dated 1224, but was re sewn and therefore the endband must be of a later date. Both volumes have a divergent endband pattern, though the endband of Or. 241 is a chequered chevron and Or. 546 has a diagonally striped endband (fig. 158).

While the textile strips on Southeast Asian manuscripts often protrude beyond the secondary endband sewing, so as to form the fringes of these endbands, usually any extension of leather cores were cut once the endband was



FIGURE 158 *Or. 546 (1224, though resewn). The endband core consists of what appears to be a tightly rolled-up piece of parchment.*

finished. There are a few inconsistencies, where the binder appeared to have forgotten to cut these cores. However, some of the later volumes on which extending cores were found suggest a regional variety rather than an unintentional oversight. These manuscripts are provisionally related to Yemen, where they were purchased. The leather cores are rather broad and their extending parts were not only pasted onto the textblocks, but also stabbed so as to attach them with threads as well (fig. 159). Eleven manuscripts were provided with endbands for which cores were never used (fig. 160).

The Saw-cut Endband

At first glance the saw-cut endband appears to be just another chevron sewn endband, albeit a somewhat crude version. When examined closely, however, we can see a saw-cut in the head and tail edge, a few millimetres away from and parallel to the spine. In this incision lays a thread which is in some way fastened on the textblock spine, with or without being pulled through stabbed holes. Of this saw-cut endband type, sixteen specimens were included in the



FIGURE 159 *Or. 25,662 (1920, probably Yemen). An endband with extended core slips, fastened on the textblock with a stabbed sewing.*



FIGURE 160 *Or. 2611 (1767). An endband sewn without a leather core. Instead, the textblock edge was saw-cut and a thread, passing in this incision, functioned as a core to prevent the endband from slipping towards the spine.*

survey.²⁶ Although most of them are dated, only two are actually localised, both in Yemen. Seven others, however, were purchased in Yemen in 1932; this also suggests that they were manufactured in Yemen. The oldest manuscripts in this set were transcribed in the seventeenth century but the current sewing structure is not their original one; the ones without traces of former sewing stations are dated to the late nineteenth or even early twentieth century.²⁷ As for their appearance, some noteworthy similarities between the volumes seem to indicate that the older manuscripts were rebound around the same time as the much younger volumes. All endbands except for one are sewn with a natural-coloured and a red thread. The one purplish specimen is faded to such an extent that it has become difficult to determine its original hue; it may well have been a scarlet red. All these volumes have a slipshod primary endband sewing in common: the tiedowns were not sewn regularly and through the midst of each gathering, rather the tiedowns seem to function primarily as a vehicle for the secondary sewing. Another characteristic they have in common is a rather crude secondary endband sewing. Eleven items have no leather or other endband core, the recessed thread served as the base on which the tiedowns were anchored. In a few cases, this recessed thread seems to be absent. When a leather core was used, its extending ends were attached to the text-block adjacent to the joint, as described above. The fastening of the secondary threads is messy and sometimes the threads seem to be affixed in the joint instead of being attached through the gatherings. The thread is fairly thick and could well be cotton instead of silk, and none of the endbands displays more than four sewing tours.

Absence of Endbands

I found interesting varieties in the endband sewing systems and the use of materials, but the examination of the manuscripts that were made *without* endbands also sheds light on the bookbinding tradition, and more particularly on the considerations of the craftsmen and the decisions they made. Endbands were omitted in a limited group of manuscripts only. These manuscripts are very thin, consisting of one or two gatherings, in which case they were sewn

26 It is noteworthy that this particular feature was encountered on a larger number of manuscripts, however, the structures of these manuscripts were damaged to such an extent that they were excluded from the present study.

27 A recent (June 2017) physical assessment of all Yemeni manuscripts in the UBL collections made clear that some of the older manuscripts *were* sewn with the traditional link-stitch sewing and traditional endbands; for example, Or. 23.261 (dated 1643), Or. 23.270b (Sa'na, 1518), and Or. 23.412 (fourteenth century). The stabbed and saw-cut structure is decidedly a later development.

with a link-stitch on multiple stations, as explained above. The outer sewing stations were then positioned close to the head and tail, eliminating the need for an endband sewing which would have been difficult to produce on these thin volumes. The second group consists of volumes with considerable paper damage that were stabbed, in order to keep the damaged pages together, but not properly repaired. Their condition accounts for the absence of endbands; the former endbands were lost and the paper damage meant that new endband sewing was not possible. The third group without endbands are unsewn manuscripts with connective strips and wrapper bindings; these never had endbands, as endbands are inextricably bound up with the sewing structure.

Covering

Full and Partial Leather

The earliest bindings in the Arabic collection are, without exception, full leather bindings. Unfortunately, though not unexpectedly, repairs to the spines and joints have caused substantial damage to the material evidence of many of these early bindings. The damages themselves, or the repairs subsequently carried out, often impair evidence that might otherwise be found on the spine of full leather bindings and indicate the use of the one-piece or two-piece technique. As a result, in the centuries up to and including the fifteenth century, the category 'full leather, technique not detectable' is larger than either of the other two groups of full leather bindings (chart 6). Over the next centuries, the numbers of items in this category decreases significantly, relative to the number of full leather bindings in the other groups.

The chart also illustrates the lasting importance of leather as a covering material; the number of partial leather bindings never exceeds the total number of full leather bindings. The technique, however, loses ground over the nineteenth century, and I did not find examples from the twentieth century. The partial leather binding appears on the scene in the sixteenth century, but it never becomes the prevalent covering type. In the sixteenth and seventeenth centuries, the predominance of a full leather covering appears in almost similar percentages, 73% and 72% respectively. In the eighteenth century, the partial leather binding gained more popularity; the numbers of full leather bindings make up 58% of the volumes, in relation to 42% of partial leather bindings. From the nineteenth century onward, full leather bindings regain their dominance; 69% of the nineteenth-century bindings and 78% of the twentieth-century bindings in the UBL collections were bound in full leather. These figures contradict the idea that the partial leather bindings with

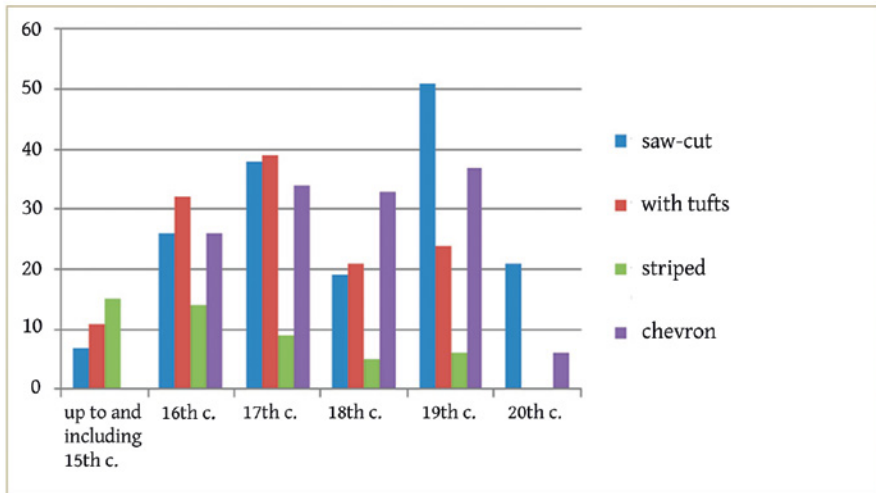


CHART 6 *Comparison of the basic covering types throughout the centuries, resewn and rebound manuscripts excluded.*

paper covered boards increasingly replaced full leather bindings for economic reasons.²⁸ Instead, it seems that the availability of decorated papers presented an alternative covering scheme and their use may represent a shift in fashion, while the over-representation of full leather bindings in peripheral areas may indicate that decorated papers were not available in those regions, and suggest that leather may have been cheaper than decorated papers.

Although I did not include binding decoration and tooling in the present study, it is worthwhile to mention the frequent occurrence of leather onlays, on bindings from various geographic regions (though not Southeast Asia) and from the sixteenth century onwards. This technique was evidently used far more often than suggested by Adam Gacek (fig. 161).²⁹

Full Leather Bindings in One and Two Pieces

The earliest dated occurrence of the two-piece technique is a manuscript cautiously dated 1218 (Or. 122).³⁰ The earliest dated volume covered in one piece of leather is copied in 1321 (Or. 177). Up to the eighteenth century, the numbers

28 This development was suggested by François Déroche, *Islamic codicology* (2006), 266–267.

29 Gacek states that only one example has thus far been recorded; see *Arabic manuscripts: A vademecum* (2009), 171.

30 This date was given by Voorhoeve, but according to Witkam, this cannot be corroborated by the manuscript; see J.J. Witkam, *Inventory* (2007), 1:57.



FIGURE 161 *UBL Acad. 262. An example of a leather onlay in a corner stamp.*

in each group do not differ widely, though the two-piece technique appears to have been somewhat favoured throughout the centuries. Over the course of the nineteenth century, we can detect a change in this preference as the two-piece technique went out of use and from the twentieth century examples of the two-piece technique could not be identified. As noted, the two-piece technique has long been overlooked, or, if it was noticed, scholars in Islamic manuscript studies failed to mention the observation. The authors who finally wrote about it were conservation specialists.³¹ The dates now found for this particular method are significant, as it appears that the technique developed far earlier than first suggested.³²

31 K. Rose, 'Conservation of the Turkish collection at the Chester Beatty Library' (2010), 47–48; K. Scheper, 'Refining the classification of Islamic manuscript structures' (2011), 366–368; J. Benson, 'Satisfying an appetite for books' (2015); this text was presented as a lecture much earlier, at a conference on the codicology of manuscripts in Arabic script in 2010, Madrid.

32 Benson places the first occurrence of the two-piece technique at the end of the fifteenth century: 'Satisfying an appetite for books' (2015), 366; Rose found several examples of the technique on sixteenth-century bindings in the Chester Beatty library and suggested an

As both techniques are found on bindings from Mamluk times onwards, the question is whether these trends are specific to certain regions. The results from the survey in the Leiden collections suggests that in Central Asia and Southeast Asia, the single piece of leather was the prevalent technique. This triggers the question, why was the two-piece technique preferred to the one-piece technique in other parts of the Islamic world? Reflecting on the rationale behind this technique in chapter 2, I suggested that the method seems to be related to the embellishment of the boards. The tooling, and in particular the application of pressure to the boards logically requires a firm surface to work on, and this is not provided by the manuscript itself. Therefore, it seems logical that binders developed a technique which allowed them to work on the boards apart from the textblock. The findings of the survey, however, lead us to consider the technical differences between the earlier tooled bindings—made with small tools containing discrete patterns, applied to create a larger overall design—and the stamped bindings of later times, made with panel stamps much larger in surface. With these stamps, the complete centre piece could be pressed into the leather in one action. The technique using two pieces of leather seems to have originated with the Mamluk binders.³³ Or. 122 is the earliest example present in the UBL. Its covers are indeed finely tooled. Even though the application of the small tools onto the leather surface would not have required heavy pressing, one can imagine that it would be easier to execute the work when the board surface—onto which the tools needed to be applied—was placed directly on a flat surface rather than on a raised level, that is, the book itself. The elaborate designs of these early bindings involved the use of multiple small tools, hours of work, and high concentration. Every means to ease the work would have been welcomed, and thus it is plausible that this led to the development of the two-piece technique, which allowed for the individual tooling of the covers in the most practicable circumstances.

In early Ottoman times, a new type of tool was developed that contained the entire design of a centre piece or a corner piece. In terms of ‘time management,’ this development must have been a major improvement; pressing only a few stamps to create a complete design would have saved considerable time compared to the traditional decoration method in which multiple small tools were used individually and sequentially. However, although the application of the decorative elements could now be executed more quickly, it is quite plausible

Ottoman origin, K. Rose, ‘Conservation of the Turkish collection at the Chester Beatty Library’ (2010), 47.

33 At present, we do not know whether the earlier binding type, the box-binding, ever involved the use of separate pieces of leather to cover both boards. However, we do know that wooden boards were used, and these, by nature, provide a firmer surface for leather decoration.

that binders maintained the working routine they were used to and prepared the boards off the textblock. This is especially true since the larger stamps also needed considerably more pressure in order to leave a proper imprint in the covering leather. To achieve a good result, a firm work surface was required, so working with two separate pieces of leather was still advantageous. We may assume that craftsmen continued to use a working system, as long as it was opportune to do so, and bookbinders had no reason to change the practice of the two-piece technique when their decoration techniques developed and tooling gave way to stamping. Moreover, as the technique was practicable in general, it also continued to be used in times when an increasing number of modestly tooled or even plain bindings were produced. This explains the predominance of the two-piece technique over the covering method using only one piece of leather. The continuous use of the technique, throughout the manuscript period, therefore does not provide clues to locate or date a binding.

It is important to note that so far, to my knowledge, this two-piece technique has not been reported to have been used on leather bindings from other traditions, either in the Orient or in the western world. Some caution is needed, however, for even the two-piece technique widely used in Islamic bindings has only recently been recognised and described in the literature, so it is conceivable that the method may have been used in other traditions, but has likewise been overlooked or ignored. Based on our information to date, however, it seems that this technique is typical for Islamic bookbindings, and as such, it is an important characteristic, and rightfully deserves to be recorded when a binding is described in a catalogue entry or condition report.

Composite Leather Bindings

The intriguing full leather bindings, composed of several pieces of leather and sometimes executed with turn-out doublures, were described technically in chapter 4. Although we only have a few examples, the remarkable techniques used to make these bindings are well worth further examination (The examples we have are Or. 1570, Or. 8261, Or. 11.050, Or. 11.052, and Or. 14.366).³⁴

One of them, Or. 1570, is a *diwan* written in Persian and dated 1560. The spine-folds of the gatherings have been repaired so the manuscript was re sewn, therefore, we can deduce that the binding is not contemporary (figs. 165–168). It has turn-out doublures: the leather doublures fully cover the

34 Or. 1570 is dated 1560, the manuscript was re sewn before 1840 when it was purchased by the library. Or. 8261 is not dated. Or. 11.050 probably dates from the late nineteenth century. Or. 11.052 is dated 1768, and Or. 14.366 is dated 1806. These manuscripts are all luxurious copies, with illuminated opening pages and golden frame-lines throughout the textblock; thus, the richly decorated bindings accord with the textblocks.

inside of the boards and were subsequently folded over the board edges onto the exterior of the binding. Thus, the turn-outs cover the edges of the boards. The exterior surface of the boards is also covered with leather, and the fore-edge flap is covered with a separate piece of leather. In addition to these multiple pieces of leather, we can also recognise a two-piece technique on the spine. The exceptional and complex nature of this composition makes one wonder if the doublures in question may be reused reversed leather covers. After all, the doublures were not attached to the textblock with a stub: the leather appears to disappear behind the textblock spine. However, after closer inspection, it seems safe to conclude that these leather doublures were never used as the exterior of a bookbinding. The black-greenish doublure leather has no tooling and is only sparsely decorated with two frame lines painted with silver close to the edge, a modest decoration quite typical for Ottoman leather doublures. Furthermore, there is no trace of abrasion or other sign of use, which would have been apparent if the boards had been used as the outer covers of a manuscript. Nevertheless, the leather is not the primary spine-lining; a layer of blue cloth through which the primary endbands are sewn is clearly visible. The sides of this cloth lining do not extend and therefore they do not have a function in the (present) board attachment. We cannot ascertain whether the tiedowns were also sewn through the leather lining—continuing into the doublures. The turn-outs do not overlap the leather panels on the outside of the boards, nor vice versa; the parts neatly adjoin each other. This is one of the most noteworthy aspects of this type of covering, since we usually find pieces of leather overlapping. In this case, the binder intentionally cut the different parts of leather exactly to size so that they abut, but do not overlap.

Among the manuscripts that were excluded from the survey, I encountered a comparable binding. This specimen, Or. 8350, is in poor condition and was meddled with to such an extent that there is some question as to whether the connection between the textblock and binding is original; the spine is too wide, there is an older cloth lining, the textblock now has a stabbed sewing though it was formerly sewn in the spine-folds, and the inner joints are tattered and repaired.³⁵ Nevertheless, due to its poor condition, this binding offers some interesting clues. The leather doublure is olive green, although the turn-outs appear to be a dull brown, a discolouration caused by light. The spine and fore-edge flap covering consist of the same leather, whereas the panels on the outer surface of the boards are red leather (figs. 162–164). On the front and back cover the original intensity of the colour is barely discernible, as dirt and discolouration have turned the red into a colour not much different from the edges and

35 Or. 8350 is an undated manuscript from the collection of Paul Herzsohn (1842–1931).



FIGURE 162 *Or. 8350. A binding with turned-out doublures. The back cover and flap display the discolouration of the leather: the edges and fore-edge flap covering were green, the panels red.*



FIGURE 163 *Or. 8350. Detail of the fore-edge flap at the spine. The separate strip of leather covering the fore-edge flap overlaps the green edges of the boards (which are the turn-outs of the doublure).*



FIGURE 164 *Or. 8350. Detail of the flap, showing the cut line between the red leather and the green leather edges.*

the spine. The flap, however, which was protected from light and dirt, bears witness to the contrasting colours. In addition, because the tooling and gold painting along the borders of the envelope flap are better preserved, this part of the binding also offers a glimpse of the binding's former splendour. But why did the binder choose to make it with such a complicated and rare technique as turned-out doublures? Closer examination of the damaged edges of the covers may answer this question. In a few places, underneath the fragmentary brown turned-out edges, we find a bright red leather. This is also cut, and adjoins the centre panel, and in it we see the same impression of the small dotted tool, but no gold paint. Initially, I thought that this may indicate that the edges were formerly covered with separate strips of red leather, almost the same colour as the leather panels, but then realised that it is the knife cut between the panel and edges that is causing the confusion and giving the impression that the red strips on the edges are separate from the red panels. But at the same time this knife cut may provide the answer to this construction. It seems that at one time the boards of this binding were covered in the splendid red leather. However, wear and tear damaged the edges of the covers and quite possibly also the board attachment. When repair could no longer be postponed, a binder decided to reuse every bit of the original that could be salvaged. The cloth lining was kept, although the flanges were cut off (if they were not already torn

off along the inner joint), and the covers, with their old red leather covering, were used in the new composition. For board attachment *and* covering of the tattered board edges, the binder applied a new—olive green—leather lining to the textblock spine; this leather lining was wide enough that it covered not only the interior of the boards, but also the damaged edges. Then, after turning this green doublure leather around the board edges and over the red leather, a ruler and a sharp knife were used to cut the excess green leather approximately one centimetre from the board edge. Thus, a straight line was created which allowed the binder to take away the excess green leather on the panel side of the cut line, leaving a neat green leather frame around a red panel. There was no need to scrape away the excess red leather now underneath the green edges, for it was not visible and did not show as it was not bulky. To further disguise the intervention, the binder tooled a border of small dots in the newly applied leather edge and painted it gold; the binding must have looked like new.

Although Or. 1570 is in much better condition and offers no direct clues for the theory that the turn-out doublures might indicate an interventive repair, at least one similarity catches the eye: the cut flanges of the cloth lining. Also, the resemblance between the contrasting shades of leather and the pattern of the tooled border is intriguing, even if it is not conclusive evidence of repair. But looking at these borders it is strange that the shade of gold used to paint the little dots is so different from the gold used for the almond-shaped stamp in the centre (fig. 167). As if to disguise the difference, the divergent gold paint was also applied in a thin line around the centre piece; in fact, this is an awkward use of decoration that was crudely executed. The gold paint could have been used to mask the time difference between the two separate binding processes. Further detective work revealed one other small detail that corroborates this theory. The small stamp at the point of the envelope flap is so close to the edge that the green leather borders had to be adjusted in order not to interfere with this part of the decoration (fig. 168). In the logical order of events, this would not have been necessary, because, if the turn-out borders were originally part of this binding, they would have covered the edges before the binder applied the decorative shapes. In that case, he would have positioned the stamp farther to the left so that it did not interfere with the coloured leather edge, or he would have mistakenly applied the stamp so that part of it overlapped onto the green leather, with the result that part of the recessed stamp on the right side would have a different colour than the rest. Since neither is the case, and conversely, the shape of the leather turn-outs was adjusted to the position of the stamp, we can speculate that the stamp was there first and the edges applied later. This certainly supports the repair theory.



FIGURE 165 *Or. 1570. A composite leather binding with turned-out doublures.*



FIGURE 166 *Or. 1570. Detail of the fore-edge flap. The edges of the separate pieces of leather are visible on the board-panel side of the gold tooled and dotted line. The differences in the texture of these pieces of leather is also noteworthy.*

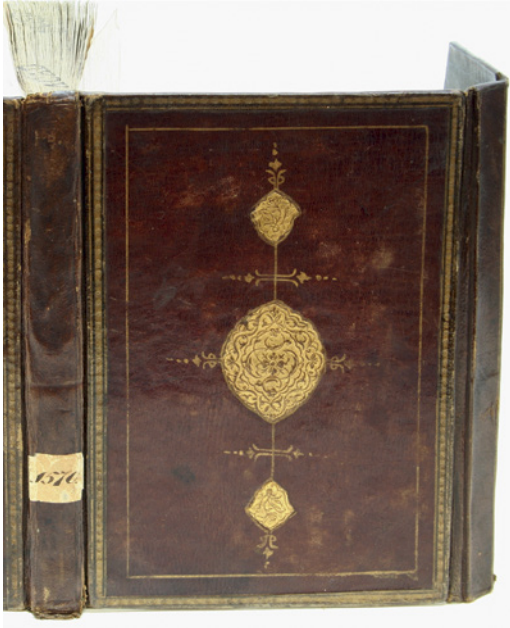


FIGURE 167 *Or. 1570. The back cover. The gold of the central stamp and flanking stamps is of a different colour than the gold that was used to decorate the dotted frame lines and the painted lines around and between the stamps.*



FIGURE 168 *Or. 1570. Detail of the envelope flap; the edge of the turned-out leather doublure is cut to fit the small stamp in the point.*

The only other binding in the selection with a similarly worked leather doublure is Or. 8261, an undated composite volume (figs. 169, 170). However, the method to make this binding was quite different. After sewing, the textblock spine was covered with a caramel-coloured leather, extending on both sides so as to cover the textblock fully. Remarkably enough, this leather was adhered on the flesh side, contrary to the usual way of lining the spine with leather. Subsequently, as a result of the reversed application of the leather lining, the red leather doublures were applied flesh side to flesh side. In addition, these sheets of red leather were larger than the textblock and their protruding parts were turned-out over the edges of the caramel-coloured leather which was cut flush with the textblock. Finally, a piece of leather of the same colour and structure as the doublures was used to cover the spine, which meant that this part was adhered with its flesh side onto the hair side of the underlying piece of caramel-coloured leather. The sides of this red leather on the spine were neatly cut just beyond the outer joint. Thus, a border of red leather was formed to frame the brown board panels. The covers, in this specimen, contain no cores and consist of the caramel-coloured leather and the red doublures only.

We can only speculate as to the rationale behind the making of the turned-out doublures. Working with extending doublures seems a revolutionary way of covering board edges, which in a way is a reverse approach to the binding process. Indeed, in more typical bindings, the application of the doublure is one of the last steps in the process, it is done when the textblock is already attached to the covers and the leather exterior covering is in place. With this novel approach, the doublures must be applied before the exterior board covering is finished. Apart from differing from the common procedure, it seems to have been more complicated, and as an innovation it appears not to have been successful, given the numbers of replication.

It is easier to comprehend the making of the composite leather bindings which have regular (that is, not turned-out) doublures or paste-downs. The colour differences between the leather on the edges and the leather in the centre of the panels support the visual effect of the decorative scheme of frame lines and centre pieces, while the application method is only a variant of the well-known and much used covering scheme, the *çaharkuşe* method. All three examples in the selection originate from the eighteenth and nineteenth centuries. Of these, Or. 14.366 is most remarkable as it is a very elaborately tooled binding, dated 1806 and probably written and bound in Istanbul.³⁶ Different colours of leather were used to enhance the beauty of the decoration; one

36 Legacy of C. van Arendonk (d. 1946); the volume consists of two texts in the hand of one copyist, see: J.J. Witkam, *Inventory* (2007), 15:166–167.

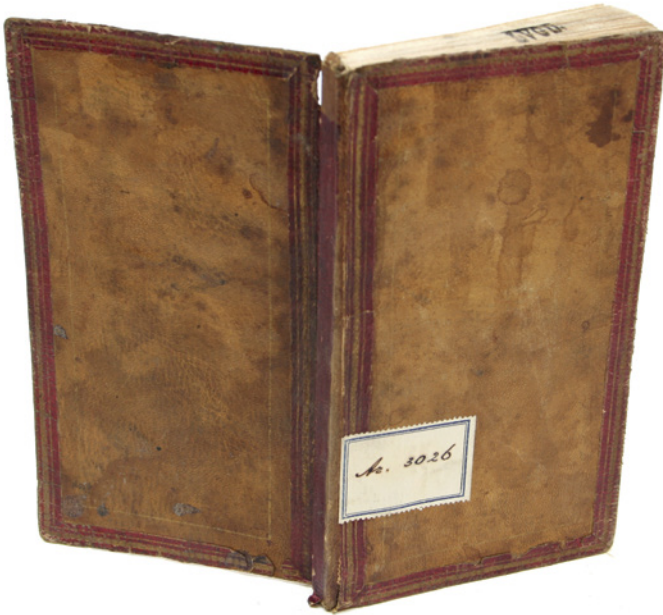


FIGURE 169 *Or. 826i. A composite leather binding with turned-out doublures.*



FIGURE 170 *Or. 826i. The doublure of the back cover; the edges of this leather are turned-out to cover the edges of the exterior.*



FIGURE 171 *Or. 14.366 (1806, probably Istanbul). A composite leather binding with yekşah technique.*

colour was used along the edges of the covers and also for the central medallion, which was tooled on a leather onlay. The burnishing and etching of gold tooled patterns is called *yekşah* in Turkish (figs. 171, 172). Other known *yekşah* bindings were made from the seventeenth to nineteenth century and it appears to be a practice typical of the Turkish bookbinding tradition.³⁷

37 This decorative technique has not been researched in depth, but lately a small collection of endowment deeds bound in *yekşah* bindings was studied by Paul Hepworth, 'Changing the will: Illuminated endowment deeds of Ottoman royal women' (2014), 309–318; and: 'Yekşah tooling: A technique not an identity' (2018). An example was also published by Z. Tanındı, 'The Ottoman palace workshop' (1990–1991), 97.



FIGURE 172 *Or. 14.366 (1806). Detail of the yekşah technique.*

The relatively recent development of these composite leather bindings—given the much older but comparable çaharkuşe covering technique—and the occurrence of this composite technique on repaired bindings suggest that it may have been used, initially at least, as a repair technique. Mending the damaged edges of full leather bindings with contrasting strips of leather was an economical and aesthetically pleasing method of reusing most of the older material. In later centuries, this may have transitioned into an original binding technique in order to produce aesthetically pleasing, luxurious volumes.

Limp Leather Bindings

Although the soft, flexible, wrapper-like leather bindings seem almost an anomaly in the group of full leather bindings, these occurred often enough to form a small subcategory. The limp leather bindings are made without boards, and often even without a doublure or any other lining on the inside. Most limp bindings in the corpus do not have a fore-edge and envelope flap, they often lack turn-ins and have very little decoration. On the other hand, they are properly constructed: they are sewn, lined, and provided with an endband as with any other Islamic manuscript. Despite the shared characteristics, I identified several sets of limp leather bindings likely made by a single bookbinder.

The earliest true limp leather binding is dated 1620, though no location was given in the colophon; the latest example is a manuscript which is dated 1779, again no origin was given. The oldest dated manuscript belongs to a set of six bindings with several striking similarities. The most important of these is the type of thick leather, possibly camel hide, which was used—it has a pronounced grain pattern and is soft and firm.³⁸ All of these leather covers were cut flush with the textblocks on all sides, so that the bindings do not have flaps. With the exception of the largest volume, none of the leather was decorated; the largest one has a blind stamp in the centre of the covers, vertically flanked by blind tooled lines. The spines of the manuscripts were all lined with leather, the flanges of which were pasted onto the inside of the leather binding, but prior to this the endbands were sewn with thin coloured silk. Two volumes in this set are manuscripts from the fifteenth century, but they were resealed and the present limp cover is not the original binding. One other manuscript can be dated to the first half of the seventeenth century, as the author of the text was a contemporary of Levinus Warner. As the other undated volumes were also in Warner's possession they can be dated roughly to the first half of the seventeenth century as well, or at least before 1665. The physical evidence thus points to a set of manuscripts bound on commission by a single bookbinder. The similarity of the hands used to write the title on the tail edge of four of these manuscripts confirms the suggestion that they derive from one owner (figs. 173, 174).

One wonders who wanted such thick, almost wrapper-like leather covers for his manuscripts. Who ordered them, with what aim? The texts cover diverse topics, for example a treatise on horsemanship and cavalry, a linguistic work,

38 Or. 465, Or. 685 (1620), Or. 752 (author d. 1644), Or. 835 (before 1634), Or. 968 (1451, but resealed so the limp binding appears of later date), and Or. 1652. The latter was not in Warner's collection, but purchased in 1860, from the library of Dirk Cornelis van Voorst and his son Jan Jacob van Voorst.



FIGURE 173 *Or. 465, Or. 685 (1620), Or. 752, Or. 835 (before 1634), Or. 968 (1451, but resewn) and Or. 1652. A selection of similar limp leather bindings.*



FIGURE 174 *The tail edges of the same selection.*

a composite religious volume, a work on family names, and a biography. It seems they belonged to someone who spent money to build his own personal library but who chose to have the texts put into simple, relatively cheap but functional and durable bindings. These books were intended for use, they were not meant to impress by their beauty. A few other sets of such bindings were encountered, which can be traced to different periods and binders, according to their physical characteristics and provenance information (figs. 175–177).³⁹ Apparently, bookbinders offered this low-budget option to their customers as an alternative to more costly bindings with boards, more elaborate tooling, and doublures. How widespread this practice was we do not know; much of the physical evidence may have been lost over the ages, as the limp bindings may have been discarded in later times.

A closely related category of bindings concerns manuscripts that appear to have been written in already bound volumes: these blank bookblocks must have been sold as a kind of stationery binding. Within this group, we find *safina*, or oblong-shaped manuscripts (fig. 178).⁴⁰ Often they are not regular textbooks, instead, these books were intended to be used for personal notes or to assemble a personal collection of poems or songs.⁴¹ Several of the *safina* in the UBL collection contain gatherings without text, which is another indication that the book was bound before the text was written. In addition to these small oblong-shaped manuscripts, it seems that blank volumes were also sold in a vertical format. Or. 945, a composite volume with medical and other texts, in Persian and Arabic (dated 1566), is an example of such a binding. The dark green leather covering is modestly but delicately gold tooled and the doublures consist of thin, red leather; the binding has no envelope flap. The textblock, consisting of quinions, contains several empty pages. It is especially remarkable that the first eight folia are blank, and that between the foliated pages f. 39

39 These are Or. 1506 (1664), an individual acquisition made in 1839, and Or. 1548 (1692–3), from the Testa collection. See J. Schmidt, *Catalogue of Turkish manuscripts* (2002), 2:80–81; the manuscripts are bound in similar limp leather bindings made of sheep skin, with tabbed spines. Two other manuscripts, Or. 6866 and Or. 11.037, also display remarkable similarities. They are covered in black goat leather, with the edges turned-in, directly onto the flesh side of the leather. The latter two bindings were quite elaborately tooled, and the manuscripts have a similar owner's label. Although the manuscripts arrived at the UBL in different times from different antiquarian booksellers, they seem to have been bound in affordable user's bindings by the commission of the same owner, probably in India in the late eighteenth century.

40 See also the paragraph on size and format below.

41 The personal character of the contents of these books is evident from the descriptions in the catalogues, see for example J. Schmidt, *Catalogue of Turkish manuscripts* (2000), Or. 1088 (1:393–396), Or. 1090 (1:398–409), Or. 1096 (1:410–412).



FIGURE 175 *Or. 1506 (1664) and Or. 1548 (1692-3). Limp leather bindings made with tabbed spines.*



FIGURE 176 *Or. 6866 and Or. n.037. Decorated limp leather bindings with turn-ins.*



FIGURE 177 Or. n.037 (1779). The inside of a limp leather binding, the turn-ins were adhered directly onto the flesh side of the leather, but doublures were never applied.



FIGURE 178 Or. 1097. A safina manuscript; the binding is a limp leather binding (there are no boards) but the interior is covered with coloured paper doublures.

and f. 51 a complete blank gathering is found. This surely indicates that this manuscript was written after binding, since it is not likely that a bookbinder included an empty gathering and surplus bifolios at the beginning of a text. In other words, the volume was traded as a blank miscellany.⁴²

The degree of tooling and finishing and the overall aesthetic quality of these flexible leather bindings varies. Technically, these notebooks were sewn, lined, and provided with endbands that conform to the usual methods. Yet, their modest leather bindings perhaps made them economically attractive in a middle-class milieu.

Partial Leather Bindings: The çaharkuşe Binding

At present, we do not know when the partial leather binding was introduced. In this study, all the early manuscripts, dating from the fourteenth and fifteenth centuries, which have a partial leather binding appear to have been rebound. As a consequence, original çaharkuşe bindings appear only on manuscripts from the sixteenth century onward; the earliest is dated 1513 (Or. 781); it is an exemplar without leather strips on its horizontal edges, and its boards covered in plain dyed paper. Partial leather bindings occur regularly well into the nineteenth century, and three specimens even date from the twentieth century. Relatively few volumes have colophons mentioning the place of origin, but those that do come from Istanbul and other places in Turkey, Jerusalem, Damascus, Turkmenistan, and Bukhara (in present day Uzbekistan). The three most recent partial leather bindings were purchased in Yemen. It is noteworthy that this binding type is not found in Southeast Asia.

The appearance of the items in this category varies greatly, though it appears that the paper used to cover the boards was always dyed or decorated with a marbling, block-printing or other decorative technique; I did not encounter plain, uncoloured papers.⁴³ The first çaharkuşe bindings belong to the Ottoman realm. These sixteenth- and seventeenth-century partial leather bindings were frequently covered in beautiful marbled papers. In Central Asia, the partial leather bindings are commonly covered in monochrome dyed paper, such as olive greens and mustard colours. These paper coverings are usually highly polished and may have been treated with a protective layer of shellac or

42 The term “blank miscellany” is used by Meredith Quinn, in her study on books and their readers in seventeenth-century Istanbul. The development of a trade in blank books is corroborated by references to “*beyaz mecmua*” (blank miscellanies) Quinn found in four individual, probate court inventories from Istanbul. The blank miscellanies were listed among the possessions of the deceased; the inventories date from 1661 and 1668. (Personal communication and email dated 25 August 2014.).

43 The codicological value of the different types of decorated paper is elaborated on below.

similar material. Often, the almond shaped centre-pieces and flanking stamps were combined with thin leather or paper overlays in contrasting colours; the bindings were made with care and precision. The partial leather bindings from the Arabian Peninsula and Yemen are quite different in appearance. Although comparable in type—leather spine and edges, paper covering, decorated with a central motif—the manner in which these bindings were crafted and the materials used are rather different. The leather is much coarser in texture and also thicker, neither the leather spine nor the leather on the fore-edge flap or board edges seems to be pared. The paper covering the boards is not polished, and has an open, fibrous texture. Furthermore, the decorative paper elements are crudely cut and pasted on the boards. All dated examples were made in the late eighteenth or nineteenth century.

In regard to these bindings, first, there is the question of economising: was this type of binding initially developed to cut the costs of material or labour? If that were true, one would expect to find plain bindings without tooling, and a minimal use of leather combined with the inexpensive types of paper. Although such bindings do exist, a large number of bindings do not indicate that the binders made these partial leather book types because expensive materials were scarce, nor that they were avoiding the use of expensive materials or cutting the costs of labour. The large majority of *çaharkuşe* bindings are covered with decorated paper instead of ‘plain’ paper. And even those are not ordinary papers; they are always tinted or dyed, and often polished.

Although it is impossible to date many *çaharkuşe* bindings because they are not contemporary with the manuscript, there are some from the sixteenth century with marbled paper, sometimes used in combination with additional decoration techniques such as tooling and leather onlays that are contemporary with the manuscript. This indicates that the partial leather covering scheme was not developed just for economic purposes. However, it is not unlikely that the type gradually developed into a cheaper alternative to full leather bindings. Therefore, it is interesting to look at the partial leather bindings without leather on the fore-edge of their envelope flaps, as these bindings represent the less expensive variant of the partial leather bindings. It appears that even in this sub-category, we find substantially more marbled than plain papers; 62% versus 36% plain paper coverings.⁴⁴ This, at least, shows that although cost-efficiency may have been important, the aesthetic appearance of the books dictated some kind of elaboration. However, it is noteworthy that very little tooling is found with these partial leather bindings; this extra bit of elaboration seems to have been reserved for the *çaharkuşe* bindings in which all edges

44 By comparison, the full *çaharkuşe* bindings have a ratio of marbled to plain paper of 55:35, the use of marbled paper is higher rather than lower.



FIGURE 179 Or. 197. A partial leather binding, made with labour-intensive techniques such as tooling around the edges and a decorated cut edge of the paper covering. The leather inner joints also have nicely decorated cut edges.

were covered in leather. Or. 197 is an example of a partial leather binding that we can assume was not made merely for economic reasons. The leather around the edges is broad and nicely tooled, and the inner joints have decorated cut edges (fig. 179). There may have been some economising on materials, such as the omission of a leather strip on the front edge of the envelope flap, and the use of plain papers for the doublures; still, this binding was made in a relatively labour intensive way.

Another feature worth further examination was the occurrence of 25 çaharkuşe bindings with a two-piece technique on the spine. The use of this technique is intriguing, as there seems to be no need to prepare these often undecorated boards individually and separately from the textblock, and the application of such small strips of leather on the board edges seems impractical (fig. 180). Initially, one might hypothesise that this technique was used rather routinely, after the fashion of the full leather bindings, and only shortly after the introduction of the partial leather technique, when the two-piece technique was still embedded in the daily working practice. However, the physical evidence proves otherwise. Partial leather bindings made with two pieces of leather on the spine were found throughout the centuries; in the group of



FIGURE 180 *Or. 25.723 (1788). A partial leather binding, made with two pieces of leather on the spine.*

unrepaired volumes, I found five manuscripts from the seventeenth century, two from the eighteenth, and three from the nineteenth century. From my model-making practice I learned that the use of the two strips is in fact not impractical at all, since the boards are positioned on the textblock before these separate strips are applied, one by one.

Partial Leather Bindings: Lacquer Bindings

Lacquer bindings are known to have been made from the end of the fifteenth century onwards.⁴⁵ In *Lacquer of the Islamic lands*, the term “bookbinder’s lacquer” is introduced. The term is used for both lacquered bindings as well as other items such as pen cases, mirror and spectacle cases, and other caskets, as these boxes shared the same material basis as the bindings: sheets of paper pasted one on the other. The outer layer of these sheets was decorated with

45 See N.D. Khalili, B.W. Robinson, and T. Stanley, *Lacquer of the Islamic lands* (1996), 12.

paintings and then lavishly varnished. Throughout this publication, this type of paste-paper is referred to as “papier-mâché.” Although the term indicates a material consisting of either sheets of paper or paper pulp bound with an adhesive, it is strongly associated with mashed paper, pressed into a certain shape. Therefore, in those instances in which the boards are evidently made of paste-paper, the term papier-mâché is best avoided.

In the publications on lacquer bindings, the technique of board attachment is never discussed. This is remarkable since these bindings consist of paper-painted boards and a leather spine, as well as a leather fore-edge flap (provided a flap was made), while the envelope flap, when present, is again made of pasteboard decorated with paints and lacquer. Considering this compilation of materials, the bindings could have been denoted as “quarter-leather bindings,” in line with the unfortunate use of the term for çaharkuşe bindings that lack strips of leather on the horizontal board edges. Instead, the structural composition of these manuscripts is ignored altogether when the bindings are described. Apparently, the artistic and decorative quality of lacquer bindings completely overshadows any discussion of the material and technical characteristics of these bindings. The seven specimens in my research corpus confirm that, in order to attach the lacquer boards to the textblock spine, individual pieces of leather were used; each was applied to a board edge along the joint, with the pared extensions overlapping on the spine, as with the common two-piece technique. It is difficult to discern precisely how these strips of leather are connected to the boards; at least the strips were not adhered *onto* the lacquer layer.⁴⁶ The leather rather seems to blend into the lacquer or paint layers, from which I deduce that one long edge of the leather was adhered onto the board, possibly after the application of the first layer of gesso ground. Without microscopic research of the layered materials it is not discernible whether the edge of the thinned leather adhered onto the board was also covered with a thin layer of gesso, or if it was merely painted together with the base layer of paint. Nevertheless, from close visual inspection we can determine that the pieces of leather were fixed to the pasteboards before the paint and lacquer layers were applied or perhaps the leather was applied onto a first layer of gesso.⁴⁷ Thus, the individual boards were already prepared for the textblock attachment while they were being constructed. It is reasonable to assume that the two-piece technique was used to enable the artist, responsible for the painting, to work on the covers separately. And unlike working with a single piece of

46 I did find some examples of leather spines with edges that lay on top of the lacquer boards, but these were repaired spines and are not included in the corpus.

47 I did not find any indication that the leather was inserted in the boards, between layers of the paste-paper.

leather, potential difficulties with regard to the thickness of the textblock and width of the spine leather could be avoided this way. The rationale behind the use of this method is consistent with the regular two-piece technique.

Instead of being covered with doublures, the inner covers of lacquer bindings were often painted as well, though this painted surface was not covered with as many layers of varnish as the exterior. This method of decoration influenced the structure of the inner joints. Indeed, if the flanges of the lining had been adhered onto the insides of the boards, they would have covered part of the painted surface. The examined specimens attest to the use of cloth spine-linings, however, any fabric exceeding the width of the spine was cut along the joint. As a result, the attachment of the boards was not strengthened by the flanges. Instead, the inner joints were not covered at all, or a separate, small strip of paper or leather was pasted over the joint. It seems likely that these strips were later additions; the board attachment, consisting only of the leather outer joint, was relatively fragile and these inner hinges were added to support the board attachment and prevent the joints from tearing.

Partial Leather Bindings: The Paper Binding

While the lacquered boards were attached to the textblock with separate pieces of leather, the last group of nine partial leather bindings have a leather spine made with only one piece of leather. These are simple and certainly cheap bindings with paper covers. But even here, the paper is not of the plainest type; eight of the nine are marbled and on one volume block-stamped paper is used. Technically, the difference in structure, as opposed to the partial leather bindings with lacquer boards which were made with two pieces of leather, makes perfect sense. These bindings were made in the quickest possible manner, with a strip of leather over the spine-lining and onto the edges of the thin boards; then the decorated paper was pasted on top of the leather edges and boards.

Relation to Content

There appears to be one text that has a consistent type of covering, and that is the Qur'an. The corpus contains 28 Qur'anic manuscripts. Many are complete volumes, some of them are sets of two volumes, and included are also volumes with a few selections of Qur'anic suras, and *Juz'*. In 26 instances, the manuscripts are bound in full leather and two complete volumes were bound with lacquer boards and leather spines. From these findings it seems that the partial leather binding type with paper covering the boards was considered to be inappropriate for Qur'anic manuscripts. Manuscripts containing Qur'anic texts combined with prayers, reading instructions, didactic stories based on the Qur'an or treatises on the art of Qur'anic recitation display a wider variety

of binding types. Although full leather bindings appear to have been the preferred choice, several of these manuscripts have a partial leather binding with leather edges and paper panels covering the boards.

Boards

Usually, the boards were made of paste-paper and when the core material is accessible, it appears that often discarded paper was used. Quite a large group of about 50 manuscripts have bindings with extremely thin boards, a practice that started at least in the early sixteenth century and was common in the seventeenth century. These bindings were modestly decorated, mostly covered in red or black leather, blind stamped, and often with doublures of fine marbled papers. The textblocks and endbands were neatly sewn, often with remarkably thin silk thread, and though many of these bindings were made without a flap, their appearance is entirely in keeping with Ottoman bindings (fig. 181). The few bindings in this set with leather doublures instead of paper have a soft, tactile quality; they appear to be personal notebooks, and the occurrence of blank pages within the textblock suggests that these bound volumes were sold as blank books; see the paragraph above on limp leather bindings. The early bindings with very thin boards often cannot be located; some of the colophons mention the Crimea or Dagestan, Macedonia, and Palestine.

The use of thick boards seems easier to pinpoint. Most occurrences are related to Central Asia. Alternative materials are found in Southeast Asia. Instead of paste-paper, thick leather boards were used rather frequently, from at least the eighteenth century onwards. These leather boards can be quite stiff.⁴⁸ Another remarkable variant material consists of boards made of rattan or bamboo (fig. 182). These long strips of plant material were woven into a sheet which was then used as boards (see fig. 81 in chapter 2). When these are not visible because of damage, the woven structure is recognisable underneath the endleaf material. In every instance, the direction of the woven strips appeared to be at a 45-degree angle in relation to the width and height of the boards.

Boards were flush with the textblocks until well into the eighteenth century. The introduction of square boards appears to be a western influence; we

48 For example, the binding of Or. 2149 has leather boards covered with leather, with a flap. The fore-edge flap in this structure is so rigid that it is difficult to understand how this strip of leather, 27.5 by 3 cm, became that stiff. Since the impregnated dluwang lining is split in the joints, it is possible to see the edges of the leather cores. The leather is or has become very dark brown. Perhaps these pieces of leather, functioning as cores in the cover, were also impregnated with an agent similar to the one used for treating the interiors of many of these bindings—such as persimmon juice; this may explain the congealing of the material.



FIGURE 181 *Or. 873 - without flap—and Or. 827 (1639)—with a flap. Examples of bindings with very thin boards.*



FIGURE 182 *Or. 2149 (before 1874, Southeast Asia). Because of the damaged leather covering, the leather board is displayed.*

do not know what may have motivated binders to start using these extending boards. Square boards are found in Southeast Asia, sometimes combined with a supported sewing structure which may also be related to European influence. They were also found on a late lacquered binding from the Indian subcontinent, and further west, in Turkey and the Maghrib. More than half of the manuscripts with boards extending beyond the textblock edges never had a flap.

Spine-endings

Tabbed Spines

The technique of cutting the covering leather at the joint position in order to make the turn-ins over the board edges, which resulted in tabbed spine-ends, was used in all parts of the Islamic world and throughout the manuscript period. The earliest preserved examples date from the fourteenth, perhaps late thirteenth century and were made in Egypt or Syria. The most recent specimens are found on manuscripts from the first quarter of the twentieth century from Yemen and North Africa (the latter being Berber manuscripts). These were made on bindings with all types of coverings: 46% of the partial leather bindings still have them, as do 47% of the full leather bindings made in one piece, and 53% of the full leather bindings made with the two-piece technique. The occurrence of remarkable long tabs on manuscripts from Central Asia points to a possible regional interpretation of this feature (fig. 183). The already mentioned fringed tabs from Xinjiang are an example of the same development. It seems that these region-specific characteristics developed quite freely in peripheral areas. Tabbed bindings are rare in Southeast Asia; I only found five specimens in the survey. Three are believed to originate from Java; two are described more precisely as originating in Banten, Northwest Java; and one was copied in Palembang, South Sumatra, which hints at the use of tabs in a rather limited area of the Southeast Asian region. Three of these manuscripts were written, and presumably bound, in the second half of the eighteenth century, the other two are undated.

A few full leather, tabbed bindings have a thread tied lengthwise around the spine. A few others display traces of the former presence of such a thread. Together, they form a small cluster of associated bindings. Not all of the examples were included in the database and as some of these bindings are not contemporary with their content, the group can only be presented with great caution. These bindings seem to reflect a nineteenth-century development that occurred in a peripheral region; perhaps in an attempt to secure endbands or bindings on manuscripts that were not in a sound condition, and

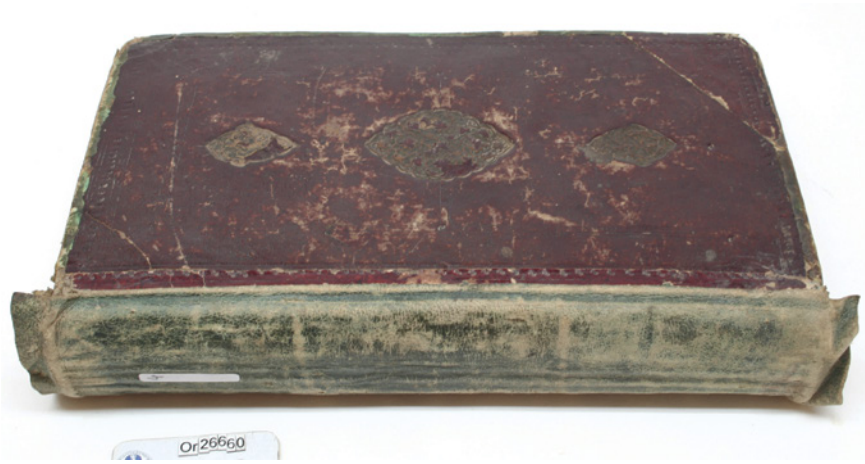


FIGURE 183 *Or. 26.660 (before 1800, Turkmenistan). A binding from Central Asia with relative long tabs.*

which already lacked, for example, a link-stitch sewing and lining, and had been resewn with a stabbed sewing structure. In two cases the leather tabs are secured in place with the vertically warped thread (when the book is in standing position) which also pierced the centre of the tab and was then inserted in the textblock (fig. 184). This procedure denies access to the endband underneath the tab, but it seems quite likely that a proper endband is missing in the case of these stabbed volumes.

Spine-endings Cut Flush with the Textblock

It is difficult to draw firm conclusions from the group of spine-endings cut flush with the textblock, except that they were not made with a turn-in of the covering leather over the spine. This detail is important though, because it points to a built-on binding technique—just like the tabbed bindings—as opposed to a case-binding. Yet, we cannot be certain whether these bindings were made with the spine-endings cut flush with the boards intentionally, or if the tabs were trimmed over time, due to damage and in order to prevent further tearing; they may even look flush now because the extending leather has become completely abraded (figs. 185, 186). It is important to note that, relative to the group of tabbed bindings, this set is significantly smaller, it is not even one-third of the first; these numbers indicate that the binding process which resulted in tabbed spines dominated the tradition. The frequent occurrence of tabbed repair spines supports this theory.



FIGURE 184 *Or. 22.322 (1919) (r) and Or. 22.321 (l). The spines are tabbed and pierced with a thread that is vertically wrapped around the spine.*

With the semi-tabbed spine-ends, the extending leather at the head and tail was cut horizontally though not exactly flush with the boards. This resulted in a tab significantly shorter in length than the average tab, which may be as long as the turn-ins on the inside of the boards. Nearly forty examples of semi-tabbed structures were found on original bindings. Only three of these originated in the sixteenth century, the others are more recent. This is noteworthy, since the development of this particular feature may indicate that binders anticipated the fragile state of the traditional tab, and attempted to solve the issue by cutting these parts of leather closer to the endband sewing, leaving enough to support the endbands and protect them a little, but short enough for the leather spine-ends to be more durable.

Turned-in Spine-Ends

Manuscripts on which the leather spine coverings are turned-in at the head and tail are by far the smallest group. Nevertheless, the group can be further divided. Within the Arabic collection, the most distinctive set and largest in



FIGURE 185 *Or. 309. The small remnant of the tab and its horizontal tear demonstrate how prone the tab is to become 'flush'.*



FIGURE 186 *Or. 2956c (nineteenth century). The cut shape of the leather follows the curved shape of the textblock and endband, which demonstrates its execution after the leather was applied onto the textblock spine.*

number are the wrapper bindings made for unsewn manuscripts. Although it seems very obvious that these wrapper bindings are made this way, it is also important, as it signifies—and quite convincingly proves—that binders used the technique that was most suitable for the particular purpose at hand. Indeed, the method is a break from the traditional method, however, since wrapper bindings are made off the book, as a case, turning in the leather continuously over the spine demonstrates common sense. It is not only the most economical but also the strongest option for this type of binding.

A second set originates from Southeast Asia. With the assessment of Southeast Asian manuscripts from the Arabic and Malay sections combined, this group consists of 42 specimens which is a significant part—more than half—of the total of Southeast Asian bindings. The feature of turned-in spine-ends is sometimes combined with square boards. Also, the turned-in spines can be found with the two-piece technique, which is remarkable. Indeed, it suggests that these bindings were made as built-on bindings as well, for it would be difficult and impractical to produce a separate case-binding with two pieces of leather joined on the spine. Can we conclude from this that the bindings with the turned-in spine-ends were then made on the textblock as well? Technically it would be possible, as the absence of spine-lining flanges (which is another characteristic of most Southeast Asian binding structures) allows for the leather to be turned-in at the head and tail, without the need to cut such strengthening material in the joint. The evidence, however, remains inconclusive.

Of the remaining examples with turned-in leather at the spine, thirteen manuscripts are from the nineteenth century. Some of these volumes have turned-in spine-ends in combination with square boards, pointing to an increased influence of western methods, although in other respects the bindings still display typical Islamic characteristics. Turned-in spine-ends were also found on three stabbed manuscripts, and on two very thin volumes that were made without endbands. In these cases, it is feasible that the covers were made as a cassette-like entity.

Interior Covering of the Boards

Doublures

The doublure is defined as a material which covers the inner surface of the boards, but which is not part of the textblock's structure. As a consequence, the binder was free to choose what material to use: leather, cloth, or paper (chart 7). Leather doublures were very common up to the seventeenth century.

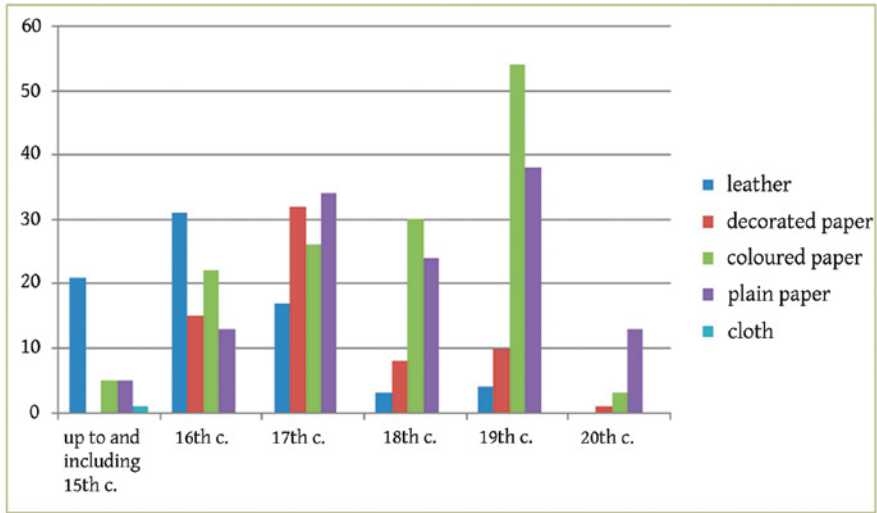


CHART 7 *Comparison of doublure materials throughout the centuries, resewn and rebound manuscripts excluded.*

Of the 102 original occurrences, only 14 were found on seventeenth-century volumes, 3 on manuscripts from the eighteenth century, and 4 on nineteenth-century manuscripts. When the origin of the manuscripts was indicated, the leather doublures on volumes dated before 1700 were made in Egypt, Syria, Iran, or Turkey. Only 2 of the seventeenth-century volumes with leather doublures were located, these were from Tunis and India; 1 of the eighteenth-century and 2 of the nineteenth-century volumes with leather doublures originated from India as well, and 1 nineteenth-century manuscript in this group was copied in Upper Egypt. It is noteworthy that leather doublures were only found in combination with a full leather covering. As they occur in both types of full leather bindings (the one- and two-piece technique), the use of leather doublures does not appear to be related to one of these techniques specifically. None of the partial leather bindings had full leather doublures.

Cloth doublures were encountered only sporadically and form a heterogeneous group from which we cannot conclude anything; some of the volumes are early, Mamluk bindings, but textile doublures were also used on a Berber manuscript (Or. 23.988) and on a volume written in Sino-Arabic script (Or. 26.685). The group of paper doublures is by far the largest. If we exclude repaired and resewn manuscripts, the largest sub-group is formed by monochrome coloured papers, with 215 occurrences. Plain, undyed, and undecorated papers were used 203 times, decorated papers such as marbled and

block-printed papers were applied in 100 manuscripts. The majority of decorated papers are marbled, and made in a wide variety of patterns and colours. The earliest occurrence of marbled paper on an original, dated binding, is 1510, its provenance unspecified (Or. 1041). Before the development of the marbling technique, dyed papers were applied as doublures, the first occurrence in a dated manuscript is from the fifteenth century. Some of the monochrome dyed papers were sprinkled with flecks of silver or gold. Block-printed and brocade papers were found in much smaller numbers (figs. 187, 188); 10 doublures were block-printed, for 2 volumes a brocade paper was used, and for one a coloured paper was further decorated with a sponge pressing technique. The manufacturing techniques and possible origin of block-printing and brocade papers is elaborated on below.

Endleaf Structures

When the paper on the inside of the board is part of the outer gathering, it is not a doublure but a paste-down. The paste-down often consists of the outer leaf of the first and last gathering (fig. 189). Another form of endleaves is a tipped-on bifolio, pasted with a bit of adhesive along the spine-fold onto the gutter of the outer textblock page, then the outer half is pasted onto the board. These endleaves may have been applied early in the production process, right after sewing, and before lining and endbanding. Some specimens show evidence of this practice, as the tiedowns pass through the tipped-on endpaper bifolio. Either way, the paste-downs always cover the inner joint. When they are part of the outer gathering, the paper is usually plain, undyed paper, and the same is true of the guarded single leaves sewn with the first and last gatherings that are used as paste-downs. But when a tipped-on folio or bifolio was applied, the binder often selected a dyed paper (figs. 190–192).

Paste-downs were used from at least the early sixteenth century; 6 sixteenth-century manuscripts have tipped-on bifolios of which the outer half is pasted onto the boards, with 8 others the outer textblock leaves were used as paste-downs. Nearly 30 manuscripts from up to and including the seventeenth century were noted to have structures that were different in the front from that in the back, and they all displayed the same kind of combination. At the front, a tipped-on bifolio or sometimes a stubbed folio was applied, while at the back of these manuscripts the outer leaf of the last gathering was used as a paste-down. This combination is not found the other way around, which gives us an indication of the working routine of the scribe and binder. The scribe started his work on the verso of the first folio of his stack of gatherings, which left him—or the bookbinder—no extra or preceding paper to use as an endleaf for the front board. Once he finished the work and ended up with some surplus



FIGURE 187 *Or. n.074. Brocade paper doublure on the front cover.*



FIGURE 188 *Or. 1442. Brocade paper doublure on the back cover and the envelope flap.*



FIGURE 189 *Or. 196. The paste-down is part of the outer bifolio of the last gathering.*



FIGURE 190 *Or. n.898. A tipped-on coloured leaf with a stub. The stub is adhered over the joint and onto the board, and then covered with a doublure; in this case, a paper of the same colour was used.*



FIGURE 191 *Or. 155. A guard—a small strip of paper folded around and sewn with the last gathering—is pasted across the inner joint and onto the surface of the board. The paper doublure is pasted over the edge of the guard.*



FIGURE 192 *Or. 829 (1638). A plain, stubbed leaf was tipped-on along the spine edge of the outer gathering, the stub pasted across the joint and onto the board. A marbled paper doublure is pasted over the stub.*

leaves, these could be used as endleaves at the back board, after the extending sides of the lining were adhered onto the inside of the board, to strengthen the joints. It is noteworthy that in all these instances, featuring endleaves from the textblock paper, the lining consisted of cloth. This indicates that the binder chose his material intentionally, because with leather linings, tradition would have it that the flanges remained visible as inner joints. In these constructions, that would have been possible at the front of the binding but not at the back. Examples of manuscripts with a leather inner joint at the front and a covered inner joint at the back, made with this specific structure, were not encountered.

Finally, it should be noted that the manuscripts from Southeast Asia often have dluwang endleaves or paste-downs instead of paper (in 31 instances in total), but the structures are otherwise comparable.

Inner Joints

The function and visibility of the spine-lining extensions in the inner joints has already been discussed; both leather and cloth linings were used to strengthen the board attachment, and leather extensions were left visible in the joint while cloth flanges were subsequently covered with some other material. Only when cloth extensions were not adhered onto the inside of the boards but were pasted onto the textblock instead, in which case the structure lacked an inner board attachment, then some additional material was added. Manuscripts constructed according to this last structure are a minority in the whole corpus. In these cases, binders amended the inner joint structure with separate leather strips, with a stubbed leather doublure, or with a stubbed paper doublure. When a separate paper or leather strip was used as an inner joint, pasted on top of the doublure, in most cases this appeared to be a later addition.

The inner joints of lacquered bindings form a specific group, since the interior of lacquered boards are often painted; in only one case was the surface covered with a coloured paper doublure. As explained above, this composition affects the possibilities of construction. In general, the extending sides of the spine-linings of these textblocks appear to have been cut, and the board attachment consisted of the leather spine-covering only. For small bindings, of which the boards are relatively light, this construction seems to have been sufficient. With larger textblocks and heavier boards, we find repair materials in the inner joint.

The Lining of the Fore-edge Flap

The strength and flexibility of the joints of the flap are crucial for its functioning and longevity. Over the centuries and in all regions of the Islamic world the large majority of the fore-edge flaps are lined with leather. The use of cloth was

clearly a later development; only 6 seventeenth-century volumes were found to have a fore-edge flap lined with cloth, but from the eighteenth century onward its use increases. I identified 10 eighteenth-century volumes, 30 bindings from the nineteenth, and 10 from the twentieth century with fore-edge flaps with cloth linings. Not many of them are locatable but 10 of these manuscripts appear to have been made in Yemen.

The use of paper as a lining material for the fore-edge flap shows a similar trend. Furthermore, of the 77 occurrences, in 15 cases the volume is an unsewn textblock and the binding a wrapper binding. From Southeast Asia, 9 bindings have a paper lining of the fore-edge flap and 3 of the bindings appear to have been made in Yemen. Of 9 of these bindings with a paper lining, the paper only covers the actual fore-edge flap core; the joints adjacent to this flap were lined with leather prior to the application of the paper lining, which can be explained because it is a more durable material for this flexible part of the binding.

The Envelope and Fore-edge Flap

Although bindings without fore-edge and envelope flaps only started to become fairly common in the seventeenth century, they appeared on the scene in the sixteenth century. In this survey, the earliest specimen identified is a volume dated 1510 (Or. 1041), a few bindings without a flap are dated to the middle of the sixteenth century. Up to now, the flapless binding type was often related to the Persian realm, which is probably due in part to the fact that many lacquer bindings were made without a flap and they initially developed in Persia. Otherwise, they are thought to have emerged under western influence in the 'later' centuries.⁴⁹ However, the oldest flapless bindings in the UBL collections are early Ottoman, and Islamic in all their characteristics. Relatively often, they were made with very thin boards; occasionally, the boards are even completely absent. The manuscripts with oblong formats, which often lack a flap as well, are another specific category. Many of the dated manuscripts without flaps originate in Central Asia, where there was a strong influence of the Persian tradition. These mainly date to the eighteenth and nineteenth century. It should

49 "[The flap] remained an intrinsic feature of Islamic binding until the fore-edge and associated envelope flap started slowly to be omitted under the influence of European bookbinding forms in the eighteenth century AD"; G. Bosch et al., *Islamic bindings and bookmaking* (1981), 56. See also F. Déroche, *Islamic codicology* (2006), 310; A. Gacek, *Arabic manuscripts: A vademecum* (2009), 27–28.

be noted that the boards of these particular bindings are often remarkably thick, a characteristic which distinguishes them from the Ottoman variant. In Southeast Asia, only three bindings without a fore-edge flap and envelope flap were recorded, this is 4.5% of the Southeast Asian bindings, while the percentage of flapless bindings in the whole corpus is 17.5%.

At first glance, the general belief that the flapless binding occurs most often in the undefined 'later' centuries seems to be confirmed by the findings: 31 nineteenth-century manuscripts have bindings without a flap, which is 24% of the total number of dated volumes from this period. In the eighteenth century, 22% of the dated volumes were made without a flap. However, looking at the seventeenth century, we find 26 volumes in original bindings; this represents 21% of the total, and even from the sixteenth century, 6 bindings have no trace of a flap. Though this is only 10% of the dated sixteenth-century manuscripts, these items confirm that manuscripts without flaps were relatively normal in the early centuries. These figures also indicate that from the seventeenth century onwards, approximately one of every five manuscripts was put into a binding without a flap. Nevertheless, some of the flapless bindings from the nineteenth century indeed share a few other characteristics with western books, such as boards that project beyond the textblock edges, spine leather that was turned-in, or a supported sewing. At the same time, the physical appearance of these bindings remains convincingly Islamic; most manuscripts still have a link-stitch sewing, the endbands often remain traditional, and many boards are still flush with the textblock.

The wrapper bindings were made, without exception, with a flap, and for good reason. As a wrapper binding protects unsewn manuscripts, it functions as a protective container; since the gatherings are not attached to the wrapper's spine they could easily become dislocated. A closing system at the fore-edge of the stack of loose gatherings, afforded by the envelope flap, was needed to stabilise the textblock after consultation and while stored, to minimise the risks of mechanical damage.

Scholars in the field have suggested that the flap, apart from its protective function, can be used as a bookmark.⁵⁰ It is unclear where this idea originated from and if envelope flaps were really used in this capacity; the historic sources do not seem to confirm this use of the flaps. When the fore-edge flap

50 Gacek states that "its principle function was to protect the fore-edge of the codex; nevertheless, it was also often used as a bookmark," *Arabic manuscripts: A vademecum* (2009), 104; See also Chr. Gruber, *The Islamic manuscript tradition* (2010), 15, who suggests that the flap could be used as a bookmark or could be tucked underneath the textblock so that it was slightly elevated which might improve reading.

fits the fore-edge of the textblock nicely and both flap parts have rigid boards—as most flaps do—then the joints are small and do not provide the flexibility for the envelope flap to be inserted everywhere in the textblock. The flap can only be inserted in the textblock more or less randomly when the joints are exceptionally wide or the core in the fore-edge flap is very small or omitted completely. Although we occasionally encountered such features, they are not common, which seems to indicate that binders did not attempt to make flaps to function as bookmarks.

A second argument is the occurrence of bindings with fore-edge flaps that are smaller in width than the thickness of the textblock and do not have space in the adjacent joints to compensate for this narrowness. These flaps are too small to cover the fore-edge of the textblock completely. In these instances, the envelope-shaped flap cannot even be closed underneath the front cover, but must be inserted somewhere partway through the textblock. With these objects, it is clear that the bookbinder did not intend for these flaps to serve as bookmarkers.⁵¹

Miscellaneous Features

Decorated Paper

A variety of decorated papers are found in Islamic manuscripts. They first occur in textblocks; the use of tinted or dyed papers is very old and seems a logical continuation of the practice of writing texts on coloured parchment. From the fifteenth century onwards, papers were decorated with more elaborate techniques such as silhouetting, stencilling, gold-sprinkling, and possibly also marbling.⁵² Apart from the papers used in the textblocks, coloured and embellished papers were applied to cover the binding and finish the inside of the covers. It is difficult to find conclusive evidence of their origins and dates, as many of the manuscripts from these early centuries have been repaired or re sewn. Moreover, when applied as doublure or board coverings on partial leather bindings, the papers were adhered as a final part of the procedure, which means that it is sometimes hard to detect whether the paper

51 At the COMSt-meeting (Comparative Oriental Manuscript Studies) in Zakynthos, October 2013, Paul Hepworth, in his lecture 'Manuscript variety and conservation,' presented several examples of original bindings with remarkably small and rigid fore-edge flaps which could not have functioned as bookmarks or reading aids. This important argument encourages conservators to respect these shapes and not assume that they ought to fit and then change the flaps to make them fit.

52 F. Déroche, *Islamic codicology* (2006), 60–61 and 248–249.



FIGURE 193 *Or. 1341. A partial leather binding with block-printed paper.*

belonged to the original bindings or was added later. Monochrome dyed and marbled papers are found on the inside and outside of covers alike, gold-sprinkled papers appear to have been preferred for the inside of bindings, and in the UBL collection, I did not find any examples of silhouette papers on bindings, though they do occur in textblocks. When block-printed papers started to be used, they are more often found as doublures, but occasionally they were applied as a covering material as well (fig. 193).

The Islamic artists who produced marbled papers used wonderful colour combinations and wild patterns. The earliest marbled papers, however, were probably more subdued. I found some twenty specimens of a modest type of marbled paper that has only blue pigments on a cream-coloured paper. Their patterns resemble the veins found in stone, and in that sense these patterns appear less controlled or designed than the multi-coloured marbled papers. We can deduce that these papers are the early products of the art, made when it was first developed. However, none of these monochrome blue marbled papers were found on original bindings, they were used as doublures or outer

board coverings on second bindings of much older manuscripts. As a consequence, we cannot prove the hypothesis that these are the earliest products. The earliest known evidence of marbling are two sheets of paper, in the Kronos Collection in New York City; these were made in Persia and one is dated 1496.⁵³ The first marbled paper on a dated manuscript with a contemporary binding in the UBL dates 1510 (Or. 1041); this paper is an example of a multi-coloured, finely executed and controlled marbling pattern.

Other types of decorated papers are block-printed (also called ‘chintz’ or ‘calico,’ after the block-printed cotton from India), brocade papers (sometimes referred to as ‘embossed’ or ‘gold-embossed’ papers), and paste papers. As yet, we know very little of the origin of these papers. There are several extensive inventories and studies on decorated papers, but most of these focus on papers produced in Europe, and the information related to the Islamic world is brief and without much substance.⁵⁴ In general, Persia or Turkey are acknowledged as being important for the development of marbling techniques; several references in travel accounts attest to the occurrence of the art of marbling in the Middle East in the sixteenth century.⁵⁵ However, with the exception of a few methods for “beautifying paper” with a single colour, mentioned by Ibn Badis,⁵⁶ and a mid-nineteenth-century copy of a mediaeval manuscript containing some paper dyeing recipes,⁵⁷ we have little historic documentation on the origin and making of decorated papers in the Islamic world.⁵⁸

53 Jake Benson, currently studying the early development of the art of marbling, kindly answered my query about the earliest evidence for marbling. He translated the inscription on one of these marbled sheets, part of which states: “Note that these *abris* (the plural form of *abrī* was used) are rare”; he confirmed that these papers are not only the earliest dated marbled papers known, but they also carry what is thought to be the earliest mention of the Persian term *abrī* (meaning ‘clouded’ or ‘cloudy’); email exchange 14 April 2014. Benson presented part of his research at the Historians of Islamic Art Association biannual symposium, October 2012. <http://www.metmuseum.org/metmedia/video/collections/isl/looking-widely-looking-closely-symposium-part-9> (accessed 12 June 2017).

54 On marbled paper, see: R.J. Wolfe, *Marbled paper, its history, techniques, and patterns* (1990), 6–12. Wolfe mentions reports on the art of marbling practiced in Turkestan in the late thirteenth century and in Samarkand, Herat, and other regions east of Persia in the early fourteenth century, 8.

55 J.F. Heijbroek and T.C. Greven, *Sierpapier. Marmere-, broccat—en sitspapier in Nederland* (1994), 14.

56 M. Levey, *Mediaeval Arab bookmaking* (1962), 40.

57 H. Ebeid et al., ‘A study of dyed endpapers during Islamic mediaeval times in Egypt: Purpose, materials and techniques’ (2013), 62. The historic source is, as yet, unpublished; the nineteenth-century copy is kept in the Dar al-Kutub in Cairo.

58 See the chapter on decorated paper by Yves Porter, *Peinture et arts du livre* (1992), 41–60.

In Europe, block-printed papers made with wooden or metal blocks in which patterns were cut and inked with one or more colours were made from the seventeenth century onwards at least. Italy was a major production centre for this type of decorated papers and it seems likely that papers of Italian origin were exported across the Mediterranean Sea. According to the seventeenth-century traveller and author Evliya Çelebi (1611–c. 1684), who described the professions and trades in Istanbul, there were 205 paper dealers who adorned their shops with papers from Persia and Venice.⁵⁹ We may assume that decorated papers were used for this purpose, as plain papers would make poor decoration, which makes Çelebi an important contemporary source reporting on the import of marbled or block-printed papers from Venice.⁶⁰ The production of block-printed papers continued until the end of the nineteenth century, but it remains unclear whether they were ever made in the Islamic world.

Starting early in the eighteenth century, the chief production centre for brocade papers was Augsburg, Germany, where several manufacturers were active, though brocade papers were made in various other German towns as well. Farther south, in Bassano and Venice, the Remondini family firm was the major manufacturer of brocade papers.⁶¹ It seems likely that the Italian papers were exported in larger quantities than the German ones, though within Europe there was a lively trade in decorated papers, and I found examples of German brocade papers on original Islamic bindings in Islamic manuscripts in our survey (fig. 194). But, it is also possible that the technique of making brocade papers using a copper or brass plate and a press to print the image with metal leaf on dyed paper was used in the Middle East. The original inspiration for the usage of contrasting metal in the design appears to be found in Byzantine textiles that utilise metal threads. In Islamic textiles, we also find complex woven textiles with metal threads throughout mediaeval history. Many other decorative techniques found in western books demonstrate that the Near East played an important role in their development and transmission. However, until proof of Islamic brocade paper production is found, we must assume that these specific papers originated in Italy or Germany; this provides a production date between the early eighteenth century and the middle of the nineteenth, when the making of brocade papers ceased.

59 Evliya Çelebi, *Narrative of travels in Europe, Asia, and Africa, in the seventeenth century* (1834), 206.

60 I have referred to Evliya Çelebi's full report on the bookmaking industry in A. Vrolijk, J. Schmidt, and K. Scheper, *Turcksche boucken* (2012), 163.

61 Heijbroek and Greven, *Sierpapier* (1994), 153–154; M. Cloonan, *Early bindings in paper* (1991), 83.



FIGURE 194 *Or. 11.074. A brocade paper doublure, using up smaller pieces, one of which contains provenance information on the decorated paper.*

The comparison of decorated papers, used for doublures or the outer covering of the bindings, with samples in reference books may offer more precise information for the dating of specific volumes. For example, the undated manuscript Or. 11.074 has a particular decorated paper, with a gold printed chessboard-like pattern over a green background (fig. 194). The bottom margin of the original papers often contained information on the manufacturer, which in this case can be found on a piece of the paper pasted adjacent to the joint: “Augsburg bey Johannes Wu[...].” This paper is closely related to an example which is dated 1790, made in Fürth by Johann Lechner, and to papers made by Johann Hoffmann and Paul Reymund in Neuremberg.⁶² Assuming the manuscript was bound shortly after it was copied, this indicates that it was produced in the early nineteenth century.

62 Heijbroek and Greven, *Sierpapier* (1994), 58, 106, and 124.

Page-markers

Although this particular element is small, it is an interesting codicological aspect because it indicates which pages were singled out for quick access. Many of the UBL manuscripts with page-markers do not contain illuminated or illustrated pages; the page-markers are mainly secured to pages of text. Often these manuscripts are composite volumes, on a variety of topics, such as religious doctrine, dream interpretation, food and medicine, and lexicographical works; dictionaries, collections of poetry, and encyclopaedias were also found.

The many occurrences of the silk thread knotted type, skillfully applied in manuscripts originating throughout the Islamic world, have a certain consistency in the manner of their attachment which suggests that this element was applied by binders rather than the manuscripts' owners. The textile page-markers, consisting of a silk or linen thread looped around the margin and edge of the text page, occur in other binding traditions as well.⁶³ Of the 29 volumes with page-markers, only one is of fairly recent date, 1803, probably originating from Kashmir. It concerns an illustrated romantic poem, Yusuf and Zulaikha, and the page-markers are connected to the illuminated pages. All other manuscripts with fixed page-markers have much earlier dates, with 1619 as the latest.

Size and Format

Only ten manuscripts are oblong-shaped; usually, the shape of the codices is a vertical format. Some volumes have a more pronounced or downright elongated vertical shape, while others approach a square format. In order to compare differences in format, the ratio of height and width can be expressed in a single number, obtained by dividing width by height.⁶⁴ When the oblong volumes are excluded, the average ratio is 0.71; the average ratio of the oblong bindings is 1.83. When the resewn manuscripts are left out of this calculation,

63 J. Miller, *Books will speak plain* (2010), 207. In the UBL Special Collections, I also encountered an example on a Greek text written on parchment, containing multiple (linen?) knotted threads in the fore-edge margins (UBL BPG 78), and several Ethiopic manuscripts that have silk or other textile threads attached to their pages, in the fore-edge or head margin.

64 I would have preferred to use the formula the other way around, because the general format of books is vertical, or portrait format, which means that when comparing the ratios, diverging values stand out a bit more when length is divided by width. However, in western book-historical and codicological studies, the standard appears to be to divide width by length, even though the common western book format is vertical as well. Presumably, it is held as an advantage that the calculation results in a value between zero and one (provided that the book format is vertical and not horizontal), as this allows for a relatively easy rating of objects.

the average ratio of the regular book format becomes 0.70, while the average ratio of all repaired and re sewn manuscripts remains 0.71. This difference is fractional, which is noteworthy, as it indicates that the edges of repaired and re sewn manuscripts were not often, or at least not substantially cut after sewing. If the head and tail edge had been cut, or cut substantially, then it would cause a larger difference in the height than the effect of cutting the fore-edge would have had on the width of the book, assuming that a binder cut more or less the same amount of paper from each edge. Thus, one would expect a slight shrinkage of the height in relation to the width, in comparison with the original format, resulting in an opposite effect on the ratio number: the small loss in height would lead to a slightly higher number than 0.71, the average for all manuscripts.⁶⁵ Since this is not the case, we can deduce that binders often refrained from cutting the textblock after re sewing, or they did it in such a way that the width of paper they cut from the fore-edge was balanced with the total they cut from the head and tail. Perhaps they were motivated by the fact that most annotations and glosses were written in the fore-edge margin which made them more prone to being partly chipped off when the edge would be trimmed.

For the earliest centuries I have not been able to discern a trend. If we consider ratios below 0.61 to be elongated, and those over 0.81 compressed, we find only a few outsized manuscripts from the centuries up to and including the fourteenth. It concerns 3 elongated and 2 relatively short bindings, while 75 have a more or less average format. In later centuries, it seems that Central Asian manuscripts and those from the eastern Middle East are more elongated—with an average ratio of 0.64—and Maghribi manuscripts tend towards a more squarish format, though elongated volumes from Tunis and the Levant were found as well. The number of dated and locatable manuscripts from North Africa is too small, however, to interpret these findings further.

The horizontal, or oblong format was first used for eighth- and ninth-century Qur'ans, which were written on parchment; by the end of the ninth century, the shape gradually changed and the vertical shape became the dominant format.⁶⁶ The oblong manuscripts in the corpus are all of the later type, often referred to as a *safina* format. *Safina* is Arabic for 'ship,' which probably refers to the horizontal shape. The script in these items is usually parallel to the direction of the spine, that is, the short side of the textblock. Hence, to read the volume, it has to be turned 90 degrees clockwise from a usual orientation.

65 This average appears to be in accordance with the average ratio of western manuscripts after the tenth century, see: E. Kwakkel, 'Dit boek heeft niet de vereiste breedte' (2012), 35.

66 A. Gacek, *Arabic manuscripts: A vademecum* (2009), 34.

The *safina* format seems to be small enough to carry around as it has thin or no boards, resulting in a flexible and lightweight book.

Five manuscripts had such strongly rounded spines that I explicitly remarked on the condition. Two of the historic treatises advise the making of rounded spines; al-Ishbili and al-Muzaffar suggest that it prevents the deformation of the textblocks. In that light, the five examples do not make a strong case for frequent rounding of the spine, but we should keep in mind that it is extremely difficult to determine the original shape of the textblock spine from its current physical condition. Many volumes have changed shape, become distorted, warped or concave, and a rounded spine presumably best kept its original shape if a robust sewing thread was used to support that form. This seems to be the case most frequently in parts of Central Asia and Yemen and for Berber manuscripts.

Southeast Asia as a Sub-category in the Islamic Tradition

Above, we have looked at the varieties and differences in Islamic bindings from the technical, manufacturing point of view and in relation to date of occurrence and provenance. From this diachronic approach, trends emerged: certain variations belong to specific periods or regions. Southeast Asia stands out as the region with the most distinctive variations in the Islamic binding tradition. This warranted the additional survey undertaken in the collection of Malay manuscripts in the UBL. To be considered part of the Islamic tradition, I used the following selection criteria: the script should be Arabic, the binding a 'native,' non-western binding, and its condition reasonably sound or at least accessible with regard to composition. Thus, 29 items were selected from the "Malay" section. Below, the results from their examination are combined with the observations made of the 39 manuscripts from the "Arabic" section which could be retraced to Southeast Asia.⁶⁷ Recapitulating some of the findings in this manner, some reiteration is unavoidable; however, together they represent the Islamic binding tradition in the east, from the seventeenth century onwards.

Although unmistakably rooted in the Middle Eastern binding tradition, as a whole, this group displays distinctive characteristics. Furthermore, within the group, different sets can be distinguished based on further variations.

67 In the UBL collections, Arabic manuscripts from Southeast Asia are shelved with the Middle Eastern manuscripts (the "Ar." category). Southeast Asian manuscripts in all other languages are shelved in the "Mal." category. See also chapter 4, "The Malay collection."

Unfortunately, not many of the manuscripts are precisely locatable; as a consequence, we must bear in mind that any attribution of specific features to certain regions is cautiously based on a limited amount of data.⁶⁸

With regard to the structure of Southeast Asian manuscripts, however, it is safe to conclude that the sewing scheme distinctly differs from those made in other parts of the Islamic world. None of the almost 70 items were sewn with the traditional link-stitch sewing on two stations. Based on these results, it seems that the presence of the predominant sewing scheme would eliminate this region as a place of manufacture. The largest part of the group consists of a link-stitch sewing on multiple stations, often five, with the thread passing continuously inside the spine-fold, so it can be easily distinguished from the link-stitch on four stations. Six volumes were sewn on leather supports, four of these are dated, all of them nineteenth-century, and two are locatable, both in East Java. Two textblocks were stabbed. I did not encounter unsewn structures with connective strips and wrapper bindings.

Furthermore, with regard to sewing, it seems that full dluwang textblocks were sewn more often with the knotted link stitch than were the paper textblocks. Dluwang textblocks have dluwang endleaves or doublures, while the inside of the boards of paper textblocks are covered with either paper or dluwang, and sometimes leather. More or less half of the items have a dluwang inner board covering. Whenever the impregnating agent (persimmon fruit juice or a similar fluid) was used, it was with dluwang endleaves (fig. 195).

The large majority is bound in full leather, and the ratio of one piece to two pieces of leather is approximately 3 to 1. The absence of information on origin hampers identification of the different techniques, however, the four bindings with Bantene provenance (Northwest Java) were all made with the two-piece technique. These bindings stand out because of their decoration pattern as well; Marije Plomp described the tooling as similar to Turkish/Persian-style bindings from the seventeenth century onwards.⁶⁹ One of these bindings is even more particular, as it is bound in a bright red leather, resembling

68 It is rare for manuscripts from Southeast Asia to contain a colophon that includes the date or place in which the manuscript was completed. Therefore, other clues are needed to locate these volumes. Marije Plomp studied almost 30 traditional bookbindings from Indonesia and distinguished several categories, related to regions. M. Plomp, 'Traditional bookbindings from Indonesia: Materials and decorations' (1993). In addition, decorative aspects of illuminated religious manuscripts may help to pinpoint the place of origin, see A. Teh Gallop, 'An Acehese style of manuscript illumination' (2004) and 'The spirit of Langkasuka? Illuminated manuscripts from the East coast of the Malay Peninsula' (2005). Another material aspect is the use of dluwang, which is thought to have been used in Java and Madura only.

69 M. Plomp, 'Traditional bookbindings from Indonesia' (1993), 581.



FIGURE 195 *Or. 2149 (before 1874, Southeast Asia, probably Java). A manuscript with a dluwang textblock and dluwang endpapers; an impregnating agent was applied to the paste-down, causing its dark brown colour.*

cochenille-dyed alum-tawed leather. With regard to the application of the leather cover, it is interesting to note that the seven or eight other manuscripts from Java—a few of them were said to originate from the eastern part of the island—all have one-piece full leather bindings except one.

No partial leather bindings occur among the Southeast Asian manuscripts. Only a few bindings are covered in cloth (Or. 4710), dluwang (Or. 8566) or paper (Or. 1895 and Or. 7325) rather than leather. What distinguishes these from bindings made in other parts of the Islamic world is that these covering materials are not combined with a leather spine: they are made entirely of the cloth or dluwang or paper. Furthermore, the two paper covered bindings (one in blue, the other in crème-coloured paper) are decorated with stamps as if they were leather bindings. It is noteworthy that the blue paper binding, from Palembang, was even made with the two-piece technique (Or. 1895). The dluwang and cloth bindings were soaked with an agent—possibly persimmon juice—which made it resemble leather.

Tabbed spines are found in a minority of volumes, and only on those made with the two-piece technique; this is technically logical and confirms the theory that these separate boards were attached on the textblock one by one. Most

bindings, however, have turned-in leather spines. The covers with the spine-ends turned-in may or may not have been made as case-bindings, as there is no evidence that these bindings were built on the textblock. However, there is also no proof that they were made as case-bindings.

Southeast Asian manuscripts have paste-downs far more often than other Islamic books. I did not encounter the use of marbled paper, and if monochrome dyed paper was used for doublures, it seems that blue was the only available variant; in one volume brocade paper was used (Or. 18.959). Plain paper and dluwang endleaves were frequently found, while leather doublures only seem to have been used on the bindings in which the decoration resembles the traditional tooling schemes, with a centre stamp and corner pieces. The latter are on the Bantenese bindings dated to the late seventeenth or early eighteenth century.

The endbands on the Southeast Asian manuscripts display the most distinctive divergences. They are sometimes sewn with three colours, more often than not they are fringed, they may have cores of twigs or cloth strips, and they are sometimes 'tied around.' One example has all these characteristics, even a combination of twig and textile core, with the strips of decorated cloth extending as a coloured flag among the fringes of the secondary endband sewing thread (fig. 196). Moreover, I found only one example of an endband with none of these features, but made exactly like a traditional endband. Again, because of the missing provenance data, it is difficult to pinpoint the characteristics to precise regions. However, Bantenese manuscripts (Northwest Java) were consistently provided with endbands without fringes or a thread tied around; instead, three of them display a remarkably firm chevron sewing with rather thick thread and only four sewing tours on a distinct round core (not a flat core, as is typical for Islamic endbands), and one has a distinctive endband that appears to have been sewn with one thread only. The twig endband cores were often found on manuscripts from Java (four times) and once on an Aceh binding. The secondary endband patterns in three colours also appear to be typical for Javanese bindings, we have six of these specimens while I only found one endband sewn in three colours on a manuscript with a different locale (Aceh). Some of the boards of the Southeast Asian bindings extend beyond the textblock edges, but the majority of the bindings are flush with the textblock. The occurrence of leather boards appears to be a feature exclusive to this region, and the same seems to be true for the matted or woven rattan or bamboo boards. Perhaps these materials were chosen because their capacity to resist insect and mould infestation was greater than for pasteboards, the latter being vulnerable to the influences of the humid and warm climate. In addition, paper



FIGURE 196 *Or. 2118 (Southeast Asia). The endband displays various characteristics: a vegetal core and decorated cloth strips which are used as tufts, woven in three colours and one of the threads is wrapped around the finished endband.*

may have been scarcer in Southeast Asia than in other parts of the Islamic world. There was no local paper industry, though *dluwang* was the indigenous substitute; all the required paper was imported from elsewhere. This would certainly have ruled out the option of making pasteboard out of new paper, but even waste-paper may not have been available in such quantities as it was in other regions of the Islamic world, so making pasteboard on a sufficient scale was also not an option.

We are uncertain as to precisely how the boards were attached. Though most textblock spines were lined with multiple layers of diverse materials, resulting in thick and rigid spines, there is little evidence that these linings were used to strengthen the board attachment. They primarily served to support the textblock spine and prevent the tiedowns from tearing through the paper or *dluwang*. Given the high occurrence of leather turn-ins at the head and tail of the spine, it is possible that the bindings were made as case-bindings, though that evidence is not conclusive, as we know that western leather bindings were made on the textblock with turned in spine-ends (the so-called caps)

for centuries. Moreover, we also found tabbed spines and the two-piece technique. Regardless of method, and in the possible absence of lining flanges, the endleaves at least served to strengthen the inside of the boards.

One manuscript raises another intriguing question, concerning the order of writing and binding. In this case, Or. 2118—Mal. 408, a history of the prophets in verse, the text is not finished. To quote from the *Inventory*: “The end is abrupt. The latter (and greater) part of the codex is left blank because the tree-bark paper was crumbling.”⁷⁰ This suggests that the gatherings were bound prior to copying the text, otherwise, the binder would not have taken the trouble to sew the crumbled gatherings. This is intriguing, because it is contrary to the generally accepted idea that gatherings were only sewn and bound after the text was written.

Summary

The history of the Islamic bookbinding tradition starts in the early centuries of Islam, when Qur’anic texts were written on oblong-shaped pieces of parchment which were bound and covered in order to render the text both usable and protected. The covers themselves became vehicles of artistic expression; the structure remained the backbone of the artefact, the indispensable, not very visible but crucial mechanism allowing the manuscript to be used for decades, if not centuries. From the survey results, it is clear that there is an archetypical structural make-up for the Islamic codex. This consists of a link-stitch sewing structure, a spine-lining and a primary endband sewing. This basic principle, however, leaves room for several technical variations; the differences are hard to detect from the outside and bookbinders may have had their own particular reasons to use certain variations, though some structural divergences can be related to specific regions or periods. Over time, and moving away from the heartland of Islam, the variability increased and more distinctive binding characteristics emerged, such as the link-stitch sewing on multiple stations in Southeast Asia and the saw-cut primary endband in the south Arabian Peninsula.

The earliest manuscripts were bound in full leather, and full leather has remained the most important covering material throughout the ages. The two-piece technique appears to have been used from very early on, and until the nineteenth century this covering method was at least as common as the one

70 J.J. Witkam, *Inventory* (2008), 3:43.

using a single piece of leather. At a more detailed level, interesting variations were found within the group of full leather bindings. There are limp leather bindings, possibly used as temporary coverings, and composite full leather bindings made with turned-out doublures or as a kind of *çaharkuşe* technique. Further seemingly regional particularities were noticed in the physical appearance of many full leather bindings. These decorative elements or aesthetic aspects were not included in this study, so we have not drawn any coherent conclusions in this respect, but the types and qualities of leather, stamping patterns, other decorative techniques such as painting or dying the covering leather, and the application of paper cuttings may be potential additional sources of information.

Across the regions, we found significant differences in covering methods. In Ottoman times the partial leather binding became very popular and this covering scheme could be used as an option to economise, as well as to bind luxurious items. In Central Asia too, it seems that the partial leather binding rivalled the full leather binding. Here we find especially glossy papers on the cover panels, and many of the partial leather bindings have leather overlays in contrasting colours. Further east, full leather bindings were favoured. In Southeast Asia the partial leather binding does not occur, nor were examples of lacquer bindings found in these regions, although we encountered a few specimens that were covered with *only* paper or *dluwang* and decorated with stamps in such a manner that they resembled full leather bindings. It appears that full leather bindings remained important in all peripheral regions.

Material characteristics can be further used to locate bindings. Apart from region-specific materials such as *dluwang*, it appeared that the use of leather as a board material only occurred in Southeast Asia. The same seems to be true for boards made of plaited plant fibre. Twigs, or strips of coloured textile used as endband cores, also point strongly to Southeast Asia, as does the use of three colours in the secondary endband sewing and the occurrence of fringed endbands. Very long tabs were mainly found in Central Asia, as were thick boards and rounded spines. Bindings without flaps cannot be confined to a certain region or period; these appear to be an integral part of the traditional binding vocabulary, at least from the early sixteenth century onwards, though they occur far less often than bindings with fore-edge and envelope flaps. Unsewn textblocks with connective strips and wrapper bindings were only found on manuscripts from the second half of the eighteenth and the nineteenth centuries. With regard to format, elongated manuscripts appear to originate from Iran or Central Asia, while squarish manuscripts are likely to have been produced in the Maghrib.

This overview confirms that the physical characteristics contain much information and provide clues as to the provenance of manuscripts, the potential of which has not yet been exhausted. It also attests to the multiplicity within the Islamic tradition. In the next, concluding chapter, I elaborate on the importance of this multiplicity for an understanding of the Islamic book culture—which, in fact, it fundamentally changes.

Considerations and New Perspectives

Recapitulation

This study set out to challenge the idea that bookbinding structures in the Islamic world were unchangingly made as weak or faulty constructions, based on the simplest link-stitch sewing system and a case-binding design with only limited connection between the textblock and the binding. In my conservation practice I found convincing evidence for a very different premise: the Islamic book tradition consists of and displays several different local traditions, a variety of structures, and has developed in the use of materials and techniques over the centuries. Moreover, these structures are, in general, adequate, and strong. To substantiate this new idea, I assessed all volumes from the Middle Eastern manuscript section and the manuscripts in Arabic script from the Southeast Asian section of the Oriental collections in the Leiden University Library containing original bindings and sewing structures, and organised the relevant data into a searchable database built for this survey.

With this study I also wanted to investigate the possibility of classifying the Islamic bookbinding tradition into a more refined system than the 'Three Types' introduced by François Déroche. The box-binding (Type One) is certainly an easily identifiable phenomenon, but it is also a binding type that was only made in the very first centuries of Islam of which few specimens have survived. The other two categories (Type Two and Three) are distinguished solely by the presence or absence of the fore-edge and envelope flaps. I propose that this subdivision is not sufficiently useful. First, the manifestation of a flap on a typical Islamic binding does not make that binding *more* Islamic than a typical Islamic binding without a flap. Additionally, based on this survey of the UBL collection, I refuted the assumption that Islamic bindings without a flap are products of the last few centuries, made under the influence of western books, since I identified a substantial number of flapless bindings in the Warner collection, which came to Leiden shortly after 1665. Moreover, I noted other distinctive characteristics that lead to the idea that such physical particularities might represent distinctive local and/or datable traditions. From conservation experience and preliminary investigations in the collection prior to the present study, I thought it was at least possible to single out the Southeast Asian insular tradition as a specific and identifiable bookmaking culture. With regard to that particular region, further questions arose: What binding elements were

due to ‘foreign’ influences, and what features were of local origin and unique? And in addition to these questions, it seemed logical to ask: What other regional-specific traditions—even those that were used for only a limited time—can be identified in the rest of the vast Islamic world? My assessment of the Leiden Oriental collections was designed to address these questions, and to examine the idea of a refined classification system.

From the beginning, I believed that my technical interest and experience as a conservator would guarantee a novel, craft-based approach and insight into material aspects which have not been used, thus far, in other examinations of Islamic bookbindings or the historic treatises on the Islamic bookbinding practice. Additionally, I added a new perspective and greater depth to the research by verifying or testing my findings, based on the physical assessments and the literature analysis, by making of models. This practical component in the study provided a unique opportunity to scrutinise the techniques that may have been used, their technical details or unexpected divergences. It also formed a basis and a different perspective from which to analyse the few existing historical treatises on Islamic bookbinding; thus, already known sources provided new insights into the bookbinding tradition. It is important to note that this method of analysis is not yet exhausted; the historic sources are not completely available in translation and as a consequence, the present study was based on only those parts or summaries accessible in English.

Development of the Tradition

The Archetypal Islamic Manuscript Structure and Binding

The results from the survey confirm that an archetype of the Islamic bound manuscript can be defined, but contrary to the idea that this type did not change much over the centuries, the results also demonstrated a multiplicity of techniques and materials used. The Islamic manuscript is predominantly sewn with an unsupported link-stitch sewing, the textblock spine is lined, and the lining material supports a traditional endband, consisting of a primary endband sewing onto which a decorative pattern is woven, forming the secondary endband. The sides of the lining that project beyond the width of the textblock spine, are also used to strengthen the board attachment. Furthermore, we have seen that most bindings were built on the textblock in stages, which could involve the partial preparation of the individual boards, separate from the textblock.

By using this common language, bookbinders produced artefacts with a clear cultural identity, and as the structures of these manuscripts were functional,

fairly durable, and not complicated in terms of the binding procedure, there was little need to further develop or alter the construction. Nevertheless, within the basic and archetypal binding structure, the craftsmen found opportunities for personal interpretation. For example, the more or less equal occurrence of leather and cloth spine-linings over a long period of time and a large area, indicates that there was no shortage of either of these materials. Therefore, the choice of leather or textile was probably transferred from master to apprentice without a particular technical implication, or it may be attributed to personal preference.

With most archetypal Islamic bookbindings, an envelope flap is attached to the back board. Flaps are found on the oldest surviving examples from Mamluk times and were applied throughout the Ottoman era. Thus, this distinctive Islamic feature spread from the Arabian Peninsula to the Iberian Peninsula and West Africa, the Balkans, Central Asia, and the Indonesian archipelago. However, the flap was sometimes omitted while other archetypal characteristics of the binding were preserved; such bindings were first made in Turkey, in the early sixteenth century. It appears that in total, nearly 20% of the bindings were made without a flap. Nevertheless, the envelope and fore-edge flap became the typical feature par excellence, directly associated with Islamic culture. Eventually, these flaps were also frequently attached to Islamic bindings not made in the archetypal way, for example, those made with a stabbed textblock or sewn on sewing supports. This illustrates the need to distinguish between archetypal appearances and archetypal constructions; the two can overlap, of course, but each can exist in combination with various traditional or borrowed techniques and materials.

From close observation of the covering techniques, I obtained important new insights. Even though the existence of the two-piece technique was not entirely disregarded before the present study, its frequent and early use—the earliest occurrence dates from the thirteenth century—was unknown. Moreover, up to the eighteenth century, bookbinders appeared to prefer the two-piece technique over the use of one piece of leather for full leather bindings. Furthermore, the two-piece technique was occasionally used for partial leather bindings. Within this group, the overlapping parts of leather were found on a number of partial leather bindings with a paper covering on the boards, and on all the lacquer bindings. In light of the popularity of this technique, it is noteworthy that the survey outcomes display a significant decline in its usage over the nineteenth century, and that no exemplars of twentieth-century manuscripts bound with the two-piece technique were found. This may indicate the possible disappearance of the method in the twentieth century. The rationale behind this development, the shift of preference from

the two-piece technique to the method of using one piece of leather, is not yet known.

Of the partial leather bindings, I did not find any dated examples before the sixteenth century. Comparing the numbers of full leather bindings with the partial leather bindings in the subsequent centuries, it is worth to note the continuous and dominant practice of binding in full leather. Even though the covering scheme of the partial leather binding became a common technique, it never was the prevalent method, and the use of decorated papers appears to be closely related to larger centres of bookmaking, where decorated papers could easily be obtained; in peripheral areas the consistent use of full leather bindings may signify the unavailability of decorated papers in those regions. At the same time, it is important to note that the partial leather binding was consistently manufactured with papers that were decorated in some way. When the papers were not marbled or block-printed, they were, at least, dyed in one colour, such as olive green or pale red. This seems to suggest that this covering technique was never meant to be the cheapest possible way of binding.

Another significant, and so far disregarded technical aspect is the application of the leather covering on the textblock spine; this aspect offers essential information about the construction of the bindings. The large number of tabbed spines that were found convincingly point to a technique in which the binding was assembled on the textblock; moreover, the even more prominent absence of turned-in spine-endings clearly signifies that the Islamic binding was not made as a case structure apart from the textblock. I found only a few exceptions, most of which belonged to a group of unsewn textblocks with connective strips and wrapper bindings. For that particular group of bindings, the use of the turn-in technique at the head and tail of the spine of the binding—continuous with the turn-ins over the board edges—is completely logical. Indeed, this technical characteristic actually supports the idea that Islamic bookbinders used techniques that were best suited, from a practical and economic viewpoint, for a certain binding type.

A Varied Repertoire

Apart from the archetype, and the variety of materials that could be used to manufacture that type, we have seen the development of different structures and binding types. It is likely that this development was promoted by a growing market and a wider reading public. Binders must have felt the need to develop bindings for a less prosperous clientele and the limp leather binding that emerged in the seventeenth century is an example of such a new binding type. The bookbinding practitioners probably anticipated and responded to

the changing market, for example, by offering notebooks for personal use in a portable format, in varying degrees of luxuriousness.

Other changes were made in the sewing structure; we have seen the appearance of the link-stitch on four stations, which may have been developed as a technique for repair sewing. From the manuscripts studied, I can conclude that Islamic bookbinders adjusted their traditional techniques pragmatically and sensibly. For example, when thin texts comprising only two or three gatherings needed to be sewn, the archetypal construction was often adapted. Clearly, binders understood the structure well enough to be able to do so: in the case of the thin textblocks, refraining from the primary endband sewing required an extended link-stitch sewing. Similarly, in the nineteenth century, variations of the predominant structure appear, in response to the altered or new materials the binder was confronted with. For example, gatherings of thin and fragile machine-made paper were sewn with a link-stitch on four stations to divide the possible strain on the paper, caused by the sewing thread, over more sewing stations.

Transmission of Techniques and Methods

As the geographic boundaries of the Islamic world changed over the centuries, they came to include many cultures and ethnic groups in various regions. With the spread of Islam and the Arabic script, we see the dissemination of the manuscript tradition as a whole. How this process came about is unknown. Did bookbinders from the established centres travel, and did they set up workshops and teach their art in the new regions? Or did indigenous craftsmen learn the new binding language by examining and imitating manuscripts which were brought by their new rulers? It is likely that the portability of manuscripts facilitated the distribution of the craft. Thus, the bookbinders may have adopted Islamic features, or even complete structures, depending, perhaps, on the adaptability of the techniques to their native methods. When we consider the fairly strong individual tradition in Southeast Asia, the course of events probably evolved according to the latter scenario. Indeed, if traditional bookbinders had been brought from the established centres in the Middle East, it is not likely that they would suddenly have developed such a divergent form of their craft, one that included more complicated sewing structures and frivolous endbands. If, on the other hand, local craftsmen set out to reproduce the imported manuscripts, they would necessarily have copied the manuscript structures and bindings by interpreting the archetypal manuscripts they had as examples. Before Islam was introduced in Southeast Asia, there was no culture of the codex. Texts were written mainly on palm leaves,

bamboo or tree bark. Also, it would have been quite logical to introduce materials specific to the region, such as dluwang, rattan or bamboo. In addition, for this specific region we have to keep in mind that the Islamic culture was not the only important influential factor; there may have been European books which functioned as examples for bookbinders; this possibility seems a likely explanation for the occurrence of sewing supports in some of the Southeast Asian Islamic bindings.

Another important discovery was made during the survey of the Malay collection in the UBL. It became apparent that a substantial number of manuscripts that I would have selected because of their binding characteristics, were beyond the scope of my survey because they did not conform to the criterion of script. These manuscripts were not written in Arabic, but in scripts such as Javanese or Buginese.¹ The fact that the Islamic bookbinding tradition was used for manuscripts in non-Arabic scripts is noteworthy, particularly given that the content of some of these volumes may be, originally, associated with Hindu culture, as is the case of the *Ramayana*. The common format for manuscripts originating from the Hindu culture is very different from the codex; the textblocks have an elongated horizontal format and consist of single sheets with unsewn leaves.² The codex format was introduced in Southeast Asia with the advent of Islam, together with the Arabic script, and as we have seen, the Islamic community in this region left its mark on the Islamic binding tradition with a change in the sewing structure and the addition of the characteristic tufts on the sides of the endbands. To find an Islamic type of binding on volumes in other scripts containing texts—and sometimes miniatures as well—that originally belonged to the Hindu community, signifies that these texts were incorporated into the Islamic culture. Otherwise, there would have been no reason for the physical transformation of these manuscripts. The same development is described by Brac de la Perrière, who notes that manuscripts from the Indian sultanates she examined were, a priori, manufactured in the same fashion as in the rest of the Islamic world, regardless of the origin of the texts being Islamic or non-Islamic.³

1 For example, in Javanese script, Or. 4931, a *Ramayana*, and Or. 4946, a cosmogony; in Buginese script, Or. 5449, a historical manuscript from Luwu', and Or. 5450, a collective volume that includes the story of the Prophet Muhammad's ascent to heaven and the 'Book of the Thousand Questions,' with some Arabic script.

2 This format has its origins in the use of palm leaves, which was the predominant writing material in early Hindu and also in Buddhist cultures. Even after the introduction of paper, the elongated horizontal format remained the common shape of the textblock.

3 E. Brac de la Perrière, *L'art du livre dans l'Inde des sultanats* (2008), 109.

In North and West Africa, the Islamic manuscript tradition developed with still other features and a characteristic appearance. Although our awareness of the differences in material characteristics helps us to recognise regional variations, to date we do not understand how and why these varieties developed. Also, the assumption that a cultural or religious background can be easily identified by the physical appearance of a book needs to be reconsidered. When books differ in shape and key features, their otherness seems to be obvious, but we need to be aware that, as the technique of bookbinding spread and developed, traditions and practices may have mingled. We have seen examples of manuscripts which appeared to be bound in what we call an Islamic binding; in the UBL collection, a few manuscripts were found with a decidedly Islamic outer appearance, yet they appeared to originate from the Arab Christian community. They were sewn with a link-stitch that could be called Coptic, but otherwise they were bound according to the Islamic tradition.

The Complex Nineteenth Century

Trying to disentangle the jumble of data that characterises the nineteenth century is like starting on the wrong side of a knot every time. Many factors play a role in the developments of the bookmaking industry in that period and we do not have the factual foundation to support any particular line of thought. Materials changed, the quality of imported paper from Europe declined, because handmade papers became scarce and machine-made papers, often made of wood pulp, increased in quantity. Mechanical processes also adversely influenced the quality of other materials, such as leather and thread. At the same time, the general acceptance of the printing press in the Islamic world stimulated book production and therefore need for bookbinding, especially inexpensive techniques, as the printing industry first and foremost supplied the general reading public with affordable books. Apart from these circumstances, the declining Ottoman Empire must have had its effects on the bookbinding industry in the large urban centres, such as Istanbul, while the influence of western bookbinding methods and their visual appearances become more noticeable. We can only speculate about the situation in more remote areas. Much of the material evidence seems to indicate that binders moved farther away from archetypal and traditional methods. Hybrid structures and bindings are no exception, books could be sewn on cords—as western books were—but still have the appearance of typical Islamic bindings. Other specimens were sewn with typical link-stitch sewing but their covers may extend beyond the textblock, making the books resemble western bindings. Of particular interest, however, are those constructions that are not the straightforward result of the Islamic binding tradition, but also do not evolve from European techniques.

Examples are the saw-cut endband or the endband concealed underneath a thick, rigid, long tabbed leather spine. These features can be explained as economising methods, but it is quite possible that in some way the traditional techniques eroded and binders sought methods to create features that resembled the archetype they were remotely familiar with.

Most of these more or less uncharacteristic elements or altered structures seem to be negative developments; the artefacts lack the compact, light but strong quality they had in earlier centuries and we get the sense of the loss of a tradition, as if the binding language was no longer understood. In certain cases, the loss of strength or functionality is evident. However, this slackening of tradition may also have provided room for some new ideas and attempts to improve the familiar book construction and format. An intriguing example of this is a binding with a fore-edge and envelope flap which, when closed, fits into a space in the front board that was left vacant for the envelope flap to rest.⁴ The layers of the inner surface of the front board were cut to size or were peeled away to create a space for the flap piece (figs. 197–199). Although typically the board thickness was the same as the other parts of the binding, in this case, the board of the envelope flap is thinner than the rest of the front board or the back board, so as to fit nicely in the space thus created in the front board. After covering and applying the doublure, the intervention in the board is hardly visible. But, when the book is closed and the envelope flap is nicely accommodated in the front board, we can see how this adjustment of the book shape would lead to a more even stacking of books when shelved horizontally. The upper surface of the manuscript—as it lays on its back cover—is more level with the ground surface than it would otherwise have been. As a result, the final stack of books made this way would not tip over. All the same, I only encountered one item with this particular board adjustment for the flap. Was the new feature not well marketed? Was it considered too peculiar and not worth copying? Did the economic and cultural situation dictate retrenching instead of complicating the production process? Until more examples are found, these questions cannot be answered.⁵

4 Or. 12.454, a manuscript dated 1673, was rebound in the nineteenth century; this follows from paper repairs and the machine-made papers that were used as tipped-on endleaves.

5 One example recently came to light and was described by Ruth Bardenstein, 'Historical bindings of the Chamberlain-Warren Samaritan Collection' (2016), 138.



FIGURE 197 *Or. 12.454. The arrow points at the recessed part in the front board, designed to accommodate the envelope flap.*



FIGURE 198 *Or. 12.454. The front board is thinner along the fore-edge, and the envelope flap fits this space.*

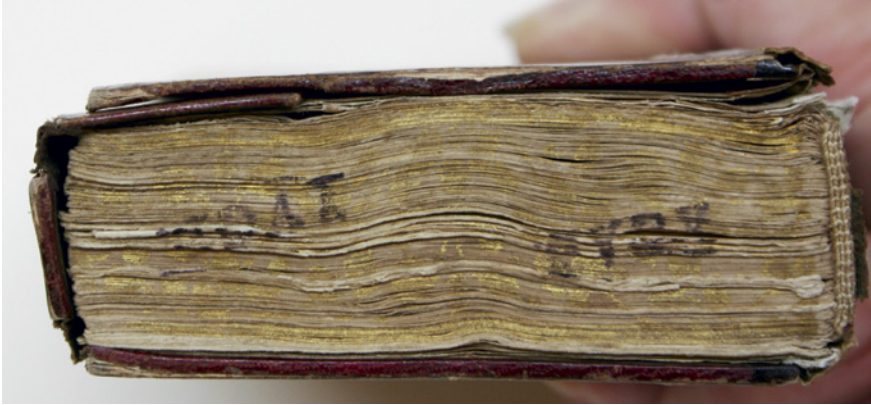


FIGURE 199 *Or. 12.454. Closed, the front board accommodates the envelope flap.*

The Transition to Printed Books

A preliminary survey of the Arabic printed book section in the UBL brought to light a number of interesting facts.⁶ The incunabula of the Islamic presses were bound as if they were manuscripts;⁷ the materials and techniques used to make these volumes do not differ from manuscripts made in the same period. Moreover, since the eighteenth century concerns the period in the Islamic bookbinding tradition in which several regional-specific varieties developed, it is interesting to observe that the printed book appears to have adopted those features that define the manuscript tradition in the region of production at that time, such as tabs and the two-piece technique, a twig in an endband core, fringed and saw-cut endbands, and connective strips; these printed books do not merely display the archetypal binding characteristics (figs. 200–202).

6 This survey was undertaken together with H el ene Merlet, as part of her internship from November 2012 to February 2013. From the Arabic rare printed book section in the UBL, all volumes with Islamic bindings were identified. In total, 529 volumes were recorded. From this selection, Merlet focussed on books printed in Cairo and Istanbul. See H. Merlet, *Le livre islamique entre Orient et Occident. Consid erations techniques et historiques sur les reliures orientales et leur conservation au travers des collections de la Biblioth eque universitaire de Leyde* (2013).

7 It is difficult to identify the Islamic incunabula period precisely. In 1727, in Istanbul, Ibrahim M uteferrika founded the first press that printed texts in Arabic script. It was active between 1729 and 1743; in 1784 it became a governmental publishing house. In Egypt, the first press to print Arabic in movable type was founded in 1819, in Bulaq, Cairo, shortly after the first book in the Persian language was printed in movable type in Iran, in 1817. The advantages offered by lithographic techniques, however, motivated many publishing houses to use this technique instead; especially in Iran and the Indian subcontinent many books were printed in lithograph from the second quarter of the nineteenth century onwards. See M. Pehlivanian, *Exotische typen. Buchdruck im Orient—Orient im Buchdruck* (2006), 90–127.



FIGURE 200 *UBL 891 E 37 (Singapore 1877). The endband core is a wooden stick, the secondary endband is missing.*



FIGURE 201 *UBL 891 E 37 (Singapore 1877). A stabbed textblock, though the gatherings consist of proper bifolios.*



FIGURE 202 *UBL 891 E 37 (Singapore 1877). A binding in full leather with the two-piece technique.*

Accordingly, we find books printed in Cairo, bound in typical bright red leather with modest tooling, their endbands similar to the roughly made endbands found on manuscripts of the same provenance. Several printed works from Istanbul display gold painted decoration on the leather covers; these decorations were also found on nineteenth-century Turkish manuscripts. There are stabbed volumes and saw-cut endbands from Yemen (fig. 203). The similarities between printed books and bound manuscripts illustrate how the binding tradition resonated in the bookbinding industry of printed works.



FIGURE 203 UBL 845 A 19 (Sanaa 1928). A saw-cut endband on a book printed in Yemen.

Quite surprisingly, the section of Arabic printed books also contains substantial numbers of unsewn textblocks with connective strips and wrapper bindings (fig. 204).⁸ The theory as proposed in chapter 5, which hypothesised that unsewn manuscripts in wrapper bindings may have been used in copying workshops because the loose gatherings could be easily, and simultaneously distributed among several copyists, is not relevant in light of these printed equivalents. Would one still have had to worry about the copying process when there were multiple printed copies available? The other theory, however, may hold true for these printed books: the unsewn manuscripts in a wrapper binding were a product for the retailer, who was able to keep them safely accessible and eventually sell the specimen cheaply. From the results of this preliminary survey, we can also learn that the practice of not sewing the textblocks was more widespread than initially indicated by the survey of the Arabic manuscripts. In the UBL manuscript collection, the only dated and locatable unsewn textblocks with wrapper bindings were specimens from Egypt. Among the printed volumes, we also found examples from Saudi Arabia, Turkey, and Malaysia.

⁸ Merlet recorded at least 83 unsewn textblocks with connective strips and wrapper bindings, often with the additional protection of a matching slipcase. See H. Merlet, *Le livre islamique entre Orient et Occident* (2013), 24–25.



FIGURE 204 UBL 865 C 24 (Cairo 1876). An example of a printed work with unsewn gatherings. Remnants of the connective paper strips are visible on the spine.

The occurrence of partial leather bindings with the two-piece technique on printed books (figs. 205, 206) is also intriguing. Another item from the printed collection provides an interesting reminder of the importance of possible differences between place of printing and publishing, and binding; the study of a book's materiality can help establish its provenance. The item in question is a small Qur'an, printed in Istanbul, shelf-mark 870 E 25 (fig. 207). Its binding consists of full leather covers and a fore-edge and envelope flap, the endband core is formed from a twig or reed, and the secondary endband has fringes on the sides. We now know that these endband characteristics indicate that the binding was made in Southeast Asia, and this structure, with its *dluwang* doublures, is a typical Southeast Asian, possibly Javanese product, whereas the textblock was printed in Istanbul. The textblock of this Qur'an may have been bought by a Haji, and then brought back to Indonesia and bound there.

And there are still other practices that we associate with manuscript culture that can also be found with printed books, such as the method of shelving



FIGURE 205 *UBL 848 D 15 (Istanbul 1804). A partial leather binding with all edges covered in leather, and a marbled paper covering the boards.*



FIGURE 206 *UBL 848 D 15. Detail of the spine; the arrow points at the seam of the two-piece technique, used for the covering in full leather.*



FIGURE 207 UBL 870 E 25 (Istanbul 1860). A binding with typical Southeast Asian features, such as the *dluwang* endpapers, the endband with frilled sides and a secondary endband pattern in three colours.

volumes on their front or back covers, instead of placing them upright on their bottom edges. The presence of numerous titles written on the tail edges of the textblocks of printed books is evidence of this practice (fig. 208).

Given the preliminary stage of the study of the printed books, this paragraph is just a tentative exploration of the topic. However, it illustrates the potential source of information to be found in the materiality of Islamic printed books. As the later centuries of the Islamic manuscript tradition seem to be defined by variety in shape and construction, and the traditional techniques become more scattered, there is an increasing need to study a large corpus, one that represents as many production centres in the Islamic world as possible.



FIGURE 208 *UBL 870 A 6–8 (Cairo 1852–1857). A set of three full leather bindings, made with the two-piece technique. With two volumes the titles are written on the tail edges; the volume lying on top has the title inscribed at its head edge.*

The material characteristics of printed books may provide important supplementary data.

A Profile of the Repairs

As many manuscripts were used frequently, materials and structures suffered from handling, travel or changes in climate circumstances. These kinds of damages could be remedied in a number of ways, varying from professional repair or rebinding to well-meant but rather clumsy mending. At the lower end of the scale, it is difficult to capture the execution of the work in a general description, other than to note that the repair patches and interference are

of an unorthodox nature. It seems that whatever was at hand could be used, regardless of whether such materials matched those in the original bindings. Moreover, it was not uncommon to repair repairs, which confirms that aesthetics were not of great importance. The ability of the mender to use needle and thread likely determined whether the repair patches were attached with adhesive or were sewn. In some cases, supportive leather patches were sewn with leather lace, which required specific tools such as an awl, and a needle specifically suitable for leather, and tongs to pull the lace through the layers of leather and pasteboard. This may point to the possible involvement of shoe or saddle-makers in these repairs, as they would have had such tools and leather at their disposal.

Although it is not always possible to say whether repairs were carried out by a binder or a well-informed layman, many manuscripts were repaired by persons who knew what they were doing very well. They used proper materials congenial to the object and applied techniques derived from the Islamic bookbinding tradition. A few details are of particular interest. The leather covering of spines is particularly vulnerable to wear and tear, the joints may wear out after too much flexing or friction. As a consequence, although the boards may still be intact and capable of protecting the book, damage to the joints may undermine the capacity of the boards to provide that protection. Repair of the joints is then the obvious solution. Assuming that the level of intervention depends on the amount of damage to the spine, the exterior joints could be mended with relatively small strips, or the old spine covering could be replaced completely. Especially when the textblock itself required resewing, the renewal of the covering spine would be the obvious choice. It is remarkable that the repair spine was often applied with the two-piece technique; we might ask why the binder did not use one piece of leather for this intervention. At least two theories answer this question logically. The use of two pieces of leather would allow the binder to use up smaller strips of leather, a welcome opportunity to economise. Additionally, however, the use of separate strips may have been inspired by the wish to preserve as much of the original tooling along the board edges as possible. With the two-piece technique, the leather application would start at the board's edge and thus, care could be taken to paste the new leather carefully underneath the old covering leather, or else over the old leather, but neatly along the tooled frame-line. The extending part of the leather was then pasted onto the textblock spine. Working with just one piece of leather would not allow for such precision. As the two-piece technique was a common working method anyway, this repair technique is not such a surprising option.

The aesthetics of the repairs is another matter. As mentioned above, they may be roughly divided into repair treatments that were meant to go unnoticed,

and mends that primarily served to keep the manuscript's composite elements together or maintain its accessibility. The leather spines are vulnerable to abrasion and the tabbed ends may be torn or decompose. As mentioned in chapter 5, it is quite feasible that many of the once existing tabs were cut more or less flush with the endbands as a preventive measure, to avoid further damage. Other books have repair pieces of leather at the head and tail; we noted that repaired spines were often executed with tabbed spine-ends. Again, some of the mends blend in with the original and others were executed more clumsily. Often the new leather was pasted on top of the old leather; sometimes the colour matches the original beautifully, but often there is a colour difference. This difference may not have existed when the intervention was done, however; due to the dissimilarity of the leather dyes, the skins may have started to show colour differences with age. In other cases, it is clear that the repair patches never matched the original.

The oldest and most common repairs can be found in the spine-folds of gatherings. These paper repairs, serving the resewing of textblocks, often display the admirable manual skills of the binders. The common repair and resewing of textblocks can be divided into two groups. The largest by far consists of manuscripts that were sewn in the traditional manner, with a link-stitch sewing on two stations. These manuscripts were treated the way new manuscripts would have been sewn. The smaller group of manuscripts, resewn with a link-stitch sewing on four stations, indicate that some binders took extra care to avoid tension on the weakened paper. We can only tentatively explain how manuscripts resewn with stabbed sewings fit into this picture. Was the stabbed sewing simply a time-saving repair, keeping the damaged textblock together, but avoiding the investment of time and materials necessary to repair the paper and individually sew the gatherings? Or was this method used because of a lack of expertise? In many instances the actual circumstances underlying such repairs will remain unknown to us.

Discussion

The Perception of Islamic Bookmaking from a Western Perspective

Over time, the outward appearance of Islamic bindings was appreciated in several ways. Decoration techniques such as gold tooling and marbling, and the design of the ornamentation were widely admired, and as a consequence, imitated by European binders. Think of the interlaced knotting patterns and the use of central medallions, flanking medallions, and corner stamps which inspired European binders. An admiration for the aesthetic qualities of Islamic

bindings is also illustrated by the numerous institutions and private collectors who purchased Islamic manuscripts and even empty covers, solely because of their exquisite craftsmanship and splendid designs. While the exotic quality of these manuscripts may have enhanced this appreciation, it was only true for visual characteristics. With regard to the structure's composition, it seems that the unknown really was unloved. In the literature analysis, we noted multiple examples of this phenomenon. One of the first to express ignorance of the Islamic binding procedure was Jean Chardin, who deprecated the sixteenth-century Persian bookbinders for using the two-piece leather technique rather than one piece like western bookbinders did.⁹ This negative conception was confirmed by William Hoey, when he wrote: "The work of the oriental bookbinder has not the durability or finish of English work."¹⁰ This nineteenth-century view percolated through to influence the perception of twentieth-century students of Islamic manuscripts. This misconception—that the Islamic book structure is a faulty construction, not fit for the manuscript's function—is even shared by many of those who, otherwise clearly express their appreciation of the Islamic manuscript culture.¹¹

In general, judgements of Oriental binding structures are skewed by the western perspective. The western binding tradition is unmistakably regarded as superior to the eastern tradition, if only for the reason that it shows development and change. The fact that this change is not necessarily positive, or equivalent to improvement, is easily disregarded. Indeed, from the invention of the printing press onwards, bookbinders in Europe started economising, mainly by speeding up the sewing process and developing methods to simplify the operation, and secondly, by using cheaper or less material.¹² This meant cutting down on the thickness of the sewing supports, reducing the number of sewing supports—both for sewing and board attachment—and diminishing

9 J. Chardin, *Voyages en Perse, et autres lieux de l'Orient* (1711), 4:259.

10 W. Hoey, *A monograph on trade and manufactures in Northern India* (1880), 122–123.

11 G. Bosch et al., *Islamic bindings and bookmaking* (1981), state, for example: "Noteworthy in Islamic manuscripts is the frequent use of a sewing thread, of linen or often silk ..., which is much too thin for the binding function it should perform, and which characteristically breaks down. Also usually only two sewing stations are used, unrelated to whether the format or weight of the book requires sewing support at more points," 46, and "Regardless of the sequence of operations used to construct it, the Islamic book cover ... can be considered as a separate structural unit—as the fact that so many covers have survived intact, but separated from their original textblock, abundantly witnesses," 56.

12 I argued this line of thought further in the paper 'Neither weak nor simple' (2014), 253–269. For an elaborate description of the economising methods of western bookbinders, see N. Pickwood, 'Onward and downward: How binders coped with the printing press before 1800' (1994), 61–106.

the structural function of the endband. Additionally, adhesives were introduced to compensate for the resulting weaknesses in the binding structures, these sometimes even inhibited proper functioning. When the consistent Islamic binding tradition finally started to decline in the nineteenth century, binders began to adopt techniques and materials from the West, just as the western bookbinding tradition was at its lowest ebb. The resulting loss is larger than just the disappearance of the classic Islamic binding tradition. The idea that the historic structures were not functional or failed to protect the content properly, led to vast rebinding campaigns in the Islamic world throughout the twentieth century. Often, modern western binding techniques and materials were employed in the rebinding, even if the original boards were reused or when new covers were made according to Islamic design.

Observation and Experimentation

Initially, the examination of a rather random selection of original manuscripts led me to believe that we had much to learn about Islamic manuscript structures. What had been written so far about their manufacture was not always correct, and I noticed a general misconception about their functionality and strength. In order to generate more coherent information, I restructured the database used for the pilot survey and extended the assessment of the physical characteristics to the whole of the Arabic collection. The outcome testifies to the intrinsic value of the artefacts. The autopsy of the manuscripts also proved very helpful in studying the historical sources; without the original objects as a reference, it would not have been easy to try out and to explain the summary instructions written down in the historic treatises. However, a third method of study proved essential to test the findings based on the visual examination and the analysis of the historic treatises: the making of book models.

These mock-up manuscripts were made in accordance with the observations generated by the survey, which means that a variety of types and constructions were made in order to experience what difficulties were associated with particular methods and techniques. From this exercise it became clear, for example, that it is highly unlikely that *çaharkuşe* bindings were made as case structures. Also, the experience of making partial leather bindings as built-on structures then led to the idea that the two common types of full leather bindings—those covered with one piece of leather or with two pieces of leather—could have been made in the same way. For the full leather binding made with one piece of leather, this built-on structure is more obvious; nevertheless, a binding with the two-piece technique could also be made this way. It seems logical that this particular method was initially developed to prepare and decorate the boards individually, off the book, which were to be adhered

onto the spine after tooling the outside covers. However, the two pieces of leather may also have been used to cover boards while they were positioned on the textblock, in the same manner as was done with partial leather bindings. The technique allowed the binder to focus on adhering the leather on one board and the spine; and then, once that cover was satisfactorily attached, continuing to the other board and the second piece of leather. Regardless of the exact execution of the full leather bindings made with the two-piece technique, it is now clear that both these techniques, as well as the partial leather bindings and the full leather bindings made with one piece of leather, can be considered built-on structures.

The making of manuscript mock-ups proved invaluable in a way I could not have predicted. (Examples of models are given in figs. 209–219.) Without making the actual models, the inevitable presence of the tab may not have occurred to me. Using the variety of materials also available to the Islamic craftsmen taught me how these materials behaved, and why the oriental binder did not question the strength and functionality of the link-stitch sewing; indeed, he experienced the soundness of the structure while sewing the primary endbands on the sewn and lined textblock, as did I when making the models. Thus, testing the theory through practical experience, and experiencing the workflow, greatly enhanced my understanding of the process as a whole.

The Impracticability or Drawbacks of a Typology

A typology aims to simplify and categorise a large amount of data. Its main purpose is, of course, to bring structure to this data, and subsequently, to allow for easy reference and a generalised description of the objects on which the data is based. However, a typology may obscure the overview of the whole spectrum when the subcategories are too broad and based on specifics that are, in fact, not so very specific. The typology of Déroche is an example of this. Apart from the first category he proposes, the Type One (the box-binding), it only distinguishes between manuscripts made with or without a flap. The manuscripts within the group with an envelope flap, the Type Two bindings, contain virtually all the specific features and particularities that exist in the Islamic bookbinding tradition, in a wide range of varieties. However, the same is true for the manuscripts that make up the other group, the Type Three bindings; except for the envelope flap, within this group all other Islamic binding techniques and structural characteristics can be found. Consequently, this method of division is not very useful as a typology for classifying or surveying manuscripts with features specific to a particular region. On the contrary, it has a counter-productive effect, as it purports to be a useful tool while it is not: people may stop looking further for distinctive characteristics.



FIGURE 209 *A model of a full leather binding with cloth doublures on the boards, a leather doublure on the flaps, and an additional leather inner joint. The leather turn-ins overlap the cloth.*



FIGURE 210 *A link-stitch sewing on four stations. The cloth lining is incomplete and the leather spine not attached so as to keep the sewing visible.*



FIGURE 211 *A leather spine-lining with flanges long enough to form the covering of the interior; at the front the doublure is not attached so that the warp threads remain visible.*



FIGURE 212 *A see-through model with a cloth spine-lining; the full leather binding is made with the two-piece technique.*



FIGURE 213 *A see-through model with a leather spine-lining. The binding has a partial leather covering with leather strips on all board edges.*



FIGURE 214 *The inside at the front of the same model. The upper part of the leather flange is not pasted onto the board to show structure.*



FIGURE 215 *A model of an unsewn textblock with connective strips (of leather) and a wrapper binding.*

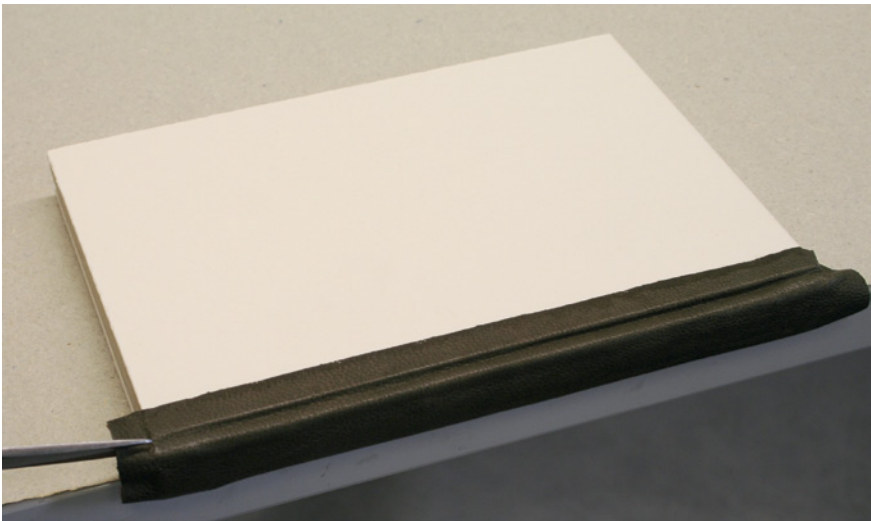


FIGURE 216 *The making of a partial leather binding. After the application of the spine leather, the extending leather at head and tail needs to be cut in line with the joint, to allow for the making of the turn-ins.*



FIGURE 217 *Detail, after the cut was made and the small part of the extending leather was turned-in over the board edge.*



FIGURE 218 *The making of the next cut at the other joint, so that the turn-in over the other board can be made. After this, the remaining extending part of the spine leather forms the tab.*

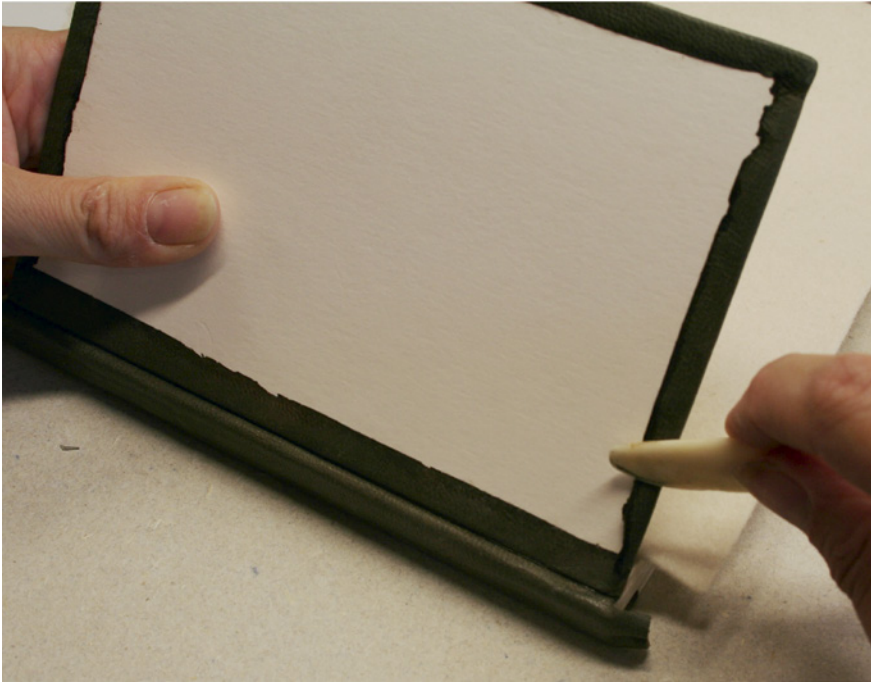


FIGURE 219 *After the leather on the spine has set and dried, and the turn-ins over the boards are made, the remaining edges of the board are covered with strips of leather.*

On a stylistic level, the political and cultural periods have provided useful anchors for classifying the bindings. Terms like Mamluk, Safavid or Persian bindings are generally accepted as a first categorising of the bindings, although the term Ottoman covers already such a huge geographical area and such a long period that it can only be an initial indication of a type. Though these categories work as an art-historical criterion, with respect to structural features they are not useful. Basic characteristics of the archetypal Islamic binding, such as the two-piece technique, tabbed spines, and leather or cloth full length spine-linings, are found in all periods and cultures. Therefore, labels based on historical periods or dynasties are not suitable as a basis for a structural typology.

Ideally, a typology differentiates between technical structures, and allows for further subdivision with respect to the outer form and the materials used. In the case of the Islamic bookbinding tradition, this results in a complex system, as both the differences in sewing structures and variations in covering schemes are essential for the technical classification. For example, the two-piece technique is found as a common method of leather application for full

leather bindings, but it can be used for çaharkuşe bindings as well. What is more, it is also used for those bindings that have a leather spine only, such as lacquer bindings. However, thus far, manuscripts with lacquer bindings only seem to have been made with a link-stitch sewing, whereas the textblocks in full leather bindings—made with one or with two pieces of leather—can be link-stitched, stabbed textblocks, or sewn on supports. Conversely, unsewn textblocks clearly stand out as a specific category. It appears that they never contained a wrapper binding made with the two-piece technique, though these wrapper bindings could be covered in full and partial leather. Accordingly, it seems that technicalities traverse almost all binding types, though bookbinders had specific reasons, based on practical knowledge, to exclude certain practices from certain categories. As a result, the ramification of possible varieties is large. This significantly complicates the grouping of the different features, and a nomenclature would become artificial, or pointlessly lengthy when the characteristics involved are to be incorporated in the name. It also means that a relatively simple typology is not an option, contrary to my initial thought, that the various groups within the Islamic bookbinding tradition needed sub-classifications. Rather than trying to fit a manuscript and its binding into one category, thereby implying that its characteristics could be neatly typified, I suggest instead that the diverse aspects should be described individually and specifically.

Further Study

In the process of identifying the selection criteria for the assessment, I regarded some features as unhelpful at that particular stage of the survey. These features offer avenues for further study.

With regard to material knowledge, for example, we still have much to learn about the leather made and used in the Islamic world. Images of a 'typical' grain pattern of goat, sheep or calf leather can quite easily be found in handbooks on bookbinding or in conservation literature; these often include drawings representing the archetypal patterns in order to stress the difference between the animals. Unfortunately, many of the skins we encounter in reality do not resemble these patterns, they lack the clarity and straightforwardness these illustrations conjure up. Apart from the fact that the correct identification of leather is hampered by aging of and damages to the skin such as abrasion and physical-mechanical damage, the natural deformation of the grain patterns in 'armpit' areas and pleats towards the belly complicate pattern recognition. But more importantly, although it seems that different species of goat and sheep have particular characteristics, some of these animal species also seem to share features. In addition, it is evident that we lack in-depth knowledge about the

differences in the other types of leather that may have been used in the Islamic world. It seems that camel leather may have been used on occasion, or leather made from the skin of a mule or donkey or different kinds of deer. Given the enormous geographic region from which the bindings come, it is likely that many varieties of species were used as a source of leather. Further study might help to identify these species, and subsequently, the origin of the artefacts.

Another topic of material study concerns Islamic and European paper; papers used for writing texts, as well as the decorated papers made in the Islamic world. Apart from our limited knowledge about handmade Arabic papers and those made in Central Asia, there is still much to learn about the trade of European papers to and within the Islamic world. Additionally, the use of decorated paper could offer clues as to the origin and dating of manuscripts. Current studies on decorated paper mainly focus on the manufacturing of these papers in Europe, but, with regard to Oriental books, it would be interesting to know how these papers were traded and exported to different parts in the Islamic world, and whether certain techniques, such as the making of brocade papers, were ever practiced locally. In short, there is still a lot to gain from studying the materials used to manufacture the objects. This would enhance the value of the materiality of the manuscripts as a source of information to establish provenance. The sub-Saharan manuscript culture deserves particular mention here. Though these artefacts were excluded from the present study when these artefacts lack a relevant construction (that is, because of their use of single folios), the material features of these manuscripts may provide leads for further research on their papers, leathers, fabrics, colourants, and the stylistic characteristics used for their wrappers and additional enclosures such as bags, pouches or slipcases.

Material research in diverse manuscript collections will be indispensable for a codicological framework. This is not just a matter of quantifying and verifying the findings of the present study. It will prove particularly informative to conduct surveys in different regions of the Islamic world, as it is believed, generally speaking, that most manuscripts in a certain geographic region are products of that area. Such assessments of local collections will offer much information on regional characteristics and will probably provide insight into the development of certain trends. Material research in other manuscript collections, in the Islamic and western worlds alike, may also shed more light on some of the theories proposed in this thesis. For example, the hypothesis that the composite leather binding evolved from a repair technique is now based on the flimsy evidence of just five manuscripts in the UBL collection. Other examples of the same technique will doubtlessly offer further clues. By the same token, we need more evidence on the first occurrences of the four-station

sewing technique. Was this a repair technique that developed into a regular sewing method, or was it an alternative sewing method which proved to be especially functional for the resewing of damaged textblocks? No doubt additional studies of the physical characteristics of Islamic manuscripts will teach us other things as well.

The study of the material culture and the binding trade are interrelated. As yet, little is known about the movements of binders, the trade in tools, or the dissemination of decoration schemes and stamps; we may yet find written sources to fill this gap in our current framework of knowledge, otherwise the information must be built piece by piece through the physical examination of the artefacts.

As mentioned above, additional information may be gained from a renewed study of the historic treatises on bookbinding. With an increased awareness of the various sewing structures and covering schemes, a thorough study and full translation of these sources may provide new clues as to the use of such techniques. It seems attention should be directed to paragraphs on board attachment, covering, and the application of doublures or endleaves in particular.

Historical travel literature is a further potential source of information. As mentioned in previous chapters, three rather matter-of-fact remarks on bookbinding practices were found in such travel journals or accounts. These turned out to be early observations of certain features and supported some of the findings in this study, while references to these specific techniques were not always found in relevant codicological or conservation literature. Furthermore, even though these texts may not offer a direct explanation of the characteristics described, they do provide context and add a period or geographical region to our framework. Although the three examples could be chance occurrences, they do seem to hint that we may find more information about local practices in this genre of literary sources.

Art-historical aspects of the bindings were not included in the present study, which first and foremost concerns pioneering research into the technical aspects of Islamic bookmaking. To extend the present research to cover a correlative study of stylistic features may be profitable; such an extension might consist of a sub-survey, including only the manuscripts preserved with their first sewing and binding. Thus, the results could eventually lead to the inclusion of more precise data on the decorative characteristics of particular periods and regions.

Finally, collaborative projects are needed. The considerations put forward in chapter 4 illustrate how the technical framework might be refined once a more detailed system of classifying Islamic scripts is available, and further research into the distribution of western papers in the Islamic world or a typology of

identified Islamic papers would offer more concrete data. On a different, but equally significant level, it is essential to establish joint efforts between specialists with in-depth knowledge of the contents of Islamic manuscript collections and specialists of the manuscripts' physical aspects. Ideally, the fields of expertise such as palaeography, philology, and codicology would be combined with the necessary book-archaeological knowledge in one person, but given the learning and experience required for any of these specializations, it is more likely that this combined knowledge will emerge from collaborative projects.

Conclusion

An Adjusted Identity

The general appearance of Islamic manuscripts has not changed over the centuries in the way western books have altered structurally and materially. Despite this apparent conservatism, significant differences in construction can be found, as a consequence of different local workshop practices or regional variations. On a more detailed level, we have seen that binders applied certain techniques in particular situations, for example when they chose to sew a formerly sewn, damaged manuscript with a link-stitch on four stations. They utilised the structural function of the primary endband sewing fully, but pragmatically; for instance, when they had to bind two gatherings only, they adjusted the sewing structure preferentially rather than supplying an endband they could not finish properly. Therefore, we must conclude that bookbinders in the Islamic tradition had a certain range of technical and material possibilities to carry out the job, from which they made choices in keeping with a given commission or situation. Accordingly, paying attention to the possible variations and the underlying rationale of their use may offer information on the provenance of a manuscript or the circumstances of its production.

The image of a conservative Islamic bookbinding practice was not only based on the relative consistency in the appearance of the books, it was also founded on a limited understanding of how a trade like bookbinding remained constant in the centuries before industrialisation. Gulnar Bosch and colleagues, for example, compared the implements for bookbinding that were described by Ibn Badis, al-Sufyani, and al-Qalqashandi to later depictions of such tools and scenes of the trade in a nineteenth-century Kashmiri manuscript of crafts and a seventeenth—or eighteenth-century watercolour of a North Indian bookbinder. They conclude, "It is a measure of the conservative nature of the Islamic bookbinding craft that most of the tools mentioned by these

earlier authors can be seen in the later depictions....".¹³ Let us compare this with an observation from Nicholas Pickwoad about the western binding trade:

From the end of the middle ages until late in the industrial revolution, the equipment and materials used remained essentially unchanged, to the extent that a binder from an early 16th-century shop could have walked into a workshop in the early 19th century and started work with scarcely a moment's hesitation—unless it were over the choice of decorative finishing tools he would have found at his disposal.¹⁴

It appears that both in the Orient and in the west, the craftsmen's workshop and his tools hardly changed over many centuries; in the West, however, the techniques of sewing, board attachment, and covering and the materials used to bind books did change substantially. As a consequence, the consistency in the tools used does not indicate a stagnant bookbinding practice, it merely proves that bookbinders had no need to change their tools, even though they changed their methods. There is no reason to think that the unchanged selection of implements used by Islamic bookbinders could not have produced the variety in binding techniques that we have seen.

Besides the idea of a stagnant and simple tradition, the image of the Islamic binding as an insufficient and weak product appears to be faulty. First and foremost, it is based on a profound misunderstanding of the construction, which is largely caused by a biased western perspective. This misjudgement is a result of looking at isolated techniques instead of observing them as a composite functional whole, and secondly, by comparing them to western equivalents which are, in fact, not equivalents at all. The link-stitch on two stations was dismissed and considered an improper sewing structure because in western bookbinding, it is mainly used for temporary structures or the sewing of ephemeral publications such as pamphlets or almanacs. By the same token, the leather inner joints were thought to be inadequate board attachments because the actual function of the spine-lining was not recognised and leather inner joints in western bookbinding were not essential for that binding construction. Perhaps the most significant misperception is the notion that Islamic bindings were made as case-bindings. We have seen that the term is not only a misnomer for the actual structure of the manuscripts, but, because case-bindings in the

13 G. Bosch et al., *Islamic bindings and bookmaking* (1981), 41; the images they refer to can be found on the pages prior to the discussion of these tools.

14 N. Pickwoad, 'Onward and downward' (1994), 61–62.

western tradition are products that resulted from extensive economising and speeding up the binding process with a mass-production component, they do not exactly have a favourable image. This has contributed to the depreciation of the Islamic manuscript structure.

Understanding the falsity of these two prejudicial notions fundamentally changes our understanding of the Islamic bookbinding tradition. It also has an impact on preservation strategies and the conservation needs of these items.

Implications for Conservators

Conservators equipped with more knowledge about the technique of Islamic bookbinding will approach these manuscripts differently. The rehabilitation of the Islamic manuscript structure and an awareness of its possible variations affect both the documentation made prior to treatment, and the treatment itself. The manuscript's composition as a whole requires attention, and careful observations need to be made in order to register possible traces of former sewing and binding. It is the conservator's task to indicate how a specific volume was constructed, and what materials were used. In short, the wide range of techniques and materials found in Islamic books requires a detailed report, and conservation documentation and object descriptions should reflect the conservator's understanding of the manuscripts' materiality.

Secondly, a better understanding of the structure has an impact on the possible treatment of these items. A conservator, prejudiced about the strength and suitability of an object's construction, has a perspective different from one who respects the object's material qualities. The first would be likely to approach the intervention in terms of 'improving' the object, whereas the latter would be more inclined to display the professional integrity necessary to truly preserve these objects. In addition to this considerable change in approach, we would expect that conservation techniques themselves will be adapted. Some methods, developed for western books structurally so dissimilar from Islamic ones, are inappropriate or even harmful to Islamic manuscript structures. An understanding of the original construction *and* a respect for this other identity allows for a different methodology and may initiate the development of new treatment solutions.

On a different plane, it is clear that there is still a great deal to know and learn from the physical objects; and this information will have further implications for the conservator's practice. The awareness of the manuscripts' materiality as an extra stratum of information may cause a shift in preservation approaches. In some cases, it may even cause a conflict between the traditional valorisation of the artefact—which may be primarily art-historical and aesthetic in a museum context, or first and foremost content-directed in the

context of a research library—and the newly recognised importance of certain physical characteristics. For example, when the conservation of a manuscript for the purpose of an exhibition on the development of bookbindings would require the cosmetic treatment of a split joint and the addition of some new covering material to improve the visual reception of the artefact, such an intervention might disturb evidence of the original covering technique. Similarly, when accessibility of the manuscript is the most important reason for treatment, certain repair techniques may seem necessary, though they may be undesirable from the point of view of the archaeology of the book. Such conflicts do not have to result in a deadlock in the preservation process. On the contrary, they may stimulate the development of new or adjusted techniques and an original use of conservation methods. The responsibility for pointing out the risks that may result in a loss of information about the original object will often lay with the conservator, who should be fully aware of the consequences of an interventive treatment. In that sense it is the conservator's task to signal and resolve this.

Though book-archaeological studies serve the book conservator, the reverse is also true. Conservators of manuscripts can—and should—contribute to the field of book archaeology. They have, after all, an exceptional opportunity to investigate the anatomy of the objects that come to them on the workbench, supported by the material and technical expertise they bring to their observations. With the present study, I have used my experience and insights to contribute to the field of Islamic manuscript studies. It is my hope that the results, in the form of a new understanding of the artefact's materiality and the outlined avenues of extended study, will inspire further research.

Appendices



Appendix 1: Glossary

The terminology used in the present study is based on the *Terminology for conservators and describers of Islamic manuscripts* which is an illustrated hyperlinked online tool.¹ As this *Terminology* is a working document, terms and their definitions may change slightly over time, and additional terms may be added. Thus, in due course, the list below is bound to become somewhat outdated; readers who want to use the terminology for conservation reports or manuscript descriptions are advised to first check the online terminology.

In contrast to the web-source, where the terminology is arranged according to sections, such as ‘textblock,’ ‘structure,’ and ‘binding,’ and the terms in the individual definitions are hyperlinked, the terms below are listed in alphabetical order. As hyper-linking is not an option in the present format, the terms that have their own definition are indicated with the symbol °. Furthermore, this list is only a selection of the digital *Terminology*; it contains only those terms most relevant to the present study. The terms concerning positions, such as ‘head,’ ‘tail,’ ‘fore-edge’ etc., are not included because they are illustrated in figures 13 and 14 in chapter 2.

° = Terms that Have Their Own Definition

Adhesive	A substance used to join two different materials or two separate pieces of a material. The adhesive is usually applied in liquid form which then dries and hardens to a solid.
Bifolio	The basic unit making up a °gathering. The sheet of °support material is folded in the middle, creating the two °folios that constitute the bifolio. These folios can be either conjoint or °non-conjoint.
Binding	The entire structure used to cover and hold the °textblock together, which includes °covers, °flaps (when present), °cover spine, °endbands, °sewing, °spine-lining and fastening (when present).

1 P. Hepworth and K. Scheper, *Terminology for the conservation and description of Islamic manuscripts*; this online tool consists of many more terms and definitions, most of which are illustrated. We have also included terms concerning condition issues and some conservation terms. Eventually, it is our goal to have the *Terminology* available in at least the major Islamic languages (Arabic, Persian, and Turkish are the first languages we aim to include). The English version is available at <http://hepworthscheper.com/terminology/introduction-en.html> (accessed 12 June 2017).

Block-printed paper	Paper that is decorated by printing in paste-colours from carved woodblocks.
Board	A material, such as thin paper laminates, °pasteboard or wood, used to create a stiff or semi-flexible core of the °covers and °flaps of the °binding over which °leather or some other material is adhered.
Built-on	A process of putting a °binding onto a °textblock in which the different parts of the binding are applied in consecutive stages. At each stage, the part that is being added must be adhered and allowed to dry before proceeding to the next stage.
Çaharkuşe (also: partial leather)	Covering scheme in which °leather is applied to the °spine and °fore-edge flap, and thin strips of leather are used to cover the edges of the °boards, while the central panels of the boards are covered with a different material, usually paper, but °cloth or a diverging leather may be used. Sometimes the front edge of the °envelope flap is not covered in leather. In a more economic variant also the horizontal strips of leather are omitted.
Catch stitch	see: Link-stitch
Chain stitch	see: Link-stitch
Chevron pattern in a secondary endband	A characteristic V-shaped or zigzag pattern, the predominant pattern found in Islamic °endbands. Woven with two °threads, often of different colours, one thread is taken under a °tie-down (or group of tiedowns) while the other passes over that tiedown (or group). The two threads are then interlocked by twisting one over the other in either a clockwise or counterclockwise direction before continuing with the passage of the threads in the same manner across the endband, over and under the tiedowns. The twisted interlocking of the threads causes them to lie at a slight diagonal to the direction of the weaving. If the interlocking direction of the threads (either clockwise or counterclockwise) on one tour of weaving across the endband is reversed on the next tour, the diagonal slant in each of the tours diverges, creating the V-shape characteristic of the chevron pattern. This alternation of the interlocking direction is maintained on successive rows in the endband.
Cloth	A flexible material composed of woven °threads. When the fibre content of the cloth has not been determined, it is more accurate to use this generic term for such material in the manuscript than to call it cotton, silk or linen.

Connective strips	Strips of °leather (and sometimes °cloth or paper) adhered over the °spine of a °textblock that is not sewn; these serve to keep the °gatherings in order.
Coupled leaves	see: non-conjoint
Cover	A composite structure that serves to protect either the front or back outer surface of the °textblock. It is usually formed of a rigid °board and material adhered over the surface of the board. More rarely, the boards are eliminated entirely and the cover is then a limp binding.
Cover spine	The portion of the °binding that covers the °textblock spine.
Covering material	°Leather, °cloth or paper or a combination of these materials used to cover the °board on its outside surface and edges, and usually applied in such a way that the material forms °turn-ins on the inside of the boards.
Decorative cut edge	The edges of the strip of °leather or paper that covers the °inner joint and makes a hinge which reinforces the board attachment, or the edges of the (stubbed) °doublure can be cut in °tracery designs for an aesthetic effect.
Dluwang ²	A sheet of °support material made of the inner bark of a paper mulberry tree; the bark fibres are beaten to cause them to become enmeshed and to make the surface of the sheet flat and smooth. This support is found in manuscripts from Java and Madura in Indonesia.
Doublure	The material covering the inside surface of a °board or °flap in a °binding when that material is not part of the structure of the °textblock (in contrast to a paste-down). Typically, the inner surface of the back cover, °fore-edge flap and °envelope flap are covered separately; sometimes, however, a single continuous sheet of material covers all of them as well as the joints between them. The material covering the inner board

2 Alternative spellings are possible, such as 'Dluang,' used in the *Inventory of the Oriental manuscripts in Leiden University Library* (2006–2007) by Jan Just Witkam, or 'Deluang,' used by E.P. Wieringa, *Catalogue of Malay and Minangkabau manuscripts in the library of Leiden University and other collections in the Netherlands* vols. 1 and 2 (1998, 2007). The term 'tapa,' which is used for a material that is also made by pounding the inner bark of the paper mulberry tree, is not appropriate; tapa is described as a paper-like cloth and is mostly associated with garments.

	<p>may end at the edge of the °inner joint and thus have no direct connection to the textblock, or, it may extend over the inner joint and be adhered onto the outer leaf of the textblock near the spine. In the latter case, the extension of the doublure onto the textblock is a °stub. In some other cases, the leather used as a °spine-lining extends to cover the inner surface of the front and back covers.</p>
Endband	<p>The sewn and woven structure at the head and tail of the manuscript's °spine that helps keep the °gatherings in the °textblock together and aligned. It comprises a °primary and °secondary endband. The term 'Headband' is less accurate since endbands are made at head and tail of the spine.</p>
Endband core	<p>The narrow °leather strip (and occasionally of different material such as cord, twisted textile or reed) characteristically found in Islamic °endbands over which the °primary endband is sewn and the °secondary endband is woven.</p>
Endband anchoring thread	<p>see: Tiedown</p>
Endleaf	<p>One or more leaves added to the front and/or back of a °textblock to protect it. Although they do not carry the manuscript's original text, they are a place where other inscriptions and notes are sometimes written. These added leaves may comprise °flyleaves and °paste-downs.</p>
Endpaper	<p>see: Endleaf. The term 'Endpaper' may cause confusion since endleaves can consist of other materials such as leather, dluwang or parchment.</p>
Envelope flap	<p>The pentagonal piece of °board and °covering material which in a typical Islamic °binding extends from the °fore-edge flap with a flexible joint. Usually the envelope flap was inserted under the front cover or slid between the leaves of the manuscript. In rare cases it may lie over the front board. This latter arrangement is obligatory if a fastening strap extends from the point of the flap, which was used to wrap around and secure the book.</p>
Fabric	<p>see: Cloth</p>
Fascicle	<p>see: Gathering</p>
Filigree work	<p>Delicate lacy designs cut out of finely °pared leather or paper.</p>

Flange	The extension of the °spine-lining material past the width of the °textblock spine. This extension is often used to help attach the °textblock to the °boards of the °binding and therefore forms part of the °inner joint. It is usually adhered to the inside spine-edge of the adjacent board, more rarely to the outside spine edge of the adjacent board.
Flap	An indeterminate designation for either the °envelope flap or the °fore-edge flap or both.
Fly leaf	A °folio, originally blank, at the front or back of the manuscript which was intended to protect the first or last leaves of the °textblock.
Folio	Half of a °bifolio; comprised of side a and side b of a half sheet of the °support used to make up the °textblock.
Fore-edge flap	The small piece of °board and °covering material which in a typical Islamic °binding extends from the back cover with a flexible joint and protects the fore-edge of the manuscript.
Full leather binding	A binding in which the outer °covering material consists only of °leather (excepting any subsidiary °onlays, inlays or °underlays made of different material). Usually these bindings are made in one of two ways: either with a single piece of leather covering the entire outer surface of the binding, or with two pieces (the °two-piece technique) covering the outer surface.
Gathering	A group of folded leaves, nested together at their °spine-fold; the basic unit of the °textblock.
Glue	An °adhesive usually made from a protein source such as an animal hide.
Guard	A strip of °support material (usually paper but possibly parchment or °dluwang) adhered to one or more °folios at the °gutter and hence with a °spine-fold of its own through which it is sewn.
Guarded leaf	see: Hooked-in
Gutter	The edge of a °folio adjacent to the °spine of the manuscript.
Headband	see: Endband
Hooked-in	Describes a single leaf attached to a °gathering by means of a small extension of the leaf (the °stub) past the °spine-fold at the °gutter.
Inner joint	The flexible joint between the inside of a °cover and the °cover spine, °spine-lining and °textblock, between the inside of the back cover and °fore-edge flap or between the inside of the fore-edge flap and the °envelope flap.

- Kettle stitch see: Link-stitch
- Knotted link-stitch On returning from making the linkage with the preceding °gathering on the °textblock spine, the °sewing thread is pulled behind the preceding stitch in the gathering °spine-fold, creating a loop through which the thread then passes before it continues to the next °sewing station, thus forming a knot. This is the most complicated way of performing a °link-stitch sewing.
- Lacquer Refers to composite materials and associated production techniques in which a base of °pasteboard was painted with miniatures or illumination, often on a coating of gesso, and then coated with lustrous varnish made from linseed oil, gum sandarac and other ingredients. °Covers of some °bindings were made in this manner.
- Leaf see: Folio
- Leather (also: tanned skin) The outer layer of an animal skin, usually a domestic species such as goat, sheep or cow, which is tanned to make it strong, durable and resistant to biological degradation. The principal component of leather is an interlocking three-dimensional network of fibers of collagen, a type of protein. The skin of an animal is cleaned, scraped and dehaired and then soaked in a series of solutions, some of which contain tannin. Historically a variety of vegetal materials were used as tannin sources. During the tanning process, the protein molecules in the leather become more durable and resistant to microbiological attack and turn a brown color. Technically, °alum-tawed skin is not leather, as alum-tawing is a different chemical process that leaves the skin still vulnerable to decay in wet conditions. However, alum-tawed skin is not infrequently referred to as leather, especially when it has not been clearly.
- Limp leather binding A full °leather °binding made without °boards. The leather may either be °turn-in or cut flush with the °textblock; in the latter case °doublures are usually also absent.
- Link-stitch An unsupported °sewing, dominant in Islamic manuscripts. The °thread goes into the °gathering at one of the °sewing stations, passes along the °spine-fold on

the inside of the gathering, and exits the gathering on the spine at the next station. When the thread exits the last station in the gathering, it then passes behind the thread going into the adjacent station on the previous gathering and up through the loop formed by itself in this passage. Once the thread is pulled taut, the loop cinches the thread passing through it, thereby forming a kind of knot to secure the sewing. It then continues on to the next gathering to be sewed. Thus as the sewing progresses, two or more—depending on the number of stations—chains of linkages are formed.

Link-stitch on two stations

This unsupported ^osewing is the most common in Islamic manuscripts. The ^osewing stations are usually positioned roughly a third or a quarter of the spine-length from the head and tail of the manuscript. The ^othread goes into the ^ogathering at one of these stations, passes along the ^ospine-fold on the inside of the gathering, and exits the gathering on the spine at the other station. The thread then passes behind the thread going into the adjacent station on the previous gathering and up through the loop formed by itself in this passage. Once the thread is pulled taut, the loop cinches the thread passing through it, thereby forming a kind of knot to secure the sewing. It then continues on to the next gathering to be sewed. Thus, as the sewing progresses, two chains of linkages are formed: one chain links all the gatherings at the stations adjacent to each other towards the head, the other links all the gatherings at the stations adjacent to each other towards the tail of the gatherings.

Link-stitch, simplified

Unsupported ^osewing similar to the ^olink-stitch. The ^osewing thread passes from ^osewing station to sewing station along the ^ospine-fold on the inside of each ^ogathering. When the ^othread exits one gathering on the spine, it is taken behind the thread going into the adjacent station on the previous gathering. However, unlike the link-stitch sewing, it does not go through the loop formed by itself in this passage. Consequently there is no cinching of the thread by that loop before it proceeds to the next gathering to be sewed. Again, two chains of linkages are formed: one chain linking all the gatherings

- at the stations adjacent to each other towards the head, the other linking all the gatherings at the stations adjacent to each other towards the tail of the gatherings. These linkages are looser, however, than those formed by the link-stitch sewing.
- Link-stitch on four stations** In this °sewing, in addition to the °sewing stations near the head and tail like those in the °link-stitch on two stations, two other stations are created towards the middle of each °gathering. The °thread goes into the gathering at the first station, passes along the °spine-fold on the interior of the gathering and exits at the second station, goes back into the gathering at the third station and then exits the gathering again at the fourth station. At the first and fourth stations, the thread is treated in the same manner as described in the link-stitch on two stations. However, at the second station the thread is taken behind the one passing between stations two and three on the preceding gathering. Thus, a very loose linkage is formed near the middle of the gatherings between the one being sewn and the one previous to it. What distinguishes this particular link-stitch is that the thread does not pass continuously inside the fold-line between the outer sewing stations. Instead, it passes on the spine side between the second and the third stations.
- Marbled paper** A technique to decorate paper, in which pigments in suspension are floated on water and drawn into delicate patterns, which can resemble the patterns found in marble. When paper is laid directly onto the suspension of colorant and binder, the patterns are transferred to the paper and adhere there.
- Non-conjoint** Two °folios constituting a °bifolio that are adhered or °guarded together at or near the °fold-line.
- Onlay** A material of a different colour and/or type to that of the °covering material that is adhered over an area of the °cover or °doublure on which there is already a layer of the covering material. This additional material can then be further decorated with paint and/or °stamping.
- Overcasting** A °stabbed sewing technique that connects an indefinite number of °folios. The °thread is taken through a

	set of aligned transversal holes in the stack of folios, passes around the spine edge to enter the next set of aligned transversal holes, and continues in this manner until it is taken through all of the sets of transversal holes and is then tied off. This technique is often used to join loose folios into a structure that functions like a °gathering. A group of these gathering-like structures can then be joined together with a secondary sewing.
Overlay	see: Onlay
Oversewing	see: Overcasting
Page-marker	A tab or tassel (made of a variety of materials, such as °cloth, string, paper, °leather) attached to the fore-edge of certain leaves so as to mark the placement of these leaves.
Pared leather	After °leather has been °tanned or °tawed, it is usually too thick to be used in book making. Consequently, it is thinned with sharp knives or other instruments, which constitutes the paring process.
Partial leather binding	A style of °binding in which the °textblock spine and the °fore-edge flap (when a °flap was attached) are covered with °leather. Often thin strips of leather are applied around the edges of the °boards to frame the material (usually °cloth or paper) used to cover the rest of the outer surfaces of the boards and °doublures.
Paste	An °adhesive usually made from a vegetal source such as wheat or rice starch.
Pasteboard	A stiff material created by adhering several layers of paper together.
Paste-down	A °folio adhered to the inside of the front or back °board that is either a °hooked-in or conjoint with a leaf sewn into the °textblock or is conjoint with a leaf °tipped onto the outer page of the sewn textblock. It always covers the inside joint between the °cover and the spine but, in case of the back cover, never extends over the inner surface of the °fore-edge flap and °envelope flap.
Primary endband	The °endband core and the °primary endband sewing that passes over it. This structure is made at the head and tail of the °textblock spine; the sewing in the gatherings and passing on the °textblock spine are referred to as °tiedowns.

Primary endband sewing	The °thread at head or tail of the °textblock spine that passes through the °spine-fold of each °gathering in the textblock sequentially from front to back (or the reverse, from back to front). Once the thread is taken through a gathering it is brought over the °endband core before moving to the next gathering. In addition to securing the endband core to the gatherings, this sewing functions to join the gatherings at the head or tail and to prevent them from moving independently.
Quire	see: Gathering
<i>Safina</i>	An oblong-shaped manuscript, often containing poetry or a compendium of literature. The text is usually written perpendicular to the opening so that the manuscript must be rotated 90 degrees clockwise to be in a correct orientation for reading.
Secondary endband	The °threads woven through the °tiedowns created by the °primary endband sewing over the °endband core. Often colourful, the purpose of the secondary endband is mostly decorative, although it has some function in keeping the tiedowns properly aligned on the core.
Section	see: Gathering
Sewing	The passage of °thread through the °gatherings in order to connect them and thus form the °textblock. Without any qualifier, the sewing always refers to the first linkage of the gatherings along their spine-folds. However, there is also another type of sewing, the sewing of the primary endband. Once this has type of sewing has been qualified by an initial reference to the endband, subsequent uses of the phrase can drop the qualifier and refer to this, too, as simply the sewing. The same can also be encountered with the sewing of the secondary endband. This is even more confusing because, in fact, the secondary endband is actually woven and not sewn.
Sewing stations	The points at which the °sewing thread passes into or out of a °gathering.
Sewing supports	Usually spaced cords, skin straps or cloth tapes that extend across the width of the °textblock spine. The °sewing thread then passes over, around or through these sewing supports.

	<p>The sewing of Islamic °manuscripts usually does not include sewing supports. However, there are manuscripts from certain regions and time periods in which they are encountered, probably due to the influence of western bookmaking techniques. There are also manuscripts in which the appearance of supports is created on the °spine but the actual sewing is unsupported.</p>
Sewing thread	<p>A long, continuous strand composed of processed plant fibres (cotton, flax, hemp) and/or animal fibres (silk, wool) that are spun together. Often, spun single strands are then plied together to form stronger or thicker multiple strands.</p>
Sewing tour	<p>The total distance or manoeuvre of a °thread within a component (such as a °gathering) or in a material stratum (such as the °secondary endband sewing), between the outer stations, at which point the thread changes direction.</p>
Side-sewing	<p>A °stabbed sewing technique using a minimum of two aligned transversal °sewing stations. The °thread is taken through a set of holes in the stack of °folios, passes over the °support material parallel to the °spine, enters the next set of aligned transversal holes, and is then tied off, or continues in this manner until it is taken through all of the sets of transversal holes. Varieties can be found in which the thread also passes of the spine edge in order to return in the stabbed station and then to continue its path. This technique is often used to join loose folios.</p>
Signature	<p>see: Gathering</p>
Spine	<p>A vague term because of its threefold meaning. It is used to denote a general location: the back of the °textblock; it is also used to indicate more specifically either the bare °textblock spine, or the °cover spine. Its slipshod usage causes problems in conservation reports or codicological descriptions.</p>
Spine-fold	<p>The crease at the centre of a sheet of the °support material created when that sheet is folded in two to form a °bifolio. A group of bifolios are nested together at their °spine-folds to create a °gathering. Then each of the</p>

	gatherings is sewn through the nested spine-folds to attach them to each other, thus creating the °textblock.
Spine-lining	°Cloth or °leather that is usually adhered to the full length of the °textblock spine. The lining helps keep the °gatherings from shifting in the °textblock. Additionally, since the °primary endband is sewn through the lining, this material helps prevent the °endband tiedowns from tearing through the gathering folds when the endbands are sewn and also later when the volume is opened and closed. Often the lining is wider than the textblock spine, thereby forming °flanges that extend from either side of the spine.
Spine leather	The part of the leather °covering material that is adhered to the °textblock spine, over the °spine-lining. Thus it forms the °cover spine.
Spine loop	The part of the °sewing thread that, in °stabbed sewing, passes around the °textblock spine from one and the same °sewing station.
Square boards	°Boards which project beyond the edges of the °textblock. The term is commonly found in glossaries on western bookbinding.
Stabbed	A transversal hole that is created through the °gatherings near the °spine.
Stabbed connection	A °thread, cord or °leather lace that is drawn through the aligned transversal holes in a stack of °stabbed folios and then tied.
Stamping of leather	A hard material carrying a design on its surface; it is applied with some force to another surface. In one method, the material carrying the design is applied with enough pressure so as to transfer an impression of that design onto the °leather to which it was applied. In another method, the material carrying the design is heated and applied to wet leather. Those areas of the leather exposed to the heated parts of the design become darker in colour than the empty spaces in the design.
Striped vertical pattern	A pattern found occasionally in Islamic °endbands. Sewn with two °threads of different colours, one thread is taken under a °tiedown (or group of tiedowns) while the other passes over the tiedown (or group). The two threads are then interlocked by twisting one over the

	<p>other in either a clockwise or counterclockwise direction before continuing with the passage of the threads in the same manner across the endband, over and under the tiedowns. The twisted interlocking of the threads causes them to lie at a slight diagonal to the direction of the sewing. If the interlocking direction of the threads on each tour of sewing across the endband (either clockwise or counterclockwise) is kept the same on every tour, the diagonal slant in each of the tours is parallel causing the colors to align into plain stripes.</p>
Striped diagonal pattern	<p>A pattern found occasionally in Islamic endbands. Created with two threads of different colours, the passage of threads involves groups of tiedowns. The passage of the threads and their interlocking is the same as in the striped vertical pattern, however, in each tour the passage of the threads is staggered by one tiedown relative to those of the previous tour. This progressive shift as the endband is woven results in the creation of diagonal rather than vertical.</p>
Stub	<p>The small extension of the hooked-in leaf. Stubs are also found on doublures (either paper or leather doublures), in which case the stub is the projecting part of the doublure that crosses the inner joint and is attached to the outer leaf of the gathering.</p>
Support material	<p>The material in the textblock which provides the surface on which text is written or paint is applied. Paper and parchment are the most common types of Islamic manuscript supports. In the early period, papyrus was also used in some regions, chiefly Egypt. Other types of regionally specific supports are also used, such as dluwang in Indonesia.</p>
Tab	<p>Projection of the spine leather past the end of the spine at the head and tail. This may have been an artefact of the way the leather was applied to the boards: when the binder turned in the leather on the head and tail of the boards, the leather at the ends of the spine was cut in the line of the outer joint; the leather on the spine was not turn-in, but left as an extension with a raw edge. These structures may also have served to cover</p>

	and protect the °endband, and/or had a decorative function.
Tacket	An individual, short °sewing stitch using two °sewing stations only with a thread or, sometimes, a string of parchment, which outer ends are usually cut after tying off. Tackets were used to hold the individual °bifolios of a °gathering together, prior to other steps in the book-making process, such as the ruling of the folios, or to support the copying process.
Tanned skin	The skin of an animal is cleaned, scraped and dehaired and then soaked in a series of solutions, some of which contain tannin. Historically a variety of vegetal materials were used as tannin sources. During the tanning process, the protein molecules in the °leather become more durable and resistant to microbiological attack and turn a brown colour.
Tawed skin	The skin of an animal is cleaned, scraped and dehaired and then soaked in a series of chemical solutions which contain aluminium salts, proteins and other compounds. During the tawing process, the protein molecules in the °leather become more durable and resistant to microbiological attack. Tawed leather is very light in colour, approaching white.
Textblock	The assemblage of °gatherings and their constituent leaves that comprise the total manuscript without its °binding.
Textblock spine	The edge of the manuscript where the °fold-lines in the °gatherings are stacked adjacent to each other. When the °textblock is sewn, the °sewing thread passes between the different gatherings at the °spine.
Textile	see: Cloth
Thread	see: Sewing thread
Tiedown	Although the °primary endband sewing is made with a single °thread, its passage through the sequence of °gatherings in the °textblock creates an array of thread segments lying in parallel across the °endband core that appear to be independent of each other. Each of these segments of the primary endband sewing thread is a tiedown. The total array of tiedowns establishes a warp through which the °secondary endband is woven.

Tipped-on	Describes the attachment of a °folio or °bifolio to a sewn °textblock by means of adhesion. °Adhesive is applied to the surface of the folio or bifolio to be added in the area immediately alongside the spine edge or the °spine-fold. When the folio/bifolio is put into position in the textblock, the adhesive attaches it to the adjacent folio.
Tooling	Impressed lines or patterns worked in °leather with various tools.
Tracery work	Designs cut out of °leather or paper and adhered to a °binding. °Filigree work represents the fine end of the spectrum of tracery work, but larger, cruder designs can also be cut out of the leather or paper.
Turn-in	The portion of a °covering material that is folded back and adhered behind the covered surface. The turn-in is usually brought over the edges of a °board and adhered on the reverse of the covered board surface. The edges of the turn-in are adhered under or on top of the °doublure, depending on the material used for covering the board's inner surface. If there are no boards, the edges may be folded back and adhered directly to the reverse of the covering material.
Turn-out	The portion of a °doublure that is folded over the °board edges and adhered on the outside of the board. This is rarely encountered.
Two-piece technique	A method of °leather application using two pieces of leather to make up a °full leather binding. The seam where the two pieces overlap is usually found on the °cover spine but is often difficult to detect because the leather edges are thinly °pared. The two-piece technique is occasionally used for °partial leather bindings as well.
Underlay	A layer of material of different colour and/or type to that of the °covering material which is adhered over a restricted area of the °boards. Although the covering material is subsequently adhered over this layer, the underlying material can be seen through a cut-out design in the upper layer.
Unsupported sewing	°Sewing that does not use °sewing supports on the °textblock spine. Without support, the sewing is more vulnerable to tearing through the °gatherings. The

	connection between the °covers and °textblock is usually made by the extending sides of the spine-lining material, the °covering material extending onto the textblock spine and possibly by material joining the °doublure to the textblock on the inner joints.
Warp thread	see: Tiedown
Wrapper binding	A °binding intentionally not joined to the °textblock but simply wrapped around it.

Appendix 2: Corpus

Or.-numbers of Manuscripts from the Arabic Section

[Golius collection]	Or. 80	Or. 164	Or. 241
Or. 2b	Or. 82	Or. 171	Or. 250
Or. 2c	Or. 83	Or. 173	Or. 256
Or. 2d	Or. 84	Or. 174	Or. 257
Or. 2f	Or. 88	Or. 177	Or. 261
Or. 2g	Or. 97	Or. 179	
Or. 2h	Or. 99	Or. 186	[Warner collection]
Or. 2k	Or. 102	Or. 187b	Or. 270
Or. 2m	Or. 103	Or. 188	Or. 276
Or. 2n	Or. 104	Or. 189	Or. 283
Or. 2o	Or. 111	Or. 190	Or. 285
Or. 5	Or. 117	Or. 194	Or. 289
Or. 9	Or. 118a	Or. 195	Or. 296b
Or. 10	Or. 118b	Or. 196	Or. 297
Or. 19a	Or. 118c	Or. 197	Or. 300
Or. 21b	Or. 119	Or. 198	Or. 302
Or. 29	Or. 120	Or. 199	Or. 303d
Or. 31	Or. 121	Or. 201	Or. 304
Or. 39	Or. 122	Or. 204	Or. 309
Or. 44b	Or. 127	Or. 205	Or. 311b
Or. 46	Or. 131	Or. 206	Or. 312
Or. 47	Or. 134	Or. 211	Or. 316
Or. 48	Or. 139		Or. 323
Or. 52	Or. 142	[Scaliger collection]	Or. 325
Or. 53	Or. 147	Or. 216	Or. 327
Or. 54	Or. 149	Or. 217	Or. 331 (5)
Or. 56	Or. 150	Or. 219	Or. 333
Or. 60	Or. 151	Or. 222	Or. 339a
Or. 61	Or. 152a	Or. 224	Or. 339b
Or. 62	Or. 152b	Or. 229	Or. 340
Or. 72	Or. 153	Or. 232	Or. 341
Or. 74	Or. 154	Or. 233	Or. 342
Or. 75	Or. 155	Or. 238	Or. 346
Or. 79	Or. 156	Or. 239	Or. 347a
	Or. 159	Or. 240	Or. 352

Or. 354a	Or. 453	Or. 531	Or. 611
Or. 355	Or. 454	Or. 533	Or. 614
Or. 358b	Or. 455	Or. 534	Or. 615
Or. 370	Or. 457	Or. 536	Or. 616
Or. 371	Or. 459	Or. 539	Or. 637
Or. 373	Or. 460	Or. 540	Or. 640
Or. 378	Or. 461	Or. 541	Or. 644
Or. 379	Or. 462	Or. 542	Or. 648
Or. 380	Or. 463	Or. 544	Or. 650
Or. 395	Or. 465	Or. 546	Or. 656
Or. 398	Or. 466	Or. 547	Or. 667
Or. 403	Or. 467	Or. 550	Or. 670
Or. 404b	Or. 468	Or. 554	Or. 671
Or. 405	Or. 469	Or. 556	Or. 672
Or. 406	Or. 471	Or. 557	Or. 681
Or. 407a	Or. 473	Or. 558	Or. 685
Or. 408a	Or. 474	Or. 559	Or. 690
Or. 408b	Or. 478	Or. 561	Or. 691
Or. 412	Or. 479	Or. 565	Or. 692
Or. 413a	Or. 481	Or. 567	Or. 695
Or. 413b	Or. 482	Or. 574	Or. 701
Or. 418	Or. 490	Or. 575	Or. 702
Or. 419	Or. 491	Or. 576	Or. 703
Or. 420a	Or. 492	Or. 577	Or. 706
Or. 420c	Or. 495	Or. 578	Or. 707
Or. 422	Or. 496	Or. 579	Or. 708
Or. 426	Or. 498	Or. 584	Or. 711
Or. 428	Or. 499	Or. 586	Or. 715
Or. 432	Or. 500	Or. 587	Or. 719
Or. 434	Or. 502	Or. 589	Or. 720
Or. 435	Or. 503	Or. 590	Or. 721
Or. 438	Or. 504	Or. 596	Or. 722
Or. 439	Or. 505	Or. 598	Or. 723
Or. 440	Or. 507	Or. 601	Or. 724
Or. 441	Or. 509	Or. 602	Or. 729
Or. 442	Or. 511	Or. 603	Or. 730
Or. 445	Or. 514	Or. 604	Or. 731
Or. 448	Or. 518	Or. 605	Or. 733
Or. 451	Or. 519	Or. 606	Or. 734
Or. 452	Or. 526	Or. 607	Or. 739

Or. 740	Or. 821	Or. 895	Or. 1041
Or. 745	Or. 822	Or. 898	Or. 1045
Or. 748	Or. 824	Or. 899	Or. 1054
Or. 750	Or. 825	Or. 903	Or. 1056
Or. 751	Or. 826	Or. 904	Or. 1063
Or. 752	Or. 827	Or. 906	Or. 1065
Or. 753	Or. 828	Or. 907	Or. 1067
Or. 755	Or. 829	Or. 919	Or. 1070
Or. 756	Or. 833	Or. 924	Or. 1074
Or. 757	Or. 835	Or. 925	Or. 1076
Or. 762	Or. 838	Or. 926	Or. 1077
Or. 764	Or. 841	Or. 930	Or. 1079
Or. 765	Or. 842	Or. 937	Or. 1081
Or. 766	Or. 844	Or. 938	Or. 1088
Or. 767	Or. 845	Or. 944	Or. 1089
Or. 769	Or. 849	Or. 945	Or. 1090
Or. 772	Or. 850	Or. 947	Or. 1092
Or. 773	Or. 852	Or. 950	Or. 1096
Or. 774	Or. 853	Or. 952	Or. 1097
Or. 777	Or. 854	Or. 955	Or. 1196
Or. 778	Or. 857	Or. 956	
Or. 779	Or. 858	Or. 959	[several gifts and
Or. 781	Or. 859	Or. 960	purchases from
Or. 782	Or. 860	Or. 961	1740 onwards]
Or. 783	Or. 862	Or. 965	Or. 1201
Or. 784	Or. 864	Or. 968	Or. 1202
Or. 785	Or. 868	Or. 969	Or. 1203
Or. 787	Or. 869	Or. 1002	Or. 1205
Or. 789	Or. 871	Or. 1005	Or. 1206
Or. 792	Or. 872	Or. 1007a	Or. 1209
Or. 793	Or. 873	Or. 1007b	Or. 1210
Or. 795	Or. 876	Or. 1008	Or. 1217a
Or. 796	Or. 878	Or. 1011	Or. 1217b
Or. 801	Or. 879	Or. 1012	Or. 1218
Or. 804	Or. 880	Or. 1019	Or. 1220
Or. 806	Or. 885	Or. 1026	
Or. 809	Or. 889	Or. 1027	[acquired from the
Or. 814	Or. 890	Or. 1030	Schultens collection,
Or. 816	Or. 892	Or. 1034	1781]
Or. 818	Or. 893	Or. 1035	Or. 1274
Or. 820	Or. 894	Or. 1038	Or. 1276

Or. 1277	Or. 1506	Or. 1584	Or. 2097
Or. 1283		Or. 1594 (2)	Or. 2098
	[from the Testa		Or. 2190
[several gifts and	collection, second	[acquisitions from	Or. H.2204
purchases from	part, arrived 1839]	the 1840s onwards]	Or. 2286
ca. 1800 onwards]	Or. 1508	Or. 1602	Or. 2288
Or. 1307	Or. 1510	Or. 1604	Or. H.2289
Or. 1308	Or. 1511	Or. 1612	Or. 2289
Or. 1311	Or. 1516	Or. 1620	Or. 2290
Or. 1312	Or. 1518	Or. 1621	
Or. 1313	Or. 1523 (2)	Or. 1627	[collection from
Or. 1315 (3)	Or. 1524	Or. 1634	Amin al-Madani,
Or. 1317	Or. 1526	Or. 1647	scholar and book-
Or. 1318	Or. 1528	Or. 1648	seller in Medina
Or. 1322	Or. 1529	Or. 1653	(d. 1898)]
Or. 1324	Or. 1530	Or. 1654	Or. 2364
Or. 1335	Or. 1531	Or. 1661	Or. 2368
Or. 1337	Or. 1534	Or. 1663	Or. 2378
Or. 1341	Or. 1538	Or. 1669	Or. 2380a
Or. 1342	Or. 1545	Or. 1672	Or. 2399
Or. 1350a-e	Or. 1546	Or. 1677	Or. 2400
Or. 1354	Or. 1547	Or. 1680a	Or. 2407
Or. 1390	Or. 1548	Or. 1680b	Or. 2412
Or. 1391	Or. 1549	Or. 1682	Or. 2415
Or. 1392	Or. 1556	Or. 1685	Or. 2419
Or. 1400	Or. 1557	Or. 1716	Or. 2554
	Or. 1558	Or. 1840	Or. 2556
[from the Testa	Or. 1560	Or. 1842	Or. 2562a
collection, first	Or. 1561	Or. 1886	Or. 2562b
part]	Or. 1562	Or. 1897	Or. 2562e
Or. 1442		Or. 1902	Or. 2566
Or. 1446	[purchased 1840]	Or. 2064	Or. 2569
Or. 1448	Or. 1570	Or. 2068	Or. 2585
Or. 1449		Or. 2071a	Or. 2611
Or. 1451	[from library of	Or. 2071b	Or. 2613
Or. 1452	J.H. van der Palm,	Or. 2072	Or. 2620
	probably deriving	Or. 2078	Or. 2629
[purchased	from the Schultens']	Or. 2082	Or. 2652
around 1839]	Or. 1577	Or. 2084	Or. 2655
Or. 1504	Or. 1582	Or. 2087	Or. 2675
Or. 1505	Or. 1583	Or. 2089	Or. 2686

Or. 2696	[acquisitions from	Or. 6806	Or. 8800
Or. 2705	1921 onwards]	Or. 6813	Or. 8822
Or. 2745	Or. 6240	Or. 6839	Or. 8907
Or. 2747	Or. 6254	Or. 6866	Or. 8955
Or. 2748	Or. 6255	Or. 6867	Or. 8960
Or. 2749	Or. 6256	Or. 6869	Or. 8962
Or. 2761	Or. 6270	Or. 6892	Or. 10.783
Or. 2765	Or. 6276	Or. 6985	Or. 10.784
Or. 2769	Or. 6290		Or. 10.804
Or. 2795	Or. 6292	[Legacy of	Or. 10.809
Or. 2796	Or. 6302	C. Snouck	Or. 10.851
Or. 2816	Or. 6327	Hurgronje	Or. 10.861
Or. 2855	Or. 6348	(1857–1936)]	Or. 10.862
Or. 2895	Or. 6352	Or. 6987	Or. 10.874
Or. 2898	Or. 6353a	Or. 6997	Or. 10.983
Or. 2902	Or. 6353b	Or. 6998	Or. 10.998a
Or. 2943	Or. 6363	Or. 7047	Or. 11.031
Or. 2955	Or. 6364	Or. 7048b	Or. 11.036
Or. 2956a	Or. 6370	Or. 7086	Or. 11.037
Or. 2956b		Or. 7093	Or. 11.041
Or. 2956c	[purchased in	Or. 7098	Or. 11.043
Or. 2956d	Yemen on behalf	Or. 7104	Or. 11.050
Or. 2956e	of the library	Or. 7163	Or. 11.052
Or. 2959	by C. Adriaanse,	Or. 7168	Or. 11.054
	registered in 1934	Or. 8204	Or. 11.057
[acquisitions	or shortly		Or. 11.058
from 1887]	thereafter]	[acquisitions from	Or. 11.059
Or. 3071	Or. 6632a	the 1940s onwards]	Or. 11.066
Or. 3071a	Or. 6632b	Or. 8261	Or. 11.068
Or. 3076	Or. 6632c	Or. 8303	Or. 11.069
	Or. 6633	Or. 8466	Or. 11.070
[acquisitions from	Or. 6696	Or. 8484	Or. 11.073
1898 onwards]	Or. 6760a	Or. 8520	Or. 11.074
Or. 4967		Or. 8527	Or. 11.076
Or. 4979	[acquisitions from	Or. 8531	Or. 11.079
Or. 5466	1937 onwards]	Or. 8654	Or. 11.111
Or. 5582	Or. 6771	Or. 8772	Or. 11.113
Or. 5801	Or. 6772	Or. 8773	Or. 11.115
Or. 5809	Or. 6801	Or. 8795	Or. 11.117

Or. 11.121	Or. 11.710	Or. 11.928	Or. 12.313
Or. 11.518	Or. 11.711	Or. 11.929	Or. 12.333
Or. 11.519	Or. 11.713	Or. 11.930	Or. 12.337
Or. 11.520	Or. 11.714	Or. 11.932	
Or. 11.524	Or. 11.717	Or. 11.933	[collection
Or. 11.526	Or. 11.718	Or. 11.935	F. Taeschner
Or. 11.537	Or. 11.719	Or. 11.943	(1888–1967)]
Or. 11.540	Or. 11.724	Or. 11.945	Or. 12.343
Or. 11.541	Or. 11.725	Or. 11.948	Or. 12.345
Or. 11.542	Or. 11.727	Or. 11.949	Or. 12.355
Or. 11.545	Or. 11.730	Or. 11.954	Or. 12.357
Or. 11.547	Or. 11.735	Or. 11.955	Or. 12.359
Or. 11.549	Or. 11.736	Or. 11.957	Or. 12.362
Or. 11.550	Or. 11.741	Or. 11.963	Or. 12.363
Or. 11.555	Or. 11.743	Or. 11.966	Or. 12.372
Or. 11.558	Or. 11.750	Or. 11.969	Or. 12.384
Or. 11.559	Or. 11.759	Or. 11.971	Or. 12.385
Or. 11.560	Or. 11.762	Or. 11.972	Or. 12.387
Or. 11.565	Or. 11.769	Or. 11.973	Or. 12.404
Or. 11.566	Or. 11.794	Or. 11.974	Or. 12.414
Or. 11.567	Or. 11.800	Or. 11.976	Or. 12.420
Or. 11.570	Or. 11.831	Or. 11.981	Or. 12.426
Or. 11.578	Or. 11.835	Or. 11.982	Or. 12.438
Or. 11.582	Or. 11.880	Or. 11.993	Or. 12.442
Or. 11.587	Or. 11.886	Or. 12.000	Or. 12.451
Or. 11.588	Or. 11.887	Or. 12.016	Or. 12.455
Or. 11.593	Or. 11.888	Or. 12.051	
Or. 11.599	Or. 11.889	Or. 12.053	[acquisitions from
Or. 11.600	Or. 11.890	Or. 12.055	1970s onwards]
Or. 11.609	Or. 11.893	Or. 12.057	Or. 12.480
Or. 11.614	Or. 11.895	Or. 12.065	Or. 12.487
Or. 11.682	Or. 11.898	Or. 12.068	Or. 12.609
Or. 11.684	Or. 11.902	Or. 12.082	Or. 12.615b
Or. 11.694	Or. 11.907	Or. 12.088	Or. 12.616
Or. 11.696	Or. 11.912	Or. 12.108	Or. 12.645
Or. 11.697	Or. 11.913	Or. 12.110	Or. 12.649
Or. 11.699	Or. 11.918	Or. 12.111	Or. 12.650
Or. 11.701	Or. 11.920	Or. 12.115	Or. 12.831
Or. 11.702	Or. 11.921	Or. 12.117	Or. 14.078
Or. 11.703	Or. 11.924	Or. 12.297	Or. 14.098

Or. 14.108	Or. 14.427	Or. 18.155	Or. 23.475
Or. 14.109	Or. 14.449	Or. 18.274	Or. 23.492
Or. 14.110	Or. 14.475	Or. 18.318	Or. 23.517
Or. 14.111	Or. 14.479	Or. 18.403a	Or. 23.637
Or. 14.182	Or. 14.482	Or. 18.691	Or. 23.640
Or. 14.191	Or. 14.491	Or. 18.697	Or. 23.653
Or. 14.201	Or. 14.496	Or. 18.896	Or. 23.657
Or. 14.202	Or. 14.511	Or. 20.191	Or. 23.658
Or. 14.203	Or. 14.515	Or. 20.193	Or. 23.663
Or. 14.204a	Or. 14.535	Or. 20.400	Or. 23.666
Or. 14.204b	Or. 14.541	Or. 20.401	Or. 23.965
Or. 14.209	Or. 14.543	Or. 20.524	Or. 23.973
Or. 14.210a	Or. 14.556	Or. 20.525	Or. 23.975
Or. 14.210b	Or. 14.571	Or. 22.305	Or. 23.980
Or. 14.210c	Or. 14.580	Or. 22.322	Or. 23.988
Or. 14.210d	Or. 14.583	Or. 22.323	Or. 25.170
Or. 14.249	Or. 14.590	Or. 22.331	Or. 25.180
Or. 14.252	Or. 14.595	Or. 22.536	Or. 25.290
Or. 14.257	Or. 14.596	Or. 22.688	Or. 25.299
Or. 14.263	Or. 14.603	Or. 22.773	Or. 25.300
Or. 14.323	Or. 14.605	Or. 22.774	Or. 25.307
Or. 14.327	Or. 14.610	Or. 22.934	Or. 25.334
Or. 14.328	Or. 14.627	Or. 23.122	Or. 25.354a
Or. 14.332	Or. 14.636	Or. 23.280	Or. 25.354b
Or. 14.336	Or. 14.637	Or. 23.281	Or. 25.354c
Or. 14.339	Or. 14.638	Or. 23.285	Or. 25.359
Or. 14.366	Or. 14.673	Or. 23.286	Or. 25.360a
Or. 14.369	Or. 17.050	Or. 23.288	Or. 25.360b
Or. 14.374	Or. 17.059	Or. 23.309	Or. 25.360c
Or. 14.404	Or. 17.105	Or. 23.311	Or. 25.360d
Or. 14.407	Or. 17.106	Or. 23.341	Or. 25.360e
Or. 14.409	Or. 17.117	Or. 23.342	Or. 25.360f
Or. 14.410	Or. 17.120	Or. 23.343	Or. 25.361
Or. 14.417	Or. 17.149	Or. 23.344	Or. 25.399
Or. 14.418	Or. 17.155	Or. 23.381	Or. 25.414
Or. 14.419	Or. 17.933	Or. 23.412	Or. 25.417
Or. 14.420	Or. 17.934	Or. 23.449	Or. 25.526
Or. 14.421	Or. 17.956	Or. 23.464	Or. 25.573
Or. 14.424	Or. 18.011	Or. 23.470	Or. 25.578
Or. 14.425	Or. 18.059	Or. 23.471	Or. 25.637

Or. 25.657b	Or. 25.757	Or. 26.659	Or. 26.674
Or. 25.662	Or. 25.763	Or. 26.660	Or. 26.675
Or. 25.663	Or. 26.271	Or. 26.661	Or. 26.676
Or. 25.664	Or. 26.417	Or. 26.662	Or. 26.677
Or. 25.693	Or. 26.606	Or. 26.663	Or. 26.682
Or. 25.720	Or. 26.615	Or. 26.667	Or. 26.684
Or. 25.723	Or. 26.620	Or. 26.668	Or. 26.685
Or. 25.744	Or. 26.657	Or. 26.669	

Or.-numbers of Manuscripts from the Malay Section

[acquisitions from 1867 onwards]	[Legacy of H.N. van der Tuuk (1824–1894)]
Or. 1895	Or. 3375
Or. 1896	Or. 4044
	Or. 4045
[acquired around 1871, previously in the collection of A.D. Cornets de Groot (1804–1829)]	Or. 4233
	Or. 4585
Or. 1970	Or. 4710
Or. 1971	Or. 4900a
Or. 1978	Or. 4900b
Or. 2014	Or. 4911
Or. 2016	Or. 7725
Or. 2027	Or. 7735
	Or. 8487
	Or. 8566
[from the collection of Taco Roorda (1801–1874)]	[acquisitions from 1965, formerly of the Islam Foundation]
Or. 2118	Or. 11.001
Or. 2149	Or. 11.002
	Or. 11.003
[from the library of the ‘Rijk-Instelling tot opleiding van Oost-Indische ambtenaren’, transferred to the UBL after its closure in 1878]	Or. 11.004
	Or. 18.959
Or. 2226	

Appendix 3: Example of a Record of the Database

content				
record nr.:	Or.:	Ar.:	origin:	date:
size:	format:		<input type="checkbox"/> square	<input type="checkbox"/> oblong
			<input type="checkbox"/> elongated	autopsy jiw or js
repairs:	<input type="checkbox"/> local	<input type="checkbox"/> paper repairs indicate rebinding	<input type="checkbox"/> western	<input type="checkbox"/> recent cons.treatment
				maghribi script
covering material:	spine ending:		endbands:	
<input type="checkbox"/> full leather 1 piece	<input type="checkbox"/> flat		<input type="checkbox"/> Prim.warp threads as sewing	
<input type="checkbox"/> full leather 2 pieces	<input type="checkbox"/> turn-in		<input type="checkbox"/> prim.warp threads differs	
<input type="checkbox"/> repairs prohibiting analysis structure	<input type="checkbox"/> tabbed		<input type="checkbox"/> sec.sewing herring bone	
<input type="checkbox"/> full leather, technique not detectable	<input type="checkbox"/> tabbed indented		<input type="checkbox"/> sec.sewing other	
<input type="checkbox"/> çaharkushe	<input type="checkbox"/> not detectable		<input type="checkbox"/> fringed sides	
<input type="checkbox"/> çaharkushe no leather fore-edge env.flap	<input type="checkbox"/> repair spine tabbed		<input type="checkbox"/> missing	
<input type="checkbox"/> 1/2 çaharkushe	<input type="checkbox"/> see remarks		<input type="checkbox"/> see remarks	
<input type="checkbox"/> ç plain paper	<input type="checkbox"/> semi-tabbed		<input type="checkbox"/> prim.warp through lining	
<input type="checkbox"/> ç marbled paper	doubleure covering material		<input type="checkbox"/> prim.warp sewn through not visible	
<input type="checkbox"/> ç tooled recessed leather	<input type="checkbox"/> leather			
<input type="checkbox"/> Andere...	<input type="checkbox"/> textile		textblock spine-lining	
	<input type="checkbox"/> plain paper		<input type="checkbox"/> leather	
envelope cover and flap	<input type="checkbox"/> coloured paper		<input type="checkbox"/> --- could be doubleure	
<input type="checkbox"/> no flap	<input type="checkbox"/> marbled paper		<input type="checkbox"/> textile	
<input type="checkbox"/> flap or traces of flap	<input type="checkbox"/> painted on gesso ground		<input type="checkbox"/> --- functional as inner joint	
	<input type="checkbox"/> dluwang		<input type="checkbox"/> --- cut of at shoulder	
inside fore-edge flap covering	<input type="checkbox"/> western (style) endpapers		<input type="checkbox"/> --- pasted onto outer leaves tb	
<input type="checkbox"/> leather	<input type="checkbox"/> none		<input type="checkbox"/> paper	
<input type="checkbox"/> remnant joint is leather			<input type="checkbox"/> none	
<input type="checkbox"/> textile	sewing structure		<input type="checkbox"/> not visible	
<input type="checkbox"/> paper	<input type="checkbox"/> link-stitch 2 stations		<input type="checkbox"/> cloth later repair addition?	
<input type="checkbox"/> dluwang	<input type="checkbox"/> link-stitch 4 stations			
<input type="checkbox"/> see remark	<input type="checkbox"/> link-stitch other stations		inner joints	
	<input type="checkbox"/> stabbed		<input type="checkbox"/> leather stub from doubleure	
inside envelope flap covering	<input type="checkbox"/> side-sewing		<input type="checkbox"/> leather from spine-lining	
<input type="checkbox"/> leather	<input type="checkbox"/> overcasted		<input type="checkbox"/> leather strip from textblock	
<input type="checkbox"/> leather cont. with doubleure	<input type="checkbox"/> concertina structure		<input type="checkbox"/> cloth strip from textblock	
<input type="checkbox"/> textile	<input type="checkbox"/> leather strips no sewing		<input type="checkbox"/> paper strip from textblock	
<input type="checkbox"/> dluwang	<input type="checkbox"/> cloth strips no sewing		<input type="checkbox"/> paper stub from doubleure	
<input type="checkbox"/> plain paper	<input type="checkbox"/> paper strips no sewing		<input type="checkbox"/> joint over doubleure	
<input type="checkbox"/> coloured paper	<input type="checkbox"/> no sewing		<input type="checkbox"/> tipped on leaf, with stub covering j	
<input type="checkbox"/> marbled paper	<input type="checkbox"/> so tight not visible		<input type="checkbox"/> guarded leaf folded around outer g	
<input type="checkbox"/> not applicable/flap missing	<input type="checkbox"/> sewn on supports		<input type="checkbox"/> tipped on bifolio - endpaper	
	<input type="checkbox"/> 2 former stations l-s visible		<input type="checkbox"/> paste-down outer leaf gathering	
extra remarks	<input type="checkbox"/> see remarks		<input type="checkbox"/> guarded stub folded around outer g	
<input type="checkbox"/> leather doubleures block-stamped			<input type="checkbox"/> joint possibly later addition	
<input type="checkbox"/> fixed page-markers			<input type="checkbox"/> meddled with - not visible	
<input type="checkbox"/> no board cores			<input type="checkbox"/> other, see remarks	
<input type="checkbox"/> lacquered boards			<input type="checkbox"/> none	
<input type="checkbox"/> wrapper binding unsewn textblock				
	images			
remarks				

Appendix 4: List of Manuscripts Used in Illustrations

The manuscripts and some printed volumes, ordered numerically, according to their classmarks.

Or. 2C	fig. 99	Or. 755	fig. 64
Or. 47	fig. 76	Or. 765	fig. 140
Or. 61	fig. 101	Or. 795	fig. 9, 138
Or. 94c	fig. 101	Or. 829	fig. 92, 192
Or. 134	fig. 103	Or. 835	fig. 173, 174
Or. 151	fig. 137	Or. 849	fig. 26
Or. 155	fig. 82, 191	Or. 854	fig. 86
Or. 196	fig. 113	Or. 859	fig. 136
Or. 197	fig. 179	Or. 860	fig. 139
Or. 206	fig. 7	Or. 872	fig. 8
Or. 241	fig. 114	Or. 873	fig. 181
Or. 270	fig. 95	Or. 894	fig. 126–128
Or. 309	fig. 185	Or. 930	fig. 67
Or. 312	fig. 93	Or. 961	fig. 107
Or. 340	fig. 32	Or. 968	fig. 173, 174
Or. 398	fig. 66	Or. 969	fig. 105
Or. 408a	fig. 100	Or. 1007a	fig. 97
Or. 426	fig. 84, 85	Or. 1065	fig. 68, 72
Or. 428	fig. 4	Or. 1070	fig. 12
Or. 442	fig. 98	Or. 1079	fig. 75, 76
Or. 465	fig. 173, 174	Or. 1097	fig. 178
Or. 504	fig. 60	Or. 1196	fig. 52, 184
Or. 511	fig. 129	Or. 1210	fig. 11
Or. 546	fig. 59, 91, 156, 158	Or. 1335	fig. 121, 122
Or. 565	fig. 96	Or. 1341	fig. 193
Or. 590	fig. 106	Or. 1392	fig. 73
Or. 650	fig. 94	Or. 1442	fig. 183
Or. 656	fig. 30	Or. 1506	fig. 175
Or. 685	fig. 173, 174	Or. 1512	fig. 6
Or. 731	fig. 69	Or. 1548	fig. 175
Or. 752	fig. 173, 174	Or. 1570	fig. 1, 133–136, 165–168

Or. 1604	fig. 88	Or. 11.037	fig. 176, 177
Or. 1647	fig. 130	Or. 11.058	fig. 150
Or. 1652	fig. 173, 174	Or. 11.074	fig. 187, 194
Or. 1654	fig. 131, 132	Or. 11.526	fig. 89
Or. 1676c	fig. 149	Or. 11.550	fig. 75
Or. 1677	fig. 57, 58	Or. 11.723	fig. 61
Or. 1840	fig. 34	Or. 11.898	fig. 190
Or. 1842	fig. 56	Or. 11.913	fig. 157
Or. 1886	fig. 117	Or. 11.957	fig. 142
Or. 1902	fig. 108	Or. 12.454	fig. 197–199
Or. 2064	fig. 118	Or. 12.645	fig. 152
Or. 2072	fig. 109, 150	Or. 12.831	fig. 80
Or. 2089	fig. 10	Or. 14.201	fig. 70
Or. 2098	fig. 112	Or. 14.204b	fig. 70
Or. 2116	fig. 116	Or. 14.209	fig. 70
Or. 2118	fig. 196	Or. 14.366	fig. 171–172
Or. 2149	fig. 182, 195	Or. 14.427	fig. 71
Or. 2286	fig. 48, 49	Or. 17.143	fig. 27, 54
Or. 2378	fig. 47	Or. 18.155	fig. 96
Or. 2611	fig. 60, 155	Or. 20.400	fig. 71
Or. 2686	fig. 65	Or. 22.321	fig. 184
Or. 2747	fig. 2, 3	Or. 22.322	fig. 184
Or. 2748	fig. 90	Or. 22.784	fig. 122
Or. 2749	fig. 46	Or. 25.428	fig. 44
Or. 2761	fig. 151	Or. 25.662	fig. 159
Or. 2956c	fig. 186	Or. 25.693	fig. 45
Or. 5467	fig. 81	Or. 25.723	fig. 153, 154, 180
Or. 6329	fig. 119	Or. 26.660	fig. 183
Or. 6348	fig. 62	Or. 26.663	fig. 110
Or. 6633	fig. 108	Or. 26.679	fig. 5
Or. 6866	fig. 176	Or. 26.684	fig. 109
Or. 6892	fig. 84	UBL Acad 262	fig. 161
Or. 6987	fig. 35	UBL 845 A 19	fig. 203
Or. 6997	fig. 47	UBL 848 D 15	fig. 205, 206
Or. 8205	fig. 37, 38	UBL 865 C 24	fig. 204
Or. 8261	fig. 169, 170	UBL 870 A 6–8	fig. 208
Or. 8350	fig. 162–164	UBL 870 E 25	fig. 207
Or. 8907	fig. 28, 29	UBL 891 E 37	fig. 200, 201, 202
Or. 10.783	fig. 77, 83		

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