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The Islamic Bookbinding Tradition. A Book Archaeological Study
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1 Methodology

1.1 General procedure

In 2010 a pilot survey was carried out to gain information on the varieties in shape and composition that could be found in the manuscripts in the Leiden collections written in Arabic script. A preliminary sample of manuscripts was selected by assessing the first hundred books of every thousand. All manuscripts with original Islamic structures and bindings – any minor repairs or adaptations notwithstanding – within this range were examined. From this initial survey the structural and material elements could be established 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 served to answer some questions concerning the criteria for selection: what degree of historic interference or damage was acceptable, and when was a repaired manuscript disqualified from being valuable for 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, not all the functionalities could be foreseen 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 each manuscript's structure, 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, either a binding is covered in full leather or it is not – in which case it is probably a partial leather binding, although there is an option "other" for the few diverging 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 keep a fixed, consistent standard for subjective qualifications over a long period of time, and as the assessment of a thousand manuscripts unavoidably stretches out 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 to be 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

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, forming the basis for present analysis, the database was extended and redesigned in Filemaker Pro 10.0v1.

² A model for such a combined survey project is that of the bound manuscripts in the library of the monastery of Saint Catherine on Mount Sinai. See: N. Pickwood, 'The condition survey of the manuscripts in the monastery of Saint Catherine on Mount Sinai' (2004), pp. 33-61.

bookbinding – their preservation is of major concern, which 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, deselected manuscripts may have condition problems that are more urgent for different reasons. Additionally, it was not to be expected that extra means were to 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 in practice to develop a conservation programme.³ For those reasons, it was decided to abandon the idea of diagnosing the condition, and confine 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 made in the West were put back on the shelves. All other items were checked on authentic value, using the criteria described in Part One, paragraph 5.2. 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-pieces 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 completing the physical examination of the last volume, the relevant bibliographical information from available catalogues and inventories was added 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.

1.2 *Explanation of the database and form design*

In short, six technical components form the basis of a coherent structure that we recognise as being Islamic: sewing technique; spine-lining; endbanding; covering scheme; method of board attachment; inner joint composition. They constitute the red line in the survey, and the database and form sheet had to be designed around these sections accordingly. As one of the main goals of the survey was to demonstrate the diversity within the Islamic tradition, the manuscripts' construction and the materials used with respect to these specific binding components had to be recorded in detail. Additionally, to pinpoint what variations or divergent methods might be regarded as being decisive for classifying sub-traditions, the varieties in the composite parts had to be linked to available information on the origin of the manuscripts.

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 be required.

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* (2006-2007), <http://www.islamicmanuscripts.info/inventories/leiden/index.html> (accessed January-August 2013); 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); 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).

Would it be possible to indicate other material characteristics with the potential to help establish the origin of a manuscript? To answer that question, and to allow for analysis of the data which might provide insights that could not be predicted beforehand, more physical aspects needed to be incorporated in the survey. With enough data, trends in time and space might be revealed. Among the features regarded as potentially informative was the manuscript's format (apart from its dimensions, and if not the general vertical format: oblong, square, elongated); whether the thread used for sewing and primary endbanding was the same or of a different kind; the endband pattern; the finishing of the inner joints such as the application of stubs, paste-downs or separate hinges; the use of region-dependent materials; the treatment of the spine-ends; the absence of boards; the absence of the envelope flap; the presence of page-markers.

To record the technical components regarded as essential for this research, a database was built with 22 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 diverging 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 not so much influenced by budgetary issues or esthetical considerations. As the results from the pilot indicated that the majority of the manuscripts are sewn with a link-stitch sewing over two positions, of course the diverging remainder 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 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, while this feature is not described in the relevant literature, the primary sources excluded. Since the lining is crucial for the stability of the textblock and overall binding structure, this structural element and the differences that could be encountered in both choice of material and method of application, also with regard to the board attachment, deserved a key-function 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 a check-box was included under the heading "endbands". Less striking variations were found in the pattern of the secondary endband, and therefore a check-box for "chevron pattern" and one

⁵ See Appendix III 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 Part One, paragraph 5.2. With the assessed manuscripts, repairs did not interfere with the visibility of structural components to such an extent that it obscured most characteristics, otherwise the item would not have been selected. However, a repair could obscure particular features, such as the application method of covering leather, for example, which would subsequently be noted down. When 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 the former condition.

for “other pattern” sufficed. The diverging pattern 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-pieces technique or the use of one single sheet of leather. Moreover, with the prospect of gaining more knowledge on the development of these different covering schemes, it needed to be clear 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 too damaged to detect the precise covering technique, or lacking convincing proof of either the one piece or the two-pieces technique.

The ramification of the group of *çaharkuşe* bindings extended to five subcategories. Some of the partial leather bindings have all their edges covered with leather – which would offer best protection – while others have no leather strips on the horizontal edges. In both varieties specimens with and without a leather strip on the front edge of the envelope flap can be found. With this covering scheme it seems likely that economic motives were involved, 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 application of leather overlays, this was also recorded.⁸ In addition, 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, which could be further embellished. Again, the decorative quality and luxuriousness of the materials and techniques used may be indicative for the status or value of the book, while 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, both substance and composition of the interior of the binding were recorded.

Under the heading “spine endings” the outer ends of the spine covering are described. As explained before, the specific features of the spine-ending bear information about the technique used by the binder to attach the boards to the textblock. 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 Part Two. The key categories are “tabbed” or “turned-in”; the category “flush” indicates that the spine-end was not turned in, but leaves the option open that it once was tabbed. Unfortunately, due to severe damage on the outer ends of the

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 overlays were only recorded for the partial leather bindings as they especially signify an elaborate technique on 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 overlays are often found on full leather bindings which are not necessarily richly embellished, while many exquisitely tooled full leather bindings have no overlays.

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’ (forthcoming).

spines, many bindings no longer reveal their original make-up. When the leather on the spine is torn or crumbled away below 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. 121-124] For these damaged bindings, a check-box “spine-ends not detectable” was required. All items thus marked could have been made with tabbed spine-ends or flush ones, 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 also 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 of their application, even though their use may be obvious, it was decided to record all occurrences of manuscripts with page-markers. A check-box was added to indicate their presence in a particular manuscript; how and of what material the page-marker was made and its precise location was noted down in the ‘remarks’ field.

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 not measured, only when the difference in width between the two was significant 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), 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 expectation of the unexpected, a separate text field was included to record additional observations. This remarks-field was also introduced as a place to record all other particularities which occurred so sporadically that they required no field of their own, or to describe the exact execution of a specific feature, such as a diverging secondary endband pattern. Furthermore, remarkable characteristics were noted here, such as paper filigree in pages of a textblock or a surprisingly coloured leather. In this field subjectivity was allowed, in fact, it could not be avoided. For example, when the covers had a more than average diverging board-thickness, a more than average diverging thread thickness or remarkably long or short link-stitches or tiedowns, it was noted in this field. 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

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 for readers* (2009), pp. 168-169.

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.

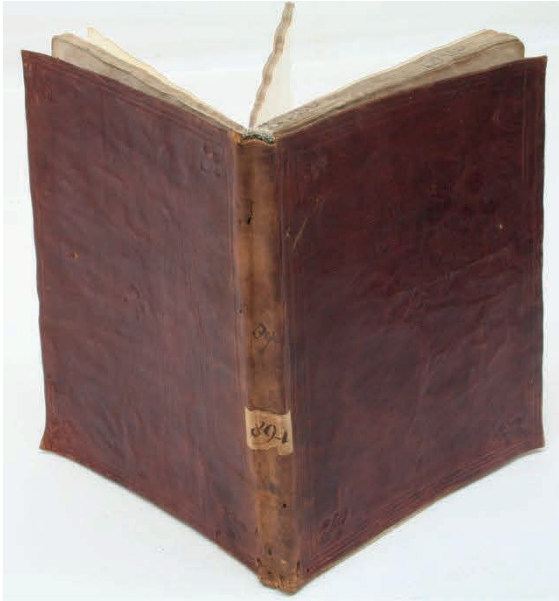


Fig. 121. Or. 894 (1659). A limp leather binding; the leather covers are lined with one sheet of paper onto which the turn-ins are made, there are no boards. The spine ends are damaged and it is not possible to say whether they were tabbed or cut flush.



Fig. 122. Or. 894 (1659). The leather of the covering was cut at the joint position 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.

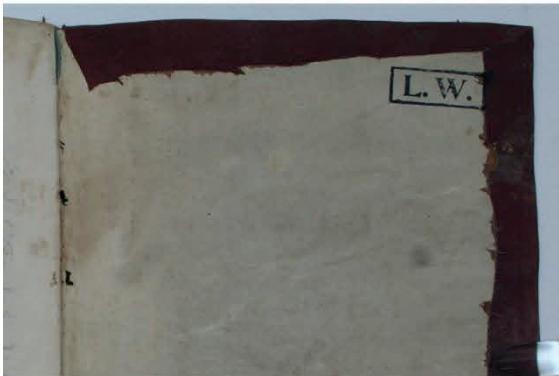


Fig. 123. Or. 894. Detail of the front cover. On the right side of the joint, the cloth spine-lining flange shows through the paste-down. At the head, the turn-in of the leather attests the practice of cutting the leather at the joint position to allow for the making of the turn-ins.



Fig. 124. 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, which leaves a small corner of the back board uncovered. It indicates that the covering leather was not turn-in on the spine.



Fig. 125. 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.



Fig. 126. Or. 1654. The endband, of the diverging 'wound' kind, appears to be original; the tiedowns are found in each gathering.

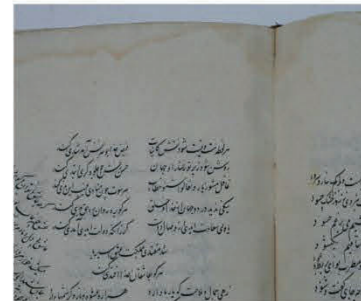


Fig. 127. Or. 1654. The yellow tiedowns are of the same kind as the sewing thread used for the link-stitch.

stand out.¹² Lastly, specific treatments like a painted or dyed textblock edge were recorded, as well as a diverging 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 not just be manuscript specific but region or time specific. By searching key words within this text field, comparable observations could be retrieved later fairly easily.

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 sources provided information on origin at 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, it remains uncertain whether it is omitted in the manuscript’s colophon or if an origin is given but it was not reproduced in the description. The *Inventories* of Witkam deserve special attention in this respect. The manuscripts that he described by autopsy contain all provenance information encountered; these volumes can be discerned by the use of 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) could 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, part of the latest acquisitions have been described by Arnoud Vrolijk, curator of the Oriental manuscripts and rare books since 2006, and his descriptions have been used when applicable. To indicate whether or not a specific manuscript description was expected to contain full provenance information, an additional check-box was added to the database.

1.3 *The Malay collection*

Finally, a specific part of the Southeast Asian collection was assessed, the so called Malay collection. This part of the Leiden Oriental collections contains many manuscripts written in the Malay language, though not solely; others are written in languages such as Javanese or Buginese. In fact, the collection consists of many manuscripts from Indonesia, the collection’s name therefore neither refers 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. An initial search in the Malay collection revealed that a significant number of manuscripts with similar features could be found. In order to select manuscripts by the

¹² N. Pickwoad, ‘The condition survey of the manuscripts in the monastery of Saint Catherine on Mount Sinai’ (2004), p. 39.

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), pp. 176-188.

¹⁵ Just like the manuscripts in the Arabic collection, which are not exclusively written in the Arabic language, but often in Persian or Ottoman Turkish, nor do they 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. See also Part One, paragraph 5.1.

same criteria as for the main survey, only manuscripts in Arabic script with bindings displaying the physical features of the Islamic tradition were selected. Although the languages may be different and the objects 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 still.¹⁷ Accordingly, Malay manuscripts in Arabic script with original, regional bindings can be considered to belong to the same cultural tradition¹⁸, 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 has not been included in the overview of the general characteristics and figures with respect to the number of occurrences, resulting from the main survey (which includes 1056 volumes). The assessment of these Southeast Asian manuscripts serves a comparison with the Southeast Asian volumes in the Arabic collection that displayed seemingly anomalous features. The analysis of the data gained from the Malay collection is represented in the paragraphs on Southeast Asian material only. For information on the provenance of these collections, the *Inventories* of Witkam were used, as well as Wieringa's *Catalogue of Malay and Minangkabau manuscripts in the library of Leiden University* and *Catalogue of Malay, Minangkabau, and South Sumatran manuscripts in the Netherlands* by Iskandar.¹⁹

1.4 Excluded textblock features

The present study strongly focuses on the structure and technical aspects of the binding, and many physical aspects of the textblock were not incorporated in the survey. Aesthetical characteristics, prone to subjective judgement, were excluded as well. In the paragraphs below an account is given of 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. In the first place, 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. Sufficient knowledge of Arabic in order to read inscriptions, dedications, or simply to distinguish between an illuminated title or an ex-libris would be another requirement that I do not possess. 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 re sewn, 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 uncertain evidence, inscriptions of owners or stylistic

¹⁷ As we will see in Part Five, paragraph 9, 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), p. 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* (2006-2007).

indications become less meaningful. Ultimately, the assessment would require significantly more time, without necessarily generating much useful information.

The usefulness of other textblock elements and the effort required to assemble the information were similarly evaluated. Although some scholars have pointed to the thickness of gatherings as a subject requiring further study²⁰, this feature was not included 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 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 appear to be relevant in another context when future study is conducted.

Other excluded textblock characteristics are the writing surface, the presence of coloured papers or other paper decoration techniques, the type 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 needs the most 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, but then, in certain regions – especially the peripheral ones – traditional papermaking continued since the import of Western paper did not easily reach these areas. 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, neither regions nor periods of the papers displaying such characteristics can easily be identified. Therefore, any conclusion based on such a vague and assumed origin would be, at the least, very 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 on. 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 has to be added that machine-made paper does not always contain a 'watermark'; a *terminus post quem* is therefore not so easily established other than that machine-made paper from woodpulp was not produced before the early nineteenth century. In conclusion, the type of paper is not a clear informant about the origin of the manuscript, whereas it would be time-consuming to incorporate this matter into the survey. Especially since many volumes are composite manuscripts (approximately a quarter of the corpus), to describe the different 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

²⁰ COMSt Newsletter 5 (2013), p. 2.

the form headings, since that would suggest a coherent and thorough examination. Nevertheless, when a textblock consisted of dluwang or machine-made paper it was noted in the “remarks field”, since that information straightforwardly points to respectively an identifiable region and a time-period of origin.

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, to distinguish between the calligraphic hands requires palaeographic training. The consulted catalogues only sporadically offer the script types. *Nasta’liq*, *naskh* and *maghribī* script are the types most often included in the object description. It seemed meaningful to introduce the mentioning of *maghribī* script into the database, but not the others. *Naskh* developed from the late tenth century onwards and became so widespread, developing into many regional varieties and forms, that its appliance 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 (*mīṣṭara*) is so universal in the Islamic world that it offers no 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 could perhaps offer slightly more information, technical analysis would be required, which was beyond the possibilities of the present study. The use of coloured and decorated papers may hint at the value or significance of a manuscript, but too little is known about this topic to use it as a firm guide; several examples, at least, can be given in which the use of coloured papers appears arbitrary.²⁴

Finally, the presence of written titles on the tail edge of the textblock has not been recorded. The information value of this characteristic on the use of these manuscripts is clear, however, it does not tell us anything in direct relation 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, which could be long after the making of the manuscript.

1.5 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 of all, lack of a proper terminology for binding decoration hampers recording. As a consequence, the decorative elements can only be covered by elaborate description, combined with images or rubbings. Such an approach could certainly lead to the development of a more adequate vocabulary; however, this work could not be undertaken within the scope of the present study.

²¹ A. Gacek, *Vademecum* (2009), pp. 241-243.

²² The need for further research is explained by F. Déroche, *Islamic codicology* (2006), pp. 205-211.

²³ *Ibid.*, pp. 147-149.

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, *Vademecum* (2009), p. 276, and Déroche, *Islamic codicology* (2006), pp. 60-61.

For the recording of the binding's ornamentation to be meaningful, it would be necessary to measure the quality of the work as well. The occurrence of different stylistic shapes and trends in itself is not informative enough. Indeed, it seems that when decorative schemes were developed, initially 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 to qualify the workmanship.

Additionally, what complicates the study of binding decoration is 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 it influenced the binding profession. As only a relative small amount of bindings can be retraced to a certain workshop, the so-called court atelier production, we are left with a huge amount of less distinguishable bindings and decoration techniques. 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 is that it should be remembered that the present study includes re sewn manuscripts. Such manuscripts can either retain their original binding, or a new cover could 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 cannot always be conclusive as to which solution the binder chose. For that 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, including 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 the framework for understanding the stylistic features. For the present study, however, the benefit of such a subsurvey did not outweigh the required time to incorporate this issue.

1.6 *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 for 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. They are listed below in random order.

In order to refrain from subjective interpretation, none of the materials were described by their colour. General qualifications, even with the aid of a colour chart, are disputable as many colours have faded or yellowed under the influence of light, storage conditions and deterioration processes. In most cases it is impossible to establish to what extent discolourations occurred, but even when this obstacle should be disregarded, it seems to have little or no relevance whether a leather or paper is described as dark red or olive green. Thus, neither the colour of the covering materials nor the sewing thread was systematically recorded. However, remarks were made on incidental occurrences such as the use of several colours of sewing thread in one volume. It was also noted whether such instances seemed intentional or if it was evidently done arbitrarily, as the latter corroborates my belief that generally no colour schemes were used in sewing. This is contrary to the assertion of Jacobs and Rogers that binders *did* use some colours on purpose.²⁵ With regard to

²⁵ D. Jacobs and B. Rogers, 'Developments in the conservation of Oriental (Islamic) manuscripts at the India Office Library, London' (1990), p. 117; they do not support their statement with arguments or figures; the issue is elaborated on in Part Two, paragraph 2.1.

the secondary endbands, colour schemes were not included either, at least not initially; certain manuscripts were at a later stage re-examined as a set and as such the colours of their endbands could become an issue. Also, regardless of the precise colour, whether or not the link-stitch sewing and primary endband sewing were carried out with the same thread was recorded.

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, threads diverging from what was to be expected (and considered average) were recorded, following the logic of the three-level assessment described earlier. In the case of thread-thickness average is relatively thin, so what stands out is ‘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 whether a thread is made of linen, cotton or silk with the naked eye. To establish this with certainty, analytical examination of fibres under a microscope would be necessary. Quite similarly, with regard to the leather covering it was 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, a large number of bindings are covered with leather that is not easily determined. 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 to be the cheapest hides available, the inability to determine the animal which was the source of the leather is unfortunate, since the economical aspect of the matter could prove to be interesting. Other species that can be expected to have been used apart from goat and sheep are donkey, mule, camel and different types of cervine.

Another feature that was not recorded 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 with the size of the manuscript as examples of both 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 warps should be measured to determine an average length per book – it seems that this characteristic is typically a result of arbitrariness or personal routine.

Whether the tiedowns were bundled in order to sew the secondary endband, and if so, in what quantity they were bundled, is not recorded. It will certainly be interesting to focus on the making of endbands in a further study, since characteristics like this may provide further insights. At the same time, the decision to bundle the tiedowns in pairs of two, or groups of three or four threads, is likely to be affected by the quality and thickness of the thread to be 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 fastening system of 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 whether there is a predominant method for attaching the thread has not been identified.

Laminated paper sheets are used in a majority of the boards, and wastepaper was regularly used for this purpose for obvious reasons: even when paper was not scarce, wastepaper 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 presence of damage at the joints or corners, which means that it is not an equally accessible feature for all manuscripts. The thickness of the boards is another aspect that was not 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 understand the manufacturing of a manuscript. Small details in the finishing of the covering were not recorded at this point, 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 which 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 can 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 stretch further and proceed, for example, to include facts about discarded and reused manuscript material in binding components, or focus on colour use and other aesthetical aspects. Should this ever happen, it will be fairly simple to extend the current database with extra 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.

1.7 *Excluded categories*

As the survey clearly focuses on construction, manuscripts without a construction were excluded from the study. Consequently, North and West African manuscripts consisting 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 renders these items useless 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.²⁶ They also differ essentially 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,

²⁶ 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, with a leather strap attached to the point of the envelope flap. This is used to wrap around the packed manuscript, which necessitates that the flap closes over the front cover instead of being tucked underneath.

possibly even using the former wrapper binding, whereas the manuscripts consisting of single leaves necessarily remain unsewn, unless, of course, they were sewn with a stabbed technique. Stabbed sewing would allow further treatment like lining and board attachment, although endband sewing would still be complicated. In principle, such stabbed manuscripts would be 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.

Another category not included in the survey concerns 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, manuscripts with a concertina structure, or so-called accordion books, were excluded. The very nature of this codex type, which usually contains a collection of calligraphic examples or miniature paintings, hinders the estimation of the binding's relation to the content in terms of date and origin, but more important is that 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.

1.8 *Considerations regarding the degree of validity of the findings*

All techniques described in Part Two have a section in the database. The frequency of occurrence concerning these different composite parts and that of various details are dealt with in the next sub-chapter. Every binding included in the survey added information to the final, quantitative results. Still, some manuscripts were more 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 essentials were used to map the multiplicity of the Islamic binding tradition. These results are found in Part Five.

This group of 'extra informative' manuscripts in the corpus was identified when data regarding the place of origin of a manuscript was included in the corresponding database records, as described above. As it turned out, only seventeen percent of all entries appeared to have a location of origin. Fortunately, copyists noted down a date much more often, more than half of the volumes are dated.²⁷ Subsequently, the genuineness of the binding as the original structure had to be confirmed 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,²⁸ still belonging to the Islamic manuscript tradition but not necessarily corresponding with the information provided in the colophon. To do so, the spine-folds of the gatherings were checked for presence of paper

²⁷ When the catalogues or inventories mentioned the occurrence of several hands and several dates, the latest date was included in the database.

²⁸ 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 been quite unscathed and therefore reused by the binder. By the same token, he could have used an existing cover more or less the same size as the textblock, adjusting only the width of the spine to make the binding fit.

repairs, especially underneath the tiedowns or closer towards the middle of the fold. When small patches of paper have been applied in the spine-fold, this clearly indicates resewing. In my corpus, 249 manuscripts were repaired in this manner. Furthermore, unmended spine-folds were checked for traces of former sewing stations, although this proved to be more difficult; particularly in the soft, fibrous Arabic paper such previously used holes are hard to detect as they tend to close again under the pressure of a new sewing, or from flexing during subsequent usage. Even so, in 156 textblocks such proof was found. In total then, 316 manuscripts of the whole corpus are certain to have a second sewing.

Another feature pointing at 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 appeared that most of them were. However, the manuscripts were not methodically checked for this characteristic and it is likely that specimens were overlooked; therefore the 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 Part: every included volume 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. Only when we focus on the group of located and dated manuscripts – in the next Part – 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, the aspect of original structures becomes essential.

2 Survey results – quantitative analysis

2.1 *Datable and localisable manuscripts*

Out of the approximately 6.000 manuscripts in the Leiden Arabic collection, eventually 1056 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 on 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 within group A with those of group B, it appears that the first group contains a relatively large number of manuscripts with information on origin. It can therefore be assumed 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 manufacturing may well result from 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 localised manuscripts) contained 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 localised manuscripts) appeared to contain a place name. In total, another 77 manuscripts were located 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 place where the work was executed. In our sample, 588 manuscripts are dated. Another 72 were approximately dated 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; relative to the total number of dated volumes that is 47%, in group B the number is 314 or 53%.

2.2 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 of them on four stations and 51 on three, five or more stations.²⁹

The remaining manuscripts are either sewn differently, or not sewn at all. 38 Manuscripts were sewn with a stabbed sewing technique, two of those were overcasted and nineteen were side-sewn. The exact pattern of sewing of the other stabbed manuscripts was difficult to establish. A smaller group was sewn on supports, 30 in total, but fourteen of these are clearly of Western origin as a repair sewing; in these manuscripts the holes of the former link-stitch sewing stations are still visible. The other sixteen volumes sewn on supports bear evidence of Oriental origin. Of those, ten were sewn on leather or parchment strips, the majority of them are sewn across and only two are sewn around the support, including one manuscript that is sewn on one leather support, which is an odd, uncommon structure. Thin cords were used with the other six volumes; one of those was sewn with a two-on system and the other five were sewn gathering by gathering.³⁰

In nine cases the sewing was so tight that the spine-folds could not be examined without causing damage, so that the type of sewing could not be determined. In 27 instances the manuscript was not sewn at all. In this group, twelve volumes had connective strips adhered onto the textblock spine, consisting of leather (six instances), cloth (two instances) or paper (four instances). No traces of connective strips or adhesive residues could be found 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.³¹ In terms of structure, this manuscript can be considered to be 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 former sewing stations of a link-stitch on two stations were recognised, three are now stabbed, eleven sewn on four stations, and twelve on supports.

²⁹ How the link-stitch on four stations diverges from the link-stitch on three or five stations has been elaborated in Part Two, paragraph 2.1

³⁰ 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 Part Five.

³¹ 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), pp. 26-27.

With regard to the sewing thread, it appears that with the majority of the sewn manuscripts (643 volumes or 62.5%), the thread used for the link-stitch sewing was also used for sewing the primary endbands. With 275 (27% of the sewn manuscripts) manuscripts, the thread of the tiedowns is different from the one used to sew the gatherings. Several manuscripts were sewn with different colours of thread, in which case a remark was made 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 so as to be able to examine the thread. Since these statistics include re sewn or repaired volumes, could the diverging endband threads be an indication of replacement endbands? No evidence for this assumption was found. 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.

2.3 *Spine-lining*

The majority of the textblock spines are lined, 1004 in total, and the materials used for lining are leather, cloth, paper and dluwang, sometimes in combination. Leather was used in 227 manuscripts, nearly 22%. In twelve 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 it could not be determined if in these instances the spine-lining is made of one or two separate pieces of leather. All volumes with a leather lining attest 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. With the first, the flanges of the primary leather spine-lining were cut and a second cloth lining was applied, with extending sides used for board attachment; with the latter, the sewing supports were used for board attachment which hindered the application of the flanges to the inside of the boards.

With 636 manuscripts, cloth was applied as spine-lining material, indicating that this is the most common method: the group makes up 60% of the total.³² It appears that the flanges of the cloth were also usually adhered on the inside of the boards, to strengthen the board attachment; 476 manuscripts attest of this practice, that is three quarters of the cloth linings. However, with 89 manuscripts, 14% of the total with cloth linings, the flanges of the lining can be found pasted along the gutter of the outer textblock leaf. With 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 the construction of board attachment could not be determined.

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 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.

³² In Part Five, paragraph 2.1, 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: chances that older manuscripts were rebound (with a increased chance that the binder used cloth for the lining) or did not survive altogether is appreciable and therefore more instances of cloth linings would be expected.

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 that 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, which is approximately 2.5% of the total.

2.4 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 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 it could be 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 had all manuscripts provided access to their sewing structure on the spine. However, this structural connection could not be confirmed for 130 volumes because of the sound condition of the cover spine and inner joints. 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 be sewn before the spine-lining was applied; at least one of these manuscripts is repaired and resewn and the structure is 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, an irregularity was encountered twice, when different colour schemes were used for head and tail endband. For 38 manuscripts a pattern other than the chevron was found, though closely linked in production to the dominant type: vertically striped endbands occurred eight times, and those with diagonal stripes eleven times (see figs. 108-110 in Part Two).

Another, more prominently diverging endband structure is of a type sewn in one colour only, with the thread direction of the secondary endband different 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 which distinguishes it from the Western tradition.³³ [figs. 125-127]

In three 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.³⁴ With two endbands the sewing was so dense that the precise pattern was not detectable, five times the endbands

³³ 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), pp. 206-210.

³⁴ 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), pp.121-125, 160-161.

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.³⁵ In the group with the predominant Islamic endband structure there were 25 instances (2.8% of the total) in which the tiedowns were not regularly sewn through the spine-folds of each gathering, instead they were sewn more sparingly or more crudely, often piercing the textblock randomly.

Fringed endbands were found eighteen times, three of them made with three instead of two colours. The fringes were formed either by the secondary sewing 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 four cases the secondary sewing thread was wrapped around the endband structure horizontally after finishing. Thus the thread is tied to the base of the endband and lies on the edge of the paper (see fig. 115 in Part Two). Once this technique was combined with fringes.

A category of its own is the saw-cut endband; sixteen endbands of this type were encountered in the survey. 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 no endband core at all, and 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 eleven instances the core is made of either a stiffer material, like rolled parchment (two times) or rigid twig-like plant fibre (three 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 eleven cases the leather endband slips were not cut, but either pasted onto the outer textblock leaves close to the gutter, or onto the textblock spine. With two textile endband cores the outer ends also extended; once they were found pasted underneath the doublure and once they were adhered onto the outer leaves of the textblock.

2.5 *Covering*

The basic categories in covering schemes are full leather and partial leather bindings, but these categories are not useful without further subdivisions. Both main groups are rather complex. As pointed out before, the group of full leather bindings is divided into those made out of one piece of leather, and those made with the two-pieces 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 the group is small – consisting of only five bindings – the technique and composition are very particular and are explained below.

Apart from the five composite leather bindings, 683 bindings were fully covered in leather. Of those, 319 volumes were bound with one piece of leather only, while with 243 volumes the two-pieces technique was used. Due to severe damage it was not possible to determine what technique was used in 45 cases, and with 73 full leather manuscripts old repairs prohibit the analysis. For the remaining three bindings no evidence was found

³⁵ As will be 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 tiedowns only. The endbands were also occasionally omitted on the stabbed sewn manuscripts, as well as on some of the relatively recent manuscripts sewn on cords.

convincingly in favour of one of the techniques. The vast majority of the leather used is tanned but four times the leather appears to be alum tawed 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 really different from a typical well made decorated full leather binding; that alone leaves one wondering why such a more complicated technique was chosen. And complicated these composite bindings are indeed. The leather used to cover the centre panels of the covers and the envelope flap is of a different colour than the leather used to cover board edges, the spine and the fore-edge flap (provided there is a flap). Furthermore, the two central board panels abut with 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 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 when we find that two divergent methods of production can be distinguished. The most surprising is 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.³⁶ [figs. 128-131]

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 in a colour diverging from the spine and edges instead of paper or cloth, 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 very 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 they have a flap. All partial leather bindings made without a flap but with leather strips on all edges can also be classified as a *çaharkuşe* binding. There are, however, other variants which force us to stretch the definition of a *çaharkuşe* binding quite a bit. As a 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 off 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 can find bindings that have no leather strip(s) covering the edges of the envelope-flap. [figs. 132-134] For want of a better term and for the sake of expediency while undertaking the assessment, these bindings were still denoted as *çaharkuşe* bindings, with the 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

³⁶ To use leather doublures so much larger than the textblock so that their protruding edges can be used to turn-out over the board edges so as to cover part of the exterior boards seems an unlikely technique. However, the Leiden examples are not the only ones to attest 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 is another example in the UBL collections – Or. 8350 – that was, unfortunately, too damaged and interfered with to be selected for the present study.

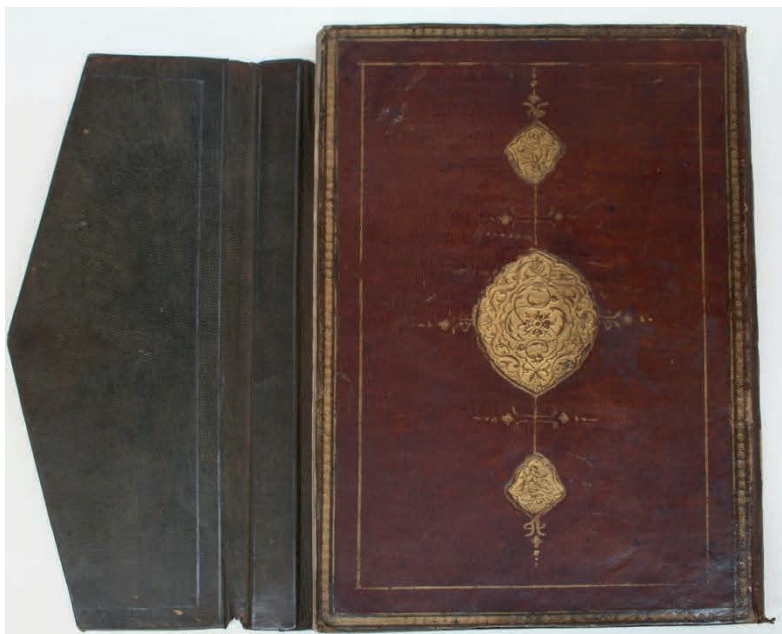


Fig. 128. Or. 1570 (1560, though resewn). A composite leather binding. The leather doublures were turned-out to cover the outer edges of the exterior, instead of the leather covering being turned-in. Separate pieces of leather were used for the spine and fore-edge flap, and to cover the boards.



Fig. 129. Or. 1570. Detail: the upper corner of the front board. The arrows point at the abutting edges of the pieces of leather.



Fig. 130. Or. 1570. The envelope flap. The red arrows point at the edges of the turned-out black leather doublure, where they abut with 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.



Fig. 131. 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.

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 is not accurately describing the composition of the binding.

As touched upon above, not every partial leather binding is a *çaharkuşe* type. The exemptions are bindings that only have their spine covered in leather.³⁷ [fig. 135, and for comparison with a partial leather binding of the *çaharkuşe* type without a flap, fig. 136] 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. Concerning their outer form and appearance, a further division has to 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.³⁸ [fig. 137] The other is one of the cheapest bindings conceivable, with the thin boards simply covered in paper and no other embellishment whatsoever.

In total, there are 361 partial leather bindings (34% of the total). Of these, 345 are a *çaharkuşe* binding type. The most common subdivision within 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. With 79 specimens the strip of leather on the fore-edge of the envelope flap clearly was omitted; 30 volumes were simply made without a flap but had all the edges 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 of these partial leather bindings, 26 volumes, did have the front edge of the envelope flap covered with a strip of leather, whereas a leather strip was omitted on the front edge of the envelope flap with 59 volumes. With nine bindings in this group, only a remnant of the fore-edge flap was left, which made it impossible to establish whether the fore-edge of the envelope flaps had been covered with leather. The remaining four partial leather bindings of this type were made without a flap but leather was applied to the fore-edges of the boards. The apparent economising by not covering some of the board edges with leather does not necessarily mean that these bindings were made in the cheapest way, for 37 of these partial leather bindings were covered with decorated paper.

In total, 217 *çaharkuşe* bindings are covered with decorated paper and 119 have a monochrome coloured paper covering; nineteen bindings are tooled, in twelve instances a stamp was pressed on a leather overlay, three others have a paper overlay. 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 five

³⁷ Even for these bindings, the term 'half leather binding' as used in the West is not appropriate, for that designation would imply the use of leather on the corners. According to Western bookbinding description, a leather spine only would qualify as a quarter leather binding, also considered a meaningless term to describe Islamic bindings.

³⁸ Usually, lacquer bindings are described as a separate type of Islamic bindings. 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 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 Part Five, paragraph 6.3. 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.



Fig. 132. Or. 151 (1539). A partial leather binding with leather strips covering the edges of the board, but not the fore-edge flap.



Fig. 133. 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.



Fig. 134. Or. 860. 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. 135. Or. 765 (seventeenth century). A partial leather binding with a leather spine only. The boards are very thin.



Fig. 136. 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.



Fig. 137. Or. 11.957 (eighteenth century, Persia). A partial leather binding with lacquered boards. The boards were attached using the two-pieces technique (the arrow points at the edge of the outer layer which is starting to come loose).

volumes have a cloth board covering instead of paper, and with two bindings the covers 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-pieces technique, which is 7% of this category, a considerable number. The significance of these particular exemplars is that they support the theory that partial leather bindings are built-on structures, see also Part Two, paragraph 3.4.

The other partial leather bindings, sixteen in total, only have their spines covered with leather. Of these, seven bindings have lacquer boards. The other nine volumes have thin boards and are simply covered in paper – albeit decorated: eight of them are marbled and one 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-pieces technique was used five 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 will be elaborated on in the next Part.

A small incoherent group of covering types makes up a rest-category, consisting of seven manuscripts, including two full paper bindings and a full cloth binding, one manuscript with a cloth wrapper binding, and two leather bindings additionally covered with cloth – presumably not originally. Finally, one partial leather binding was found with the lay-out of a Western half-leather binding.

2.6 *Treatment of the spine at head and tail*

Unfortunately, a substantial number of bindings are damaged at the spine to such an extent that the treatment of the leather covering at head and tail can no longer be determined: 394 manuscripts, almost 37% of the total, cannot offer information on their manufacturing in this respect. It is clear, however, that with the remaining manuscripts, the majority of the leather spines – 410 volumes – were made with extensions at head and tail. The spine-ends of 58 manuscripts were described as ‘semi-tabbed’, a category that was introduced to denote spine-ends from which the leather does not protrude in a tongue-like fashion but is clearly cut, although not quite flush with the boards. These spine-endings are folded neatly over the endbands beyond which they do not extend. 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 head and tail, a feature found in a small group of only five 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-pieces technique, tabbed spine-ends are found on all full leather bindings. On bindings made with the two-pieces technique, however, they were found slightly more often than on the full leather bindings made in one piece. The numbers of (surviving) tabs lay around the 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 a 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 had been 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 one 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.

2.7 *Fore-edge and envelope flap*

The large majority of the 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 a flap. In relation to the presence of a flap, there is a negligible difference in the percentages between the full leather bindings in one piece and those made with the two-pieces technique.

2.8 *Inner joints*

As described above in paragraph 2.3, 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. With twelve 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 476 cases, we find that with 460 of these volumes the cloth inner joints were subsequently covered one way or another. There are only sixteen occurrences in which the cloth flanges are visible, often with re-sewn manuscripts. The methods used to finish the inner board covering and joint are various. In 34 instances a leather stub from the leather doublure is 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. No examples were found of a cloth strip with the same purpose. Paper strips, however, were used 170 times, consisting of plain, coloured or marbled paper. In 52 instances these added strips, both paper and leather, were pasted on top of instead of underneath the doublure, which may point at a repair procedure rather than an original structure; with nineteen of those it was explicitly noted that the inner joint is 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. The varieties in structure of the endleaves are described below, in paragraph 2.9.

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 the manuscripts with lacquer covers and limp leather bindings. For both these binding types the omission of an inner joint can be understood as the inside of the covers often lack a lining; the interior of lacquered boards are often painted as well, and some of the limp leather bindings consist of the thick leather covering only (see Part Five, paragraph 4.4).

2.9 *Doublures and endleaves*

Most doublures consist of paper, in 851 manuscripts or 81% of the total.³⁹ The majority of these were plain papers, 401 in total; 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. Six of those are monochrome blue on cream paper, in one volume different marbled papers were used to cover the inside of the front and back board and flap. In three 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 (ten times), dyed, gold sprinkled paper (nine times) and brocade papers (gold stamping on a multi-coloured surface, found two

³⁹ Western repair endleaves, usually in the form of a tipped in bifolio or sewn endleaf section and clearly recognisable as non-native by the sewing thread or other changes in the manuscript's composition, were not included in these numbers.

times). Another substantial group is formed by leather doublures, 140 in total. In this group we find the twelve doublures that are probably the extensions of the spine-lining piece(s). Also, several block-stamped leathers were found (fourteen), and a few were painted with floral patterns. Only seven manuscripts have cloth doublures. In five instances the inside of the board consists of a painted surface. Presumably this painted layer is 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. With 24 manuscripts the inside of the covers are lined with dluwang, mostly found as a paste-down, and fourteen 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 cloth doublures on the boards; in 51 of these cases the lining of both flap parts consist of a continuous piece of leather, in only four 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 is 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 is 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 nineteen 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 are neatly and symmetrically cut. [Fig. 91] The decorative cut edges of the paper doublures vary widely in quality, some of them are fine and delicate, others are crudely executed.

According to the definition, doublures cover the inside surface of the boards, but structurally they are not part of the textblock, in contrast to a paste-down. 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 endleaf. 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 endpaper. Although the shape of the entity is the same, applied this way it becomes a different element: a paste-down. This technique occurred twenty times. A method resembling this structure is formed by pasting down the outer leaf of the outer gathering, one half of a bifolio; this was encountered 44 times. Still another method is 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. This will be further explained below, in Part Five, paragraph 6.2. Finally, a paper guard sewn with the outer gatherings was used nine times to cover the inner joints, and once 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 were provided with additional endleaf sections when they were resewn.

2.10 *Bindings without paste-paper boards*

About 6% of the bindings are made without boards, 70 manuscripts in total. The majority of these bindings still have a traditional binding in terms of turn-ins and doublures. With nine 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. With 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 sometimes it may be possible that the covers are lined with one or two sheets of paper. Those sheets may have been of assistance when the turn-ins were made. Nevertheless, these very thin covers were considered 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 never had a flap.

The boardless bindings are almost always covered in full leather. In seventeen instances the two-pieces technique was used. One specimen without boards is a cloth wrapper binding and one is a *çaharkuşe* binding, which 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 diverging set of manuscripts appeared to have boards made of leather instead of paste-paper. At least twelve specimens were found. The nature of the core substance can only be determined when damage gives access to the core, because the finishing and tooling of these covers is not different from leather covered paste-paper boards. The last group of manuscripts with diverging 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 the 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° 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 two were recorded for the survey.

2.11 *Oblong bindings, page-markers and other phenomena*

In the survey, nine oblong bindings were recorded. They are denoted as *safina* format: the gatherings are sewn along the short side and usually the item is rotated clock-wise when read, because the text is written parallel to the spine.⁴⁰ The items are all relatively small, 11x21 centimetres is average, and typically thin and light, which gives them a highly portable character. While these oblong formats clearly diverge from the common vertical format, differences within the large group of the latter can also be found. There are two types: 83 manuscripts are denoted as elongated, and five volumes are rather squarish. The average size of the elongated manuscripts is close to 25x16 centimetres, and some of these bindings have thick boards. The squarish formats have an average size of 13.5x12 centimetres. Differences in shape of the book and the ratio of the board length and width in relation to the origin of the items will be elaborated on in the next Part.

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,

⁴⁰ In Turkish the term is *cönk*.

without leaving much of a trace. As the threads are more strongly connected to the paper they are less prone to loss. Leather page-markers were encountered only twice, in very different shapes. Once they are 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 at different occasions at which 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, some manuscripts have all their page-markers 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.

Three times a flexible reading aid was found, a braided cord of coloured threads, fastened on the textblock spine. Six textblocks were encountered with decorated edges. For this, floral patterns were used, painted in gold, sometimes applied when the textblock edge was first coloured with blue or red dye.

2.12 *In conclusion*

The figures do indeed suggest that there is an archetypical Islamic binding, which remains constant irrespective of time or place. The chief sewing structure is a link-stitch sewing, with 950 occurrences out of the 1056. Over a thousand manuscripts attest the use of a functional spine-lining, stabilising the sewing and endband structure, and providing support for the board attachment. The endband sewing consistently comprises a primary and a secondary sewing. More or less two-thirds of the bindings are covered fully in leather, while one third of the volumes is partially covered in leather. Both categories point at the manufacture of the binding 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 used 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; characteristics that deviate from the archetype but ones that cannot be dismissed as anomalies. These are variations that also belong to the Islamic manuscript tradition. The extent to which this awareness may be of help in distinguishing local traditions will be examined in the next Part.