The Islamic Bookbinding Tradition. A Book Archaeological Study

Scheper, C.H.

PART THREE COMPARATIVE STUDY OF THE HISTORIC SOURCES AND RECENT LITERATURE ON THE MAKING OF ISLAMIC MANUSCRIPTS

1 Historic sources

1.1 *Introductory remarks*

Next to autopsy there is, of course, a supplementary method to obtain information on how the manuscripts were made. Written sources, originating from the period and culture of the objects involved, shed an interesting light on book production. On the making of Islamic books and their bindings in particular, five historic sources are known.[1] Although the texts are well known amongst scholars working within the field of Islamic manuscript studies, they have not been analysed comparatively before. Nor were they evaluated from a binder's or a conservator's point of view. My approach in studying these sources is a craft-based perspective. To explain the possibilities and limitations of this way of exploring the treatises, it is necessary to start with some remarks, which will also set my viewpoint in context.

First of all, the original texts have been made accessible to non-Arabic readers, either in edited versions or direct translation, through the efforts of excellent scholars, who were compelled to work from later copies preserved in sometimes dire conditions. The way the original sources have come down to us are affected by this in one way or another. My inability to read Arabic left me dependant on the available translations or summaries, adding of course a stratum between me and the sources in which changes in interpretation can occur. On the other hand, my capacity as a book conservator with the practical experience of making Islamic book models gives me an insight into the material that adds a new dimension to the texts. Because of my specialism, concerning techniques, structures and materials, I examined the treatises differently than the original translators. While reading the series of steps described in the bookbinding procedures, I visualised the process and evaluated it in light of the technical possibilities. As a result, it was possible to interpret some technical descriptions in a different way than had the original translators. Also, when the procedures, as described in the texts, appeared rather incomplete or impractical, these passages are indicated and possible explanations are made.

Secondly, it is useful to look critically at the authors' names and social positions. It appears that in two cases the authors were rulers, not binders. Although princes and rulers were introduced to certain respected trades or crafts as part of their general education, it remains unknown if the two rulers involved – Ibn Badis and Al-Malik al-Muzaffar – were actually trained in how to bind books. It is quite possible that they were, but it is equally possible that the treatises bear the ruler's name although they were actually written by someone more adept at this craft. One of the three other treatises is written by a man of letters and a poet, Bakr al-Ishbili, who knew how to make books, since bookbinding provided him with additional income. The writer of the didactic poem on bookbinding, Ibn Abi Hamidah, states himself that he was not trained as a binder. Only one of the five authors, Sufyani, is known without a doubt to have been a craftsman; he even wrote his instructions out of frustration over his unappreciative apprentices.[2] We therefore can conclude that at least three of the primary sources are not meant to be manuals, they are merely descriptive accounts of a respected craft. Being aware of the nature of the writings helps to understand

[1] The authors are Ibn Badis (d. 1062), Bakr al-Ishbili (d. 1231), Al-Malik al-Muzaffar (d. 1294), Ibn Abi Hamidah (fifteenth century), and al-Sufyani (treatise is dated 1619). Full descriptions are given in Part One, footnote 38. Extended bibliographical information can be found in A. Gacek, 'Scribes, amanuenses, and scholars. A bibliographic survey of published Arabic literature from the manuscript age on various aspects of penmanship, bookmaking, and the transmission of knowledge' (2004).

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

their incompleteness. Furthermore, the five sources do not cover the total breadth of the Islamic world at the time; three of them were produced in the Maghreb (Algeria and Morocco), one in Yemen and one of uncertain origin was possibly written in Syria.[3] Consequently, we lack accounts of the bookbinding tradition from important cultural centres in Egypt, Anatolia, large parts of the Arabian peninsula, Persia and further east. Even so, comparing the contents of the known treatises allows for some interesting conclusions and the shape of the Islamic bookbinding tradition emerges quite clearly from the discussion.

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

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

1.2 *Ibn Badis*

The earliest known treatise is dated ca. 1025 CE. The author, Tamim Ibn al-Muizz Ibn Badis (d. 1062), was a prince and ruler in northeast Algeria and a patron of the arts, which explains his interest in the art of bookmaking.[4] He was not, however, a binder himself. The majority of the chapters deal with the making of the textblock: the preparation of inks, dyes, adhesive, and the manufacture of paper. Only the last chapter is dedicated to "the art of binding books in leather and the tools". The full title of the work is "Book of the staff of the scribes and implements of the discerning with a description of the line, the pens, soot inks, *līq*, gall inks, dyeing, and details of bookbinding". While Martin Levey translated the whole text, Gulnar Bosch focussed on the twelfth chapter (on bookbinding); both translations were published more or less simultaneously in 1961-1962.[5]

Ibn Badis starts with a brief description of a few tools. The use of two different needles is interesting for our purpose. One needle is supposed to be used for page sewing and the other for binding the book. In bookbinding terms this is one and the same thing; gatherings are formed by nestling two or more bifolios in on another's spine-fold, and sewing these

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

[4] Consequently, Ibn Badis supposedly wrote this treatise almost 40 years before he died, when he must have been relatively young.

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

Notwithstanding the importance of these translations, as both scholars were not binding practitioners a marginal note needs to be made. Lack of in-depth knowledge of this specific type of manuscript construction must have complicated the translation work. Apparently Levey recognised his shortcomings with respect to the art of binding, he therefore asked for Berthe van Regemorter's assistance. At the time van Regemorter was working on a publication on Oriental bindings in the Chester Beatty collection, including Arabic manuscripts; see B. van Regemorter, *Some Oriental bindings in the Chester Beatty Library* (1961). As a skilled professional who examined many Byzantine and Coptic bindings, van Regemorter's contribution undoubtedly was helpful. She was, however, not particularly specialised in the field of Islamic bookbinding. Her descriptions in the aforementioned publication cover the decorative aspects only and contain no information on structure. Apart from missing the expert knowledge on binding, Levey alluded to the fact that working from defective copies using uncommon terminology was not easy, the rare technical terms were not well known. Moreover, the text of Ibn Badis frequently lacked diacritical marks which hampered clarification of the text.

gatherings together forms the textblock. Apparently, Ibn Badis denotes two different procedures. He indicates that the needle for sewing should be perfect and thin in body, the one for bookbinding shorter and thicker.[6] For practical reasons a thick needle for sewing the gatherings is not advisable because a thick needle causes larger holes in the spine-folds, where adhesive can penetrate and which would cause stiff or brittle spines. The only other sewing procedure is the endband sewing, consisting of a primary and a secondary sewing. Of these two, the primary sewing is applied through the gatherings, therefore the same conditions are applicable as for the stations of the sewing of the gatherings. Hence, the thick needle is again disqualified as a proper tool for this action. The only type of sewing that an experienced binder would perform with the thick (and presumably blunt) needle, is the secondary endband sewing. For this a blunt needle is definitely preferable because the needle needs to slip between the tiedowns and the leather core without catching on these materials.[7]

A relatively large part of the text is used to elaborate on presses and straightedges, dividers and irons for tooling (stamps). Apart from enlisting all the necessary tools, some of the character traits a binder needs are noted.[8] After this Ibn Badis starts to describe how a book is sewn. There is an interesting detail in this paragraph. When the stack of gatherings that needs to be sewn is put on the slab, it says, "a quire (gathering) is picked up with the left hand. It is opened with the right hand. It is put down on the slab and opened. Then the folder is passed over its centre where the binding thread is to be. Then it is folded and the end paper is cut properly. This is a double sheet; one page is pasted on the leather and the other remains on the quires to protect the book from harm and dirt". This is a description of a bifolio that will serve as fly leaf and a paste-down after the covers are attached. It is interesting since a paste-down is a very different binding element (in structure) than the doublure, which is usually mentioned and recorded as the covering material of the interior of the boards. If anything, paste-downs are mostly associated with manuscripts from much later periods, when Western methods became influential.[9]

Ibn Badis states that some craftsmen used a sewing technique with two sewing stations for ease and quickness. Others used more needles, two or three.[10] The method with one needle over two stations corresponds with the predominant link-stitch sewing encountered in Islamic manuscripts. According to Ibn Badis, the thread should be thin to obtain an even spine, and he emphasises the importance of evenness, for the spine should also be pounded "where sewn" so that there will be no differences in thickness between the sewn area and the rest of the textblock.

Subsequently the lining of the spine is described. It is suggested that two pieces of paper were taken, presumably the length of the spine although that is not explicitly mentioned, but the width should exceed by two fingers the width of the spine. These strips are pasted onto the spine one after the other, each of them so that their excess width is on one side of the spine (forming a flange), "the other in the opposite way", indicating the front

[6] G. Bosch, 'The staff of the scribes' (1961), p. 2; M. Levey, *Mediaeval Arabic bookmaking* (1962), p. 41.
[7] Bosch explicated the second type of sewing called "binding", providing the Arabic word *hazam* which she translated as "weaving the headband". It would be even more exact to clearly distinguish it as the secondary endband sewing.
[8] "One who seeks this art should have quick understanding, good observation, dexterity of hand, and be certain without being hasty. The latter is a good manner of getting along and it has the elegance of attracting others of grace and good character", M. Levey, *Mediaeval Arabic bookmaking* (1962), p. 42.
[9] The survey results in Part Five, paragraph 6.2 attest the use of endleaves at least from the sixteenth century onwards.
[10] J. Szirmai pointed out some differences in translation between Levey and the work by Bosch et al., *Islamic bindings and bookmaking* (1981). At this specific passage Bosch et al. (1981, p. 47) translated the text with "others use more positions, two or three", which indeed makes quite a difference. Szirmai also rightly addressed the problem of having to rely on translations and emphasised the importance of accepted terminology. J. Szirmai, *The archaeology of medieval bookbinding* (1999), note 6, pp. 60-61.

and back of the textblock. Ibn Badis advises to smooth or rub the spine after adhesion of the lining, not directly with a bone-folder, but with a sheet of paper in between the folder and the lining, in order to protect the freshly pasted and still moist paper linings. The additional advice to be patient and let the lined spine air dry is practical and sensible too; only if necessary one should consider speeding up the drying process with the aid of a low fire or the warmth of the sun.

The making of boards (cores) is described next, rather cursorily. Before the lined textblock is left to dry the binder needs to measure it, although it is not specified why. From what follows we can deduce this has to do with the making of the boards. Sheets of paper and paste are needed to build them up to the required thickness. A remark is made about Iraqis, who apparently follow a different method. Levey's text is here particularly patchy and difficult to follow.[11] The edition by Bosch differs only slightly but is less confusing. Ibn Badis seems to indicate that the Iraqis do not use endleaves, although the translation also suggests they might refrain from using boards: "the Iraqis paste the book (cover) to its pages without these linings, or end papers". The remark about the 'strengthenings' (*taqawwi*) does not refer to the Iraqis (as it seems in the translation by Levey) but to the function of the laminated paper boards: "people think that by using them they strengthen [protect] the book. Their strength is like that of cloth or board".[12]

Ibn Badis continues with the method of board attachment. The description indicates that the boards are put on the textblock when both are sufficiently dried. The hinges from the lining are pasted on the exterior of both upper and lower boards.[13] Then "a long, narrow sheet whose width is two fingers is pasted on it from the other side [that is, between the interior of the board and the outer leaf of the gathering] to prevent it from being opened excessively".[14] This strip forms a hinge in the inner joint and in preventing the board from opening at too big an angle (more than 180 degrees), reduces damage at this vulnerable point in the structure. This whole procedure as well as the next step are significant. The text says "When this stage has been reached, the leather is applied to it". This irrefutably points to a method in which *first* the boards are attached to the textblock, and then the leather covering is applied as a subsequent step. Ibn Badis describes this matter-of-factly, he says no more on the subject and uses the rest of his treatise to explain how the covering leather should be coloured and treated, and how to test several ink recipes, but the implication is there. It supports the results of the survey in the UBL and my contention that Islamic binding structures are often wrongly judged as case-bindings, by showing that their structure is more complex.

We need to consider one more issue regarding Ibn Badis' text. He does not go into the exact application of the leather, nor its tooling or other ornamentation techniques apart from dyeing and marking the centre of the covers, presumably for decoration purposes. According to the procedure he describes, the leather application is the last stage. If this indeed was the final step in creating a binding during Ibn Badis' time in North Africa, a consequence is that the leather turn-ins would cover whatever material is pasted onto the inside of the boards, whether this be a doublure or the paste-downs Ibn Badis describes. That make-up does not corroborate with the situation we usually find in manuscripts where the leather turn-ins are largely covered by the paper or leather doublures, leaving only a small strip of the turn-ins visible on the interior of the boards. The latter structure demonstrates that for the majority of bindings the turn-ins of the leather covering are made before the doublures are applied, with

[11] M. Levey, *Mediaeval Arabic bookmaking* (1962), p. 43.
[12] G. Bosch, 'The staff of the scribes' (1961), p. 7.
[13] "Now place the strengthening [the laminated paper boards] on the book, mounting it between the hinge and the core [textblock]", G. Bosch, 'The staff of the scribes' (1961), p. 7. The method of pasting the flanges of the lining on the outside of the boards does not correspond with the structure we find in later centuries (with the exception of a few specimens), but it could have been a more common method in the eleventh century.
[14] M. Levey, *Mediaeval Arabic bookmaking* (1962), p. 43.

one clear exception though. When the doublures consist of cloth (instead of leather or paper) the procedure was reversed; the edges of the fabric are covered with the leather of the turn-ins. Consequently, on these bindings the doublures must have been adhered to the inside of the boards before the leather turn-ins were made. Although no mention is made of this detail in the historic sources, the rationale behind it is very clear. Cloth frays quite easily, while leather or paper do not. It is therefore practical to cover the cloth edges with the leather turn-ins to prevent them from fraying over time. Furthermore, in the UBL collection two specimens with leather doublures applied in the same way – before the leather turn-ins were made – were found, with a North African or Andalusian origin.[15] The fact that Ibn Badis describes the application of the leather covering as a last step in the procedure could point to a preference for the usage of textile for the doublures, or leather applied in the same way at that time. Unfortunately there are not many bindings left from the period in which Ibn Badis wrote his treatise to confirm this, so this interpretation remains speculative. Given the incompleteness of other parts in the treatise it is likewise possible that final steps in the binding procedure that followed the application of the leather, such as adhering the doublure or additional inner hinges, were just not mentioned. Especially since the source texts used for transcription are such late copies of Ibn Badis' text, the omission can also be related to copying faults.

1.3 *Bakr al-Ishbili*

Another Maghribi text on bookbinding was composed by Bakr al-Ishbili (d. 1231).[16] Of this work, which is dedicated to the ruler Abu Yusuf Ya'qub al-Mansur (r. 1184-1199), only one late copy (1634) is known to have survived.[17] Adam Gacek, who made the text available in English, albeit in compressed form, states that this text is the most comprehensive manual on bookbinding that we know of so far.[18] This might be explained by al-Ishbili's profession; although he knew how to bind manuscripts he was a man of letters and a poet. Thus he was capable of writing a concise textbook with a full understanding of the craft. However, Gacek points out the difficulties with interpretation because many of the technical words used by al-Ishbili are no longer standard in present terminologies. Moreover, since so few manuscripts from al-Ishbili's time have retained their original bindings, there are hardly any contemporary examples to help explain or reconstruct the meaning of the text.

The first sections deal with tools and adhesives, but al-Ishbili also makes the general distinction between manuscripts bound with wooden boards and those with pasteboards. Some of the tools he mentions are to be used for working wooden boards, like a drill for making the holes necessary for endbanding.[19] This description is remarkable. Though the wooden board type is known, it is generally associated with the box-binding and landscape format type of manuscripts, thought to belong to the earliest centuries of Islam. However, al-Ishbili's text may imply that wooden boards were still being used in the twelfth century. That we have no surviving examples does not mean the practice was not common, merely that the manuscripts bound with this technique did not survive the subsequent eight centuries. Al-

[15] These bindings are described in Part Five paragraph 1.1.
[16] According to the lemma 'Bookbinding' in *Encyclopaedia of Islam* al-Ishbili's year of death is 1179; http://referenceworks.brillonline.com/entries/encyclopaedia-of-islam-3/bookbinding-COM_22883?fromBrillOnline=true [accessed 07-04-2014].
[17] The manuscript copy is preserved in al-Maktabah al-Ammah, Tetuan (Morocco); a printed edition was made in 1959-60 which, according to Gacek, is unfortunately far from flawless.
[18] A. Gacek, 'Arabic bookmaking and terminology as portrayed by Bakr al-Ishbili in his '*Kītāb al-taysīr fī ṣināʿat al-tasfīr*' (1988), p. 106.
[19] Ibid., p. 107. The slips (the extending sides at the joint) of the endband cores sewn on manuscripts with an box-binding, are laced through the wooden boards. This structural feature is not encountered on the predominant codex form ('Type Two' and 'Type Three'), but the method can be found on European bindings from the same period.

Ishbili continues with further specifications on the materials to be used. Doublures, for example, can consist of leather, cloth (more specifically silk), paper or parchment. The use of parchment for doublures is also associated with the wooden board binding.

The section on sewing is of interest since it describes phenomena that are rarely encountered. First the text suggests that doublures, when made of leather or cloth, can be sewn together with the textblock. This implies that these materials consist of more than just the sheet used to cover the inside of the board, since the sewing requires that part of the material has a spine-fold to which the sewing will be applied. However, from autopsy we learn that leather or cloth doublures are never encountered in the shape of a bifolio, which could be sewn in the spine-fold; they appear as a folio. Accordingly, to sew such a leaf, part of the material should project over the spine-fold, as a stub. Original examples with sewing thread in the fold of the joint (between the stub and doublure) or with a leather or cloth stub folded around the outer gathering were not found in the UBL collections but have survived elsewhere.[20] The other possibility is, that the stub was attached to the spine of the textblock in the form of a lining, and that the doublure was sewn together with the first or last gathering; two specimens with this structure were encountered.[21] The text continues with the textblock sewing; it is advised to sew parchment gatherings in twos (which means the sewing of two gatherings on a single length of thread in one tour) – presumably to prevent swelling of the spine once the stack of gatherings is sewn –, while paper gatherings are sewn one by one. The first sewing technique poses questions since the common link-stitch sewing on two stations is not suitable for two-on sewing. It simply is not possible to switch gatherings between two stations when the link-stitch sewing consists of only two stations. A technique linking two gatherings in one sewing tour at least needs three sewing stations.

Al-Ishbili advises rounding of the spine of the textblock after sewing, "otherwise, when the book becomes old, the fore-edge flap will protrude".[22] The rounded spine is then lined, although the material used for the lining is not specified in this stage. Nevertheless, it is clear that the spine-lining is wider than the textblock thickness, since the flanges of the lining which form the hinges are said to be glued on to the inner covers. This procedure, however, is not clear and the further instruction to place three to four sheets of paper on top of the hinges adds to the confusion. One is left to wonder what exactly are the "inner covers"? Are the hinges pasted onto the outside of these covers, as Ibn Badis' had instructed? And would the extra sheets of paper then be pasted on top of these hinges to form "outer covers", which, once adhered onto the "inner covers" would form paste-paper boards consisting of several sheets of paper as we know them? In that case the hinge would be sandwiched between two thin boards which would certainly constitute a strong board attachment, but such a structure has not been encountered in the present survey nor have I seen it mentioned anywhere in the recent literature. The description of the "inner cover" may as well denote the interior of the cover, in which case the extra added leaves could actually make up the laminated paper boards, although "three to four sheets" would only form a thin board. Since the exact method

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

[21] This structure is known to be used in other manuscripts as well, for example in those called 'al-Andalus bindings'. See: T. Espejo and A. Beny, 'Book I from the collection of Arabic manuscripts from the Historical Archives of the province of Málaga: an example of al-Andalus binding' (2009). Whether the specimens in the UBL collections originate from the Iberian Peninsula or the Maghreb is not clear; details are given in Part Five, paragraph 1.2.

[22] A. Gacek, 'Arabic bookmaking' (1988), p. 109.

of application of these extra leaves is omitted (were they sewn, or adhered?), there are no clues to understand their function in a better way.

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

In the next, short section the repair of worn or worm-eaten manuscripts is discussed. When manuscripts need to be resewn, al-Ishbili advises to mark the middle of the gatherings in order not to miss one of them in the endbanding procedure. The recommended use of leather spine-lining strips also appears to be related with repair work. These leather strips are applied to re-attach the boards, irrespective of the material used for the doublures. However, instead of using strips, al-Ishbili states that some binders use a single piece of leather for lining the textblock and attaching the boards; this is a clear description of the leather spine-linings as described in Part Two. Although, according to al-Ishbili the extending flanges of the lining can either be pasted over the doublures or underneath them, he prefers the latter but he does not elaborate on his motives, which might be strength and durability, or aesthetics, or both.

Subsequently the sewing of the endbands is described. A strip of leather is used as a core and al-Ishbili advises 'ordinary' thread (common sewing thread) for the primary sewing, but acknowledges that some binders use coloured silk for the tiedowns. The outer gatherings are to be sewn twice for additional strength, which indeed is frequently found. According to al-Ishbili, two needles are necessary for the secondary endband sewing. He recounts eight secondary endband patterns but is of the opinion that four of them are too complex to describe and require demonstration. Of the four varieties he describes – endbands in one colour; a chessboard-like pattern; a chevron or zigzag pattern; and another chevron variety called 'rotating or trellis-like' – three correspond with regularly encountered specimens, assuming that the trellis-like endband he mentions can be correlated with the type that I refer to as diagonally striped. Although we can imagine what a chessboard-like endband would look like, a clear example has never been published.[23] However, the other three seem to be reproducible with one needle. So the fact that al-Ishbili mentions two needles either points to a tradition in technique not necessarily dictated by a strict need, or to a misinterpretation of the patterns he describes, since some of the more complex secondary endband sewings *have* to be made with two or even three needles, as is explained in Part Two, paragraph 5.7.

The preparation of the leather for covering the boards is discussed next. While Ibn Badis mentioned the covering of the boards in leather only briefly, the rather detailed description of al-Ishbili is very interesting. He explicitly states that, for this purpose, one or two pieces of leather can be used. According to the translation "two pieces were used if the flap (*udhn*) was prepared separately"; the term for this technique is *al-mukassar* (literally broken).[24] I am inclined to think that the original text indicates that a separate piece of leather was used to cover the *board connected to and including the flap*, and not just the flap. The latter interpretation accords well with the large number of manuscripts which have an overlap on the spine, whilst the making of full leather bindings with a separate piece of leather on the flap is not a common technique.[25] If my interpretation is correct, this is the two-pieces technique discussed in Part Two, paragraph 3.1. Moreover, the date of description

[23] While conducting the survey, a few endbands were found that may qualify as a chessboard variant, nevertheless, it is unknown whether they actually correspond with the historic exemplars al-Ishbili has seen; see fig. 111 below and fig. 146 in Part Five.
[24] A. Gacek, 'Arabic bookmaking' (1988), p. 109; however, the term is not listed in the 'Glossary of technical terms used in *Kītāb al-taysīr*', pp. 112-113.
[25] Only one example in the UBL collections has been found, Or. 890.

of its use accords with the earliest specimen included in the survey, see Part Five, paragraph 4.2.

Gacek emphasises the novelty of the description of making only one flap as an extension of the lower board since, until the time when al-Ishbili was active as a binder, books were supposed to have flaps on all sides, which were closed with thongs and pegs, or were box-bindings.[26] Although the use of wooden boards is mentioned, as well as several particular procedures connected to wooden board-binding (such as the sewing of parchment gatherings, the extra lining strips and the lacing on of the endband cores), al-Ishbili's text does not remark on the covering or attachment of the wooden boards, nor on the making of the "walls" (the three sides protecting the edges) of a box-binding. He does, however, discuss the making of pegs, thongs and clasps, and additionally describes how to produce slip-cases and boxes. His mention of binding with only one envelope-shaped flap, provides us with an earliest date for the occurrence of this type.

The paragraph on covers is not very clear. Apparently pasteboards are described to consist of several layers of paper and one sheet of parchment. The parchment would be the inner layer of the board because when the turn-ins of the leather covering are made they are said to be adhered onto the sheet of parchment. However, not much evidence is found for the usage of parchment in this way, which may indicate that after al-Ishbili's time the use of parchment declined rapidly; its use may have applied to bindings in wooden boards only. The next sentence "The covers were usually made of one piece of leather, particularly in the case of *al-maṣāḥif al-sifrīyah* [the paste-board type][27] and thus formed a casing" leaves us in doubt of what the original text indicates and whether the term "casing" is interpreted correctly by Gacek.

The next part quite elaborately treats the tooling of the leather, but it discusses the differences in decoration styles rather than the working method. It is not mentioned whether the tooling should be carried out before or after the covered boards are attached to the textblock. However, the list of originally unnumbered chapters does suggest the latter. Using Gacek's numbered headings, 7, 8 and 9 are respectively *lining inner covers*, then *paring leather*, and *mounting, covering with leather*. Only three steps later we find 12, *tooling*.[28]

An interesting detail is hidden in the last chapter, *Flaws in bookbinding*. One of the mentioned flaws is an "uneven cut of the leather near the endband".[29] This seemingly trivial comment characterises the way in which the leather is applied to the textblock spine and covers, and, in fact, joins the binding to the textblock. As explained in Part Two, when the cover would have been made as a case-binding structure, it would have been easiest to turn-in the piece of leather across the spine. With that method, there would not have been any leather near the endband that needed cutting. However, when the binding was not made as a separate entity, but instead was built on the textblock, then the leather on the spine extended beyond the endbands, as a tab, while the leather on the boards was turned in over the board edges. For this procedure vertical cuts at the position of the joint were needed to allow the turn-ins over the board edges to be made. Subsequently, the leather tab may have been cut horizontally, to bring the leather of the spine even with the endbands or at least to diminish the length of the tab a little.[30] Although the summarised description in al-Ishbili's text of this

[26] A. Gacek, 'Arabic bookmaking' (1988), p. 109, see n. 22 for sources on these early structures. More information on these three-flap or box-binding structures can also be found in J. Szirmai, *The archaeology of medieval bookbinding* (1999); and M. di Bella, 'An attempt at a reconstruction of early Islamic bookbinding: the box binding' (2011).
[27] The word *al-maṣāḥif* may indicate a Qur'anic manuscript, but Gacek explains this is probably not the case in this context, see p. 107.
[28] A. Gacek, 'Arabic bookmaking' (1988), p. 106.
[29] Ibid., p. 110.
[30] The specific characteristic of a tabbed or flat spine-end is extensively discussed in Part Two, the commonness of the feature is substantiated by the survey results in Part Five, paragraph 5.1-5.3.

particular cut is insufficient to denote the specific procedure, it does contradict the case-binding technique and indicates a built-on technique. The widespread use of this technique is reflected in many bindings from then on.

1.4 *Al-Malik Al-Muzaffar*

Only slightly younger than Ishbili's text is a text called "Instructions on the art of bookbinding" which is attributed to Al-Malik al-Muzaffar, again an Arab ruler, residing in Yemen. It has been preserved in three copies, of which two are very similar and one contains supplementary information.[31] Like the treatise of Ibn Badis, quite a few chapters on ink and writing tools precede the bookbinding chapter. Adam Gacek, who translated and adapted the section on bookbinding of those three manuscripts (Chapter seven of the text), points out that al-Muzaffar used Ibn Badis' treatise and quotes him at certain points. The opening paragraph for example lists the same tools and implements. The actual procedure starts with a description of how to prepare adhesives. The preparatory treatments of the gatherings include their collation and pounding along the spine-fold so the textblock will remain flat, but new is the instruction to mark the outer spine-folds of the gatherings, by dividing the length of the spine into three equal parts, to determine the two sewing stations.

According to the diverging copy of the text, the next procedure is the preparation of the doublures that will be sewn together with the textblock.[32] The doublure for the upper board should be the size of the gathering, the lower doublure includes the lining of the fore-edge and envelope flaps and is therefore longer. A blank single sheet of paper, also the size of the gathering, is pasted onto both doublures, presumably along the spine-fold. Subsequently another single blank though slightly wider sheet is applied with adhesive; the extra width is used to fold the completed endleaf structure around the spine-folds of the outer gatherings. Thus attached, the doublures and free endleaves become part of the textblock structure. The material the doublures should consist of is not specified; perhaps the choice of leather or cloth was so obvious there was no need to explicate it. The instructions for adhering the additional blank folia lack details as well, yet it is rather important that they are only pasted along the gutter instead of being adhered over the full surface, otherwise they would not function as free endleaves at all. This omission also may be due to its obviousness, or may be explained by the fact that the author was not a binder by profession. Another important aspect of this particular procedure results, strictly speaking, in two blank flyleaves and a paste-down, instead of a doublure. As explained in the discussion of the text of Ibn Badis, who also describes the application of paste-downs, these references demonstrate the early use of paste-downs.

For the next stage, the sewing of the gatherings, the binder is instructed to start at the end and use thin thread. The sewing structure that al-Muzaffar describes is clearly a link-stitch on two stations. Any swelling caused by the sewing is pounded flat after sewing. Like al-Ishbili, al-Muzaffar advises the rounding of the spine, although "not too round as this would damage the glosses during shaving, nor too square for this would precipitate the disintegration of the book".[33] The rounded spine is lined with three layers of paper. The first

[31] A. Gacek, 'Instructions on the art of bookbinding attributed to the Rasulid ruler of Yemen Al-Malik al Muzaffar' (1997), p. 58. The oldest copy of this text dates 727 H./1327 and is preserved in Cairo, the second is located in Hyderabad, dated 876 H./1471, and a later copy, 1184 H./1770, is kept in the Bibliotheca Ambrosiana, Milan. Gacek describes the Hyderabad copy as the most divergent of the three.
[32] That this method of attaching doublures seems to be a rare or rather only an early practice was mentioned above, in discussing al-Ishbili's text.
[33] A. Gacek, 'Instructions on the art of bookbinding' (1997), p. 61. The shaving here refers to cutting the textblock edges at head, tail and fore-edge, executed after sewing in order to obtain smooth textblock edges. It is interesting that the shaving is remarked on as a subsequent treatment, after the rounding of the spine, since a convex spine results in a concave fore-edge. As a consequence, when the fore-edge is

layer exactly fits the height and width of the spine, the subsequent layers are two fingers wider and form a flange or hinge on each side of the spine. Then an additional spine-lining is applied. This secondary lining appears to be a partial lining only, made with two pieces of thick cloth. The text seems to indicate that these cloth linings are short and only cover the outer ends of the spine without extending on both sides over the joints.[34] If true, these linings only serve to support the primary endband sewing and do not strengthen the most vulnerable part (the outer ends) of the joint. This particular type of lining has not been encountered in the survey, nor during conservation treatments.[35] Because of this it occurred to me that this could be a misinterpretation, caused by our modern definitions. In our perception, the 'width' of the spine is the distance between upper and lower cover, and 'the ends' of the spine are likely to refer to head and tail. But should we read this part conversely, then the width of the spine refers to the length of the joint – after all, the manuscripts were kept laying horizontally on their back cover –, and the ends of the spine indicate the sides, the joints themselves. Interpreted this way the description of the first and secondary lining corresponds with the treatise of Ibn Badis and, what is more, with the actual situation we encounter on manuscripts. In this interpretation, the primary paper linings-hinges then seem to function as a stabiliser for the cloth joints.

The procedure to fabricate the boards shows many similarities to the text of Ibn Badis. After drying they are positioned on the textblock, a bit away from the spine, which in this stage of the procedure means that the boards are placed on the reverse side of the doublure, with the hinges formed by the linings between. This is followed by the endband sewing. There is an instruction for making the leather endband core indicating that the strip of leather needed, is the width of half the little finger. "It is glued on the inside with *nashan* (starch paste), twisted and dried". It remains unclear what 'the inside' means, though one would assume it is the flesh side of the leather, and it is equally uncertain why the leather core should be twisted; the endbands examined do not attest this practice. Perhaps it indicates the folding of the outer ends of the leather strip extending beyond the width of the textblock edge, onto the surface of the outer folios. The description then states that the gatherings are pre-pierced with an awl, then the primary endbands are sewn with a thread of the same thickness as that of the sewing (which was thin) used to join the gatherings, but with a thicker needle. Presumably this description of the needle particularly hints at the need for a blunt point, which would ease its manoeuvring in the spine-fold and finding the pre-pierced hole, since with a sharply pointed needle the risks of damaging the paper would have been substantial. The procedure for making the secondary endband is not explicated, except that silk thread was used.

After this, a section on the preparation of the covering leather follows. The notes on tanning, paring and dyeing are again very similar to Ibn Badis' treatise; therefore Gacek does not go into details. The paragraphs on the application of the leather are not entirely clear. The text says that: "the covers [boards] are pasted on the outside and the leather is glued onto them", which means that the pasteboards are smeared with paste, and not the leather, which will prove to be important later on in the procedure. It is not explicitly stated that for this

cut even, in this stage, the margins of the outer gatherings will be trimmed slightly shorter than those in the middle. This explains al-Muzaffar's warning.

[34] A. Gacek, 'Instructions on the art of bookbinding' (1997), p. 61: "After this, two pieces of thick cloth (*khirqah*) of the width of the spine and three fingers long (ca. 5cm) are attached to the ends of the spine".

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

procedure the boards should be de-mounted from the textblock. However, the next paragraphs do indicate that this would have been the case, since the covers and flaps are folded after the leather is applied on the outside of the boards, and left to dry under a stone. After this any desired tooling is done. Only then are the covers and spine pasted onto the textblock spine and doublures.[36] Therefore, it seems that the provisional attachment of the boards, while the endbands were sewn, have the function of stabilising the manuscript during that phase of production. Another interesting detail in the work procedure is that the leather turn-ins are pared only after the leather is applied to the boards, and after it was left to dry for an hour. This explains why the boards needed to be smeared with paste, and not the flesh side of the leather. The paring of such a small length of leather protruding from the board edges (which cannot have been much broader than one and a half centimetre) is not an easy task because the thickness of the boards prohibits the movement of the knife. It does, however, provide an additional reason for working the boards off the textblock. As an extra detail, al-Muzaffar mentions the finishing of the turn-ins, according to him these should be cut straight, presumably for aesthetical reasons. Although examples of such treatment were found, there is no great need to do so since the turn-ins are largely covered by the doublures, though not, of course, when cloth doublures were used. Therefore, the description of this custom may either point to the commonness of textile doublures, or to a certain 'school' of practice.

The structure of the binding as a whole remains inconclusive; the procedure could indicate the use and preparation of a single piece of leather onto which the boards and flaps were adhered, or the two-pieces technique. Crucial details are simply lacking. The treatment of the spine-ends, either by cutting the joints and leaving tabs or by cutting the ends flush with the boards, is not mentioned either.

1.5 *Ibn Abi Hamidah*

The fourth text, a didactic poem, is thought to be written in the fifteenth century, by Ibn Abi Hamidah; the text is again made available in English by Adam Gacek.[37] It seems that Ibn Abi Hamidah is the most mysterious of the group of historic authors. He probably lived in the fifteenth century and according to his own words he was not taught in the bookbinding craft, but did get some advice from a *qadi* (judge) in Damascus, which, however, does little to explain the source of his bookbinding knowledge.[38] The poem has been preserved in only one copy, known so far, which is now kept in the Dar al-Kutub, Cairo. It is not dated but appears to be a late copy, probably mid-nineteenth century.

In line with the other texts, Ibn Abi Hamidah starts his instructions with the making of adhesives. In the second chapter the preparation of doublures and boards is described though only very briefly; the text says that "the leather used for doublures should be thin. It is glued on one side only and attached to the textblock by means of threads. The boards are then mounted and left to dry". The compressed instruction and ambiguity of the terms complicate the understanding of the process. At first reading, "the mounting of the boards" in this stage seems to indicate application to the textblock. That would be an important instruction as it indicates that the binding is assembled on the textblock. However, the mounting may also simply refer to assembling the pasteboards. This is affirmed by the instruction that they should be left to dry, which is something an experienced binder would not do on the textblock, as the moisture within the pasteboard could affect the paper and ink of the textblock. By the same token, it is not clear if "side" indicates an edge of the doublure leather (presumably the gutter, or spine edge) or the whole surface of the leather, presumably the flesh side. In the latter case the gluing "on one side" could indicate the mounting of the

[36] A. Gacek, 'Instructions on the art of bookbinding' (1997), p. 63.
[37] Idem., 'Ibn Abi Hamidah's didactic poem for bookbinders' (1992).
[38] Ibid., p. 41.

boards onto the textblock. Technically, since the instruction refers to the sewing of the doublure as a means of attachment to the textblock, there was no need for the additional attachment with adhesive. With that premise, it remains uncertain whether the folded edge of the doublure is adhered as a stub onto the gutter edge of the outer textblock leaf, or if the extending side of leather doublure was adhered onto the textblock spine, as a spine-lining. Either way, sewn-on leather doublures are not common, but they are encountered in some Andalusian and Maghribi manuscripts.[39]

The next part of the text deals with the shaving or trimming of the paper edges, followed by "the sewing of the gatherings and endbanding". Again, the text offers no absolute clarity. If the order of the verses correlates to the order of binding operations, the trimming of the gatherings at this stage is unlikely. When gatherings are sewn it is extremely difficult to prevent slight displacements of leaves. Therefore, usually the trimming of textblock edges follows and does not precede sewing, in order to eliminate any unevenness in the edges. Where the sewing fits into the procedure remains uncertain. In footnote six Gacek explains that the word *shabikah* (endband) refers to the sewing of endbands alone, and that the sewing of the gatherings is not elaborated on, in which case the textblock sewing may have preceded the trimming of the textblock after all.

The sewing of the endbands is not specified except that two needles – one with a 'thick head' – and two colours of silk should be used. The advantage of using a needle with a rounded point has been elaborated on above, and it is likely that the 'thick head' refers to such a needle, which also indicates that the other needle, for the sewing of the gatherings, was thin and sharp. The mounting of the leather, however, is described in more detail and it offers an interesting account of the procedure. The work is done with leather in one piece, which should be cut large enough to fit the boards and the envelope flap plus the turn-ins. "The procedure begins with the spine, then the upper and lower covers and ends with the flap. Turn-ins are done as a final step when the spine has satisfactorily adhered to the leather. The book, with the covers thus mounted, is then placed in a press". This is a strong indication that the leather is applied to the textblock on which the boards were already mounted, or at least put in position, and thus it refers to the built-on method. The boards are not covered in leather while off the textblock, and then adhered to the textblock spine, so the procedure disqualifies the structure from being considered a case-binding.

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

1.6 *Al-Sufyani*

The fifth text is dated 1619, and is written by a master craftsman, al-Sufyani, who lived and worked in the Maghreb and supposedly wrote his treatise in Fez. It is known only from a late copy (1839) on which an edition was based first published in 1919.[40]

[39] See note 22 above. This structure perhaps was really a product of Ibn Abi Hamidah's time; the fact that not many manuscripts from the thirteenth century have survived unscathed in their original binding may explain our unfamiliarity with the sewn doublures.

[40] For the analysis of Sufyani's text I mainly used the translation of M. Levey, *Mediaeval Arabic bookmaking* (1962), pp. 51-54, and compared it with Bosch et al., *Islamic bindings and bookmaking* (1981). In

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

When the gatherings are sewn, a layer of adhesive is applied to the textblock spine.[41] According to Sufyani's description, a fair amount of it is smeared on the textblock spine, even between the gatherings. This action is, however, immediately followed by the use of the press, to even the thickness of the textblock spine with the other edges and to remove the excess of glue.

The next sentence indicates the application of a leather spine-lining. According to the description two strips of leather, finely pared, are used. It is not stated explicitly that they should fully cover the spine, neither from head to tail nor from joint to joint. Nor is it indicated that the two strips should abut or overlap in the middle of the width of the spine. However, the next paragraph continues with the application of the leather hinges and provides additional clues. Two more things can be deduced from this part of the text. The first is that the leather is pared when wet. It is not uncommon to do so, but it had not previously been explicated anywhere in the text. Sufyani expresses the concern that dampness from the leather may cause damage to the outer leaves of the textblock, especially when these leaves are decorated with gold or water-sensitive paints or dyes. Therefore he advises to keep the two hinges away from the front and back of the textblock "in such a manner that the hinges do not come in contact with the writing". He also remarks that "when you prepare the two hinges, both being wide, glue them to the book when they are dry, neither moist nor wet". Since the adhesive would certainly introduce moisture to the leather, that is not the kind of moisture being referred to here; it therefore points to moisture from another source and it is likely that the paring as a preceding phase is the cause of it. The second fact we learn is that the textblock Sufyani refers to is not protected at front or back with blank bifolios, or even a single leaf of paper. It indicates that the gatherings were written from front to back without designating outer leaves as endpapers, nor were extra protective leaves added at this point in the procedure. It also suggests that the previous method of sewing leather or cloth doublures together with the textblock is no longer standard procedure. As to the application of the two leather hinges, the phrase "turn over the two hinges on it, each of them on the other with awling and flattening" seems to point at the position of the hinges on the spine. Indeed, they should overlap: only then do they provide full support to the textblock spine and the tiedowns. However, it remains uncertain why two strips of leather are required, when it seems that one piece of sufficient width could have served the same purpose.

---

his introduction, Levey writes that he studied the text as published in 1919 in Fez, and he states he was unable to procure a second edition published in 1925 in Paris (both by Prosper Ricard), pp. 6-7. However, the heading on p. 51 suggests that he *did* use the 1925 edition, which seems likely as this probably was a more accessible edition; it was also used by Bosch et al.

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

Sufyani suggests the use of an additional three layers of spine-lining, made from paper, which should be adhered to the spine while the sides of these paper strips may protrude on both sides of the joints. After drying, these extending sides are cut off with a sharp knife. The function of these additional linings is not explained but the obvious reason seems to be to further even-out the spine so the leather covering will not show any unevenness. Manuscripts with multiple layers of spine-lining, combining leather and paper, were encountered during the present study, which attest this practice.

The preparation of the boards is discussed as the next step. The upper and lower boards are cut first and then positioned on the textblock, using two or three drops of glue on the hinges, to keep the boards in place. The description shows a resemblance to the text of Al-Malik al-Muzaffar at this point. When the thus positioned boards have dried in the press, the cutting of the edges is described. Although not explicitly stated, this procedure seems to include the cutting of both textblock edges and the two boards. That would indeed be an adequate method for making the boards flush with the textblock. After pumicing, to remove the trace possibly left by the cutting iron, a third board is cut to size for the fore-edge flap ("the fore-band") and the envelope flap ("the tongue cover").

When all boards are ready, the leather can be applied. First the front board is to be marked in the centre, for the stamping. The board is covered with leather while positioned on the book, and rubbed "to the right and to the left"; only then is the board detached from the hinges, lifted from the textblock and put on a marble slab. Stone provides a solid and flat surface, which is more suitable for the further tooling of the leather than when the boards would have remained on the somewhat springy textblock. There, the leather is stamped, and the turn-ins may be made. Work continues on the second and third board (the back board, and the fore-edge and envelope flap). From this we can deduce that both boards are covered individually, a clear indication of the two-pieces technique. Sufyani seems to describe a method that involves smearing the boards with adhesive instead of the leather. Between the third board (the flap) and 'the other board' (the second or back board) the binder should leave one or two fingers space for flexibility. Once the exterior of these boards is covered, the inside surface of the fore-edge flap is covered with leather. Sufyani describes the use of a pared piece of leather which is adhered from the edge of 'the other cover board' to the outer edge of 'the tongue'.[42] This seems to imply the covering from the back board edge adjacent to the fore-edge flap, to the outermost edge, the point of the envelope flap. Sufyani is then describing the variant in which the doublure of both flap elements are created by a single piece of leather.[43]

The subsequent chapter deals with the drying of the leather covering the boards, and its subsequent rubbing and polishing. "After you complete this aspect of bookbinding, you line it either with leather or cloth". This seems to indicate the application of the doublure at this point. Although feasible, it complicates board attachment when the leather hinges are to be pasted underneath the doublures. When the text treats this phase of the procedure – the sewing of the endband is dealt with first – any relevant advice is omitted: "... fix the cover boards on the book after you have smeared it [that is probably the textblock spine] with glue". This leaves us at a loss as to how to explain the attachment of the hinges. Evidence on most manuscripts shows that inner joints or hinges were not adhered on top of the doublures, but directly to the inner boards and under the doublures. Thus there are two possibilities to explain Sufyani's text. Either the doublures were not applied before board attachment, or,

[42] M. Levey, *Mediaeval Arabic bookmaking* (1962), p. 53.

[43] Such a leather doublure of the fore-edge and envelope flap was usually combined with either a paper, or a separate leather doublure of the back board. From the survey results it appears that this technique was indeed common in the centuries preceding Sufyani's text. From the seventeenth century and later, when the flap pieces were lined with leather a continuous piece was used to cover the back board as well. Otherwise, only the inside of the fore-edge flap and adjacent joints were covered with leather, while the doublures of the envelope flap and the back board consisted of paper. See also Part Five, paragraph 6.4.

they were, but only partially, leaving free a few centimetres close to the inner joint's edge. That way the hinges could be pasted onto the boards underneath the doublures, before finishing the completion of the doublures. It would be a complicated work procedure and, therefore, seems unlikely. A second argument against this explanation is that cloth and leather doublures were no longer common by the time Sufyani wrote his treatise. Therefore, another possibility is that the sentence "...you line it either with leather or cloth" does not at all refer to the doublure, but to the flanges of the spine-lining, which would indeed have consisted of leather or cloth. If true, it indicates the attachment of the boards to the textblock at this stage, which would make perfect sense. However, it remains undecided what the author actually meant, or whether perhaps a later copyist is responsible for a faulty text.

The procedure of the endband sewing starts with the adhesion of the leather core onto the edge of the gatherings, using gum Arabic. The sewing of the primary endbands is described briefly, and the attachment of the thread with a knot on the spine is stated explicitly. The secondary endband sewing, however, is summarily described as "weaving it with coloured silk until you complete the work of the headband from the two sides". The work then proceeds with "... fix the cover boards on the book after you have smeared it [presumably the extending leather on the spine side] with glue". This is followed by the instruction "Tie on the spine side with strong thread". The action being referred to must have been clear to a binder since it is not elaborated on further. Apparently cord was used to tie the book, probably so as to put pressure on the moist, freshly applied parts of leather now covering the spine. That cord could be tied perpendicularly to the spine or along the joints, modelling the tabs over the endbands in the process. From the text, the exact procedure is not clear.

The fifth chapter elaborates on the use of gold, and is not relevant for studying the structure of the book. The sixth and last chapter is a short text dedicated to the decoration of the leather for binding. It does not add anything further to the bookbinding procedure. Again, this treatise peters out and does not finish with a clear description of the last procedures that seem necessary for the making of the Islamic book, which would include adhesion of the spine-lining flanges on the inside of the boards, followed by pasting the doublures. However, as discussed above, while the treatment of the board attachment and application of the doublures is incoherent, at least in our view, the author may have felt that all stages were addressed well enough. Perhaps these final procedures were thought to be so obvious that there was no need to explicate them further.

1.7 *Concluding observations*

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

Except for the oldest and youngest documents the texts remark on the use of leather doublures that can be sewn to the textblock. However, we lack evidence for a frequent use of this method. None of the authors denote the use of a link-stitch sewing on four stations, although this method of sewing was used in their region, at least in the times of the two most recent authors. All authors describe how to line the textblock spines after sewing. Leather, cloth and paper are noted as suitable materials, and the linings always are described to project over the joints so the extensions can be used for board attachment. It is interesting to note that additional spine-lining strips of paper are mentioned several times. Those extra linings were presumably intended to further flatten the spine, for they were not used as board

attachment, except for the paper 'hinges' described by Ibn Badis. He only indicates the use of paper linings, without reference to an additional stronger lining material, so the flanges of paper, in this case, were necessary to form the attachment to the textblock. It is important to emphasise that all treatises confirm that the lining is part of the structure. Departing from the idea that the sequence of the described steps reflects the actual work procedure, the texts clearly indicate that the spine-lining was applied before the primary endbands were sewn.

In all texts there is a paragraph that deals with the finishing of the textblock edges. They do not really diverge, except perhaps in method or in the tool used. All treatises mention the shaving or trimming of the edges, either with a trimming blade or a knife, followed by softening the paper edges with a pumice stone or a file. The edges of Islamic manuscripts are very seldom decorated, so the smoothing of the edges does not serve the purpose of preparing them for gilding or marbling. Still, when five out of five sources mention it as a necessary step we must assume it was considered worth the effort. Sufyani mentions this action to dispose of any traces of the instrument used for trimming. Possibly it enhanced the ease with which one could leaf through a textblock; it is also possible that the aesthetical quality was heightened by the polishing.[44]

Save for Sufyani all authors describe the use of two needles for the endband sewing, without explicating their precise usage. The endband type consisting of the chevron pattern, which was predominant in the whole period covered by these primary sources, is easily made with one needle. The leading thread, that is held by the needle, takes the other thread along while it passes underneath one or more primary endband warps. The variation in pattern best described as 'vertically striped' can likewise be produced with just one needle.[45] The exception appears to be the diagonal pattern and the chevron pattern using three or more colours; for the latter even three needles are necessary. However, this variety is extremely rare and its occurrence seems to be confined to Southeast Asia, an area not covered by the historic texts. Thus, although most endbands are executed in two colours, for the majority of the secondary sewing patterns only one needle was used. Could it be that the instruction to use two needles for endbanding actually points to the separate sewing stages? Ibn Abi Hamidah writes in his conclusion that "only the needle for endbanding should have a thick head".[46] Thick should presumably be interpreted as round, as opposed to pointed; a round needle point facilitates a smooth passage between the tiedowns and endband-core leather strip whereas a pointed needle would catch on the materials and cause damage. Such a needle, however, would not be practical for sewing the primary tiedown, connecting every gathering to the endband core and spine-lining. For that purpose a thin and sharp needle was used. Yet, the decorative sewing on top of the endband core was sewn with the second, thicker (or rather rounder) needle. This is the most obvious explanation.

With regard to structure it is noteworthy that both Ibn Badis and Ibn Abi Hamidah describe the method of building the binding on the textblock, that is, to first mount the boards and then apply the leather. Bakr al-Isbili provides more options; the two-pieces technique that he mentions involves board attachment after covering the separate covers, but he also indicates the application of boards prior to covering. Al-Malik al-Muzaffar offers no conclusive procedure but hints at the preparation and covering of the boards prior to

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

[45] See Part Two, figs. 52, 108-111 for images of these patterns. Making models of these endbands clearly demonstrated the ease of production with a single needle for the chevron and striped pattern. The diagonal (or 'trellis-like') endband is best done with two needles although one might 'cheat' at the beginning of every other tour by skipping a warp, which would allow the use of just one needle, and one would still end up with a nice diagonal endband sewing.

[46] A. Gacek, 'Ibn Abi Hamidah's didactic poem for bookbinders' (1992), p. 42.

attachment to the textblock; whether or not two pieces of leather were used in that process remains unclear. Sufyani also refers to the two-pieces technique, albeit indirectly. His description indicates a technique of covering the boards, individually and separately, prior to attachment.

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

2 Secondary sources: related studies and general reference works

2.1 *Book-historians, art-historians and pioneers of manuscript studies*

Islamic bindings are frequently referred to in studies on the history of the Western book, since many of the materials and decorative techniques used to produce Western bindings first occurred in the Near and Middle East. The ornamentation schemes and decorative tools used to beautify Oriental bindings have significantly influenced Western styles of book decoration, and the importance of Middle Eastern manuscripts as a source and inspiration for the development of Western binding designs has not been underestimated. Similarly, developments in the use of the materials in the Orient were transferred to Europe over time and changed the Western bookbinding tradition permanently. Examples are the use of alum tawed leather, the introduction of paper, the use of pasteboard instead of wooden boards, the practice of gold decoration, techniques for cutting filigree leather and the secret of paper marbling. However, although these aspects are covered in many reference works on Western bookbinding, technical descriptions of Islamic bindings are only touched on briefly.[47] Generally they do not go beyond the observation that the Coptic sewing structure – a chain stitch sewing – underlies the sewing techniques of both the Islamic book as well as the Western codex, and then they add that the Islamic book structure may be referred to as a kind of case structure.[48]

Some of the first publications on the general aesthetic aspects of Islamic bindings have been discussed briefly in Part One, paragraph 3.1. They will not be addressed further since they add nothing to the topic of structure and technique. An important exception is *Der islamische Bucheinband des Mittelalters* (1962), by the German Arabist and Orientalist Max Weisweiler, who followed a much more thorough line of research on this topic. He assessed hundreds of Arabic manuscripts from the pre-Ottoman period in collections preserved in Berlin, Gotha, Istanbul, Tubingen and Leiden. He made rubbings from (parts of) their covers and developed a system to group them, according to differences in tooling patterns and decorative schemes.[49] Weisweiler's detailed typology of decorative groups is highly esteemed and has contributed to the diligence with which many early manuscripts are now approached. His study did not, unfortunately, include remarks on the structure of the bindings. Partly based on the results of Weisweiler's research, Gulnar Bosch further studied the use of block-

[47] The exception is J. Szirmai, *The archaeology of medieval bookbinding* (1999). Chapter five is devoted to the Islamic book structure (pp. 51-61) and is discussed below in paragraph 4.1.
[48] See for example M. Foot, *The Panizzi lectures 1997. The history of bookbinding as a mirror of society* (1998), p. 4.
[49] M. Weisweiler, *Der islamische Bucheinband des Mittelalters. Nach Handschriften aus deutschen, holländischen und türkischen Bibliotheken* (1962).

stamped leather doublures, associated with the pre-Ottoman binding, preserved in the Oriental Institute, University of Chicago.[50]

A completely different contribution was made by Johannes Pedersen, the Danish theologian and Orientalist, with *Den Arabiske bog* (1946), translated into English in 1984.[51] He sketched the whole picture of Islamic manuscript production, starting with how manuscripts were composed, then written, authorised and published, copied, bound and traded. Thus he explained many aspects of the tradition and supplied it with context. In the early centuries of Islam the *warraq* (copyist) was more than a professional transcriber; he could also be involved in proofreading, binding and selling the manuscripts.[52] However, when the need for books increased in later centuries, the bookmaker's art became divided in several specialities, and one of them was that of the binder.[53] Pedersen described the characteristic features of the manuscript form, the flat spine with the leather covering adhered directly onto it, and the envelope flap, but he provided no technical details.[54] The rest of his chapter on bookbinding is devoted to developments in the decorative aspects; apart from tooling and painting no bookbinding techniques are mentioned. Pedersen ends with the remark that "the bindings considered so far have been the deluxe ones. The ordinary, everyday bindings, of course, did not have the costly decoration described here".[55] This remark is important and reflects the general focus in bookbinding studies, which until then covered only one part of the spectrum.

At the end of the nineteenth century, Paul Adam, who was a German book restorer, became interested in the Islamic book structure when he was confronted with a collection of Oriental manuscripts.[56] He took great care in analysing the techniques used to manufacture the objects before treating them, and published his observations on their structure.[57] Adam recognised the importance of the endbands and described them as an essential part of the sewing system, their function similar to the Western kettle-stitch close to head and tail of a book.[58] He also noted that the sewing structure was remarkably consistent over the ages, much different from Western sewing structures which varied considerably over time. According to his descriptions, Adam never came across manuscripts sewn on more than two stations.[59] The way he incorporated the Oriental book in *Das Restaurieren alter Bücher* was a novelty. Unfortunately, although he compared the Western and Oriental binding features in nearly every aspect, when he described the methods used to cover bindings in leather he did not include Islamic manuscripts.[60] Therefore we do not know if he noted the two-pieces technique, nor his thoughts on tabbed spine-ends.

An even older, but odd one out, 'pioneer' in Islamic bookbinding studies is Mary Eliza Rogers, who travelled the Levant with her brother in the 1860s, where she visited several

[50] G. Bosch, 'Medieval Islamic bookbinding: doublures as a dating factor' (1964); this study is summarised below, in paragraph 3.1.
[51] J. Pedersen, D*en Arabiske bog* (1946).
[52] J. Pedersen, *The Arabic book* (1984), pp. 50-52.
[53] Ibid., pp. 102-103.
[54] Ibid., pp. 104-105.
[55] Ibid., *The Arabic book* (1984), p. 112.
[56] P. Adam, *Lebenserinnerungen eines alten Kunstbuchbinders* (1951), p. 102.
[57] Idem., *Der Bucheinband; seine Technik und seine Geschichte* (1890), pp. 186-200.
[58] Idem., *Das Restaurieren alter Bücher: Wiederherstellungsarbeiten an alten Büchern, Einbänden, auch Manuskripten sowie Ausführungen über das notwendige Verständnis für die Technik des Buches zur Beurteilung von Zeit und Herkunft alter Einbände* (1927, reprint 2003), pp. 26, 28 and 48. He even stipulated that the function of the Oriental endband is so important for the stability of the manuscript that, when a binding needs to be restored, one should never cut the edges of the textblock, for then the endband sewing would be cut as well.
[59] Ibid., *Das Restaurieren alter Bücher* (1927), p. 48.
[60] Ibid., *Das Restaurieren alter Bücher* (1927), pp. 33-36.

bookbinder stalls in *souks*, and wrote a short account of what she encountered.[61] The insight she gives to a nineteenth-century workshop offers details not given elsewhere. In the author's sketch of a bookbinder's workplace, we see a sewing frame standing on the floor right behind the chest which also functioned as a work-table. As a sewing frame is not used for the traditional Islamic link-stitch sewing, this device is a clear indication of the introduction of the Western method of sewing on supports.[62] Rogers states that "the five [Damascene] bookbinders good-naturedly lend their patterns and tools to each other" and notes that none of the stamps, used for decoration, seem to be very recent, because sufficient old stamps were available. Both observations imply that the study of stamps – at least of that period – will not be useful to specify binders' workshops. Rogers also describes the use of asphodel, "an excellent paste", used to adhere the leather for covering and for the glazing of paper. According to her, the asphodel paste was also used with wheat starch, in a ratio of one to two. The paragraph documenting the actual making of a binding suggests the making of a true case-binding, although, unfortunately, the precise stage at which the textblock is attached to the cover is not mentioned. In short, it says that paste is applied to the inside of the leather, and then three boards – front board, back board and envelope flap – are applied to it. According to the chronology of the description, the next step is the application of a cloth lining to the inside of the fore-edge flap, then the edges of the leather are turned-in and rubbed with a bone-folder (in this case, the tool is described as a "boxwood rubber"). After the leather has firmly set the stamped designs are applied to it by vigorous hammering. Neither the sewing of the gatherings, nor the application of the endbands nor the textblock attachment is mentioned. In this respect, this could even be a description of the making of a wrapper binding for an unsewn textblock. The only further steps noted are the application of a leather lining to the flap – unspecified whether this is the fore-edge flap or envelope flap – and paper to "the other parts". Given the non-professional interest of Rogers in bookbinding, it is difficult to judge the reliability of her eye-witness account. However, her description of the making of the binding separate from the textblock could be correct; techniques and materials from the West are known to have been used in the nineteenth-century Islamic world – the sewing frame is an obvious witness – and the Western case-binding was developed some forty years before Rogers published her report.[63]

2.2 *Glossaries and encyclopaedias*

Entries on 'Bookbinding' in encyclopaedias on the Islamic world start with a short characterisation of the typical shape of the Islamic manuscript (edges flush with the covers, spine always flat without raised bands and a flap attached to the back cover to protect the front-edge, which is tucked under the upper cover). The description then follows with the development of the decorative aspects. *The encyclopaedia Iranica* (1990) elaborates on the impressive technical advances made during the Timurid period and later during the Safavid dynasty, and addresses in some detail the craftsmanship of filigree cutwork and the manufacture of lacquer, however, no mention is made of how the books were constructed.[64]

The entry 'Book' in *Medieval Islamic civilization. An encyclopaedia* (2006) first stresses the eminent position of the manuscript in the Islamic world in order to explain the care

[61] M.E. Rogers, 'Books and book-binding in Syria and Palestine' (1868), pp. 113-115; this account, including her illustrations of a bookbinder at work and details of tools and designs, was brought to light by Jake Benson in his yet to be published article "Satisfying an appetite for books: innovation, production, and modernization in later Islamic bookbinding", *Proceedings of the conference on codicology of manuscripts of the Arabic script*. Madrid, Spain, May 19-21 2010.

[62] Several manuscripts from the nineteenth century with local, contemporary bindings, included in the present study, attest this practice; see Part Five, paragraph 1.5.

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

[64] E. Yarshater (ed.), *Encyclopaedia Iranica* (1990), Vol. IV, 'Bookbinding', by Duncan Haldane, pp. 363-365.

calligraphers and binders took to produce these artefacts.[65] The phrase "although elegant and alluring, the binding offered a robust protection for the text that it contained" is noteworthy, for it recognises the protective functionality of the binding, which is so frequently underestimated or disputed in Western sources.[66] While the possible varieties of book production in society are described (from the soloist copyist who sold his books in the market to the sophisticated and highly specialised artists working under royal patronage), actual bookbinding techniques are not discussed.

More information is provided by the latest, on-line edition of *Encyclopaedia of Islam*, which interlards an overview of the development of the appearance of the book with bits of technical information. The entry even opens with the statement that several types of binding were used in the Islamic world and that not all manuscripts were bound.[67] Both the box-binding ('Type One') and its successor, the 'Type Two' binding are explicated in fair detail. Bindings from the southern Maghreb and sub-Saharan Africa are explicitly mentioned as a distinctive group, as these manuscripts are often not sewn. Indeed, the textblocks consist of gatherings or loose sheets, and the bindings are therefore not necessarily connected to them. Their covers are described to be made of supple leather, for which sometimes several pieces were used, in the archetypal shape with an envelope flap extending from the back cover. It is also noted that these flaps frequently close over the upper cover, at least in those cases when the tip of the flap contains a leather strap that can be wrapped around the entire volume. There seems to be a reference to the tab, though it is referred to as *endcap*: "The endcap protects the bundle of quires but is not fixed to the covers". When later on Guesdon discusses Central Asian bindings, they are said to be sometimes "adorned at the top or bottom with small scraps of leather that could be grasped by the user to pull the volume off the shelf". The source of this remark probably is Akimushkin.[68] However, the theory for this possible use of tabs is not substantiated. It is even contradicted by the common practice of writing the title of a manuscript on its tail edge, which means that the volume was positioned on the shelf with the tail side out, and not the spine, so that the tab at the head could not be reached. Nevertheless, it is interesting that the tabbed spines were judged worth mentioning as a distinctive Islamic binding feature.[69]

Several publications on the history of Western bookbinding as well as glossaries for book-historians, conservators and other scholars give a few cursory sentences to the making or characterisation of Islamic manuscript structures. A similar short 'typification' is found in many catalogues. Unfortunately, these brief descriptions are often incorrect. They reflect the common misconception that Islamic bindings are made as a case-binding and therewith contribute to the continuation of the inaccurate perception of this manuscript tradition. The rather summary character of such descriptions and the focus on decorative schemes in this particular bookbinding tradition add to the idea that Islamic bindings mainly serve to be aesthetically pleasing, not to protect the book. For example, Jane Greenfield completely misrepresented the structure in her *ABC of bookbinding* (1998). According to her drawings and brief captions, first the textblock is sewn, which is followed by the sewing of the endbands.

[65] J.W. Meri (ed.), *Medieval Islamic civilization. An encyclopaedia* (2006), Vol. I, 'Books', by David J. Roxburgh, pp. 114-117.
[66] Ibid., p. 115.
[67] Marie-Geneviève Guesdon, 'Bookbinding', *Encyclopaedia of Islam*, Third Edition, Eds.: Gudrun Krämer, Denis Matringe, John Nawas, Everett Rowson, Brill Online, 2013. http://referenceworks.brillonline.com/entries/encyclopaedia-of-islam-3/bookbinding-COM_22883> first appeared online 2011 (accessed 14-01-2013).
[68] The "scraps of leather" are an interpretation, Akimushkin writes: "The back spine sometimes had two tongued flaps that extended upward and downward (1.5-2.0 cm) for pulling the manuscript out of a pile on the shelf". O.F. Akimushkin, 'Central Asian manuscripts' bindings (1730s-1930s)' (2001), p. 4.
[69] As far as I am aware, Akimushkin and Guesdon are the only authors who have pointed out the distinctiveness of Islamic spine ends.

Only then is the spine-lining thought to have been applied, in which case it no longer has a structural function. Furthermore, the cover is presented as a case, made separately from the textblock.[70] *The dictionary for bookbinders* (1982) by Roberts and Etherington does not give a word to the Islamic (Oriental, Middle Eastern or Arabic) book, although it does have an entry on Japanese binding.[71]

3 Founders of our knowledge on the use of structure and materials in Islamic bookmaking

3.1 *Bosch*

Already in the early 1960s Gulnar Bosch researched the decorative features of block-stamped leather doublures. She compared the ornaments used with those known from Indian textiles. Intriguingly, the peak of the trade in these textiles coincided with the period in which this type of doublure was used.[72] Bosch also observed that the use of this decorated material occurs in 'average' bookbindings, and suggests that such decorated leathers were a trade product, used throughout the whole Islamic region, although its artistic and creative centre may have been situated in the Egyptian-Syrian region.[73] The descriptions of the block-stamp patterns themselves, however, have not led to a sub-classification system for this particular period, nor is the publication widely known or referred to. By contrast, around the same time Bosch translated the twelfth chapter of the treatise of Ibn Badis, which undoubtedly found a much wider audience.[74]

Notwithstanding the value of Bosch's first publication on the Islamic binding structure, the work that has become fundamental to the knowledge of many contemporary scholars and conservators and is cited or referred to in many publications, is *Islamic bindings and bookmaking* (1981), which Bosch wrote in cooperation with John Carswell and Guy Petherbridge.[75] The book is an elaborate catalogue divided in three parts. The first section gives an extensive overview of the literature then available, which is followed by an in-depth chapter on the materials and techniques used to make manuscripts, with a final section comprising the catalogue itself. Particularly the second chapter on materials, techniques and structures was very well received and, indeed, filled a void in the knowledge of Islamic manuscript production. It offered for the first time a clear overview of the possible construction of Islamic manuscripts and the materials used to produce them. The description of techniques provided access to the hitherto often ignored bookbinding procedures. The vivid picture that emerged of the making of manuscripts found its way into many studies conducted since.

The information is partly based on the treatises of Ibn Badis and al-Sufyani. Substantial parts of both texts are quoted; when phrases of the translation by Bosch et al. are

[70] J. Greenfield, *ABC of bookbinding. A unique glossary with over 700 illustrations for collectors and librarians* (1998), pp. 88-89. As she typified the structure as a case, her definition of a 'case binding' on p. 14 is of particular interest. It illustrates the inconsistent use of the term 'case', of which she states that "The spine of the case is not adhered to the spine of the textblock"; clearly this is not applicable to Islamic manuscript bindings.
[71] M. T. Roberts and D. Etherington, *Bookbinding and the conservation of books. A dictionary of descriptive terminology* (1982). This illustrates the neglect of the Near Eastern bookbinding tradition at the time, while Far Eastern techniques and materials were incorporated in the field of bookbinding and conservation.
[72] G. Bosch, 'Medieval Islamic bookbinding: doublures as a dating factor' (1964), p. 219.
[73] Ibid., p. 221.
[74] Idem., 'The staff of the scribes and implements of the discerning: an excerpt' (1961).
[75] G. Bosch et al., *Islamic bindings and bookmaking* (1981).

compared with translated text by Levy there are clear differences.[76] These sources are complemented with historic context, other studies – by the authors and others – and direct observations of the exhibited items. That last source of information merits a comment, for the condition of these objects, which largely consisted of loose medieval manuscript covers, is likely to have influenced the views of the authors on matters of structure and strength of the original bindings.

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

One of the features from *Islamic bindings and bookmaking* which has been frequently reused in later publications is a line drawing of the archetypal manuscript, providing terminology for its constituent parts.[77] [fig. 118] The introduction of this basic vocabulary together with the depicted structure offered everyone working with Islamic manuscripts tools to communicate with each other. Adam Gacek for example reproduced the diagram in his edition of al-Ishbili's text; he added the Arabic terms used by al-Ishbili to the terms provided by Bosch.[78]

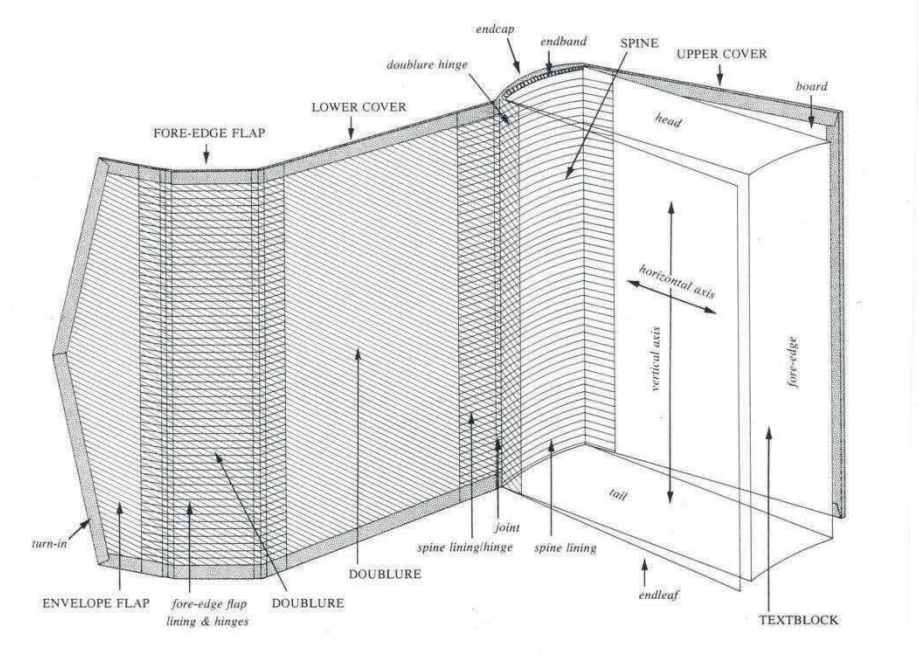

Fig. 118. The schematic presentation of the Islamic manuscript and its constituent parts, reproduced from Bosch et al. (1981), p. 38.

Most of the English terms have taken root, however, the usefulness of the word 'endcap' is debatable, as argued in Part Two, paragraph 1.1. With regard to the drawing a few remarks are in place. It shows a continuous doublure covering the back board, the fore-edge flap and envelope flap, with a stub (called 'doublure hinge') pasted onto the outer leaves of the textblock. At the same time it also shows a separate fore-edge flap lining that covers the joints and edges of the adjacent boards. This appears to be a hybrid assemblage. When such a

[76] For example, the paragraphs dealing with adjusting the gatherings prior to sewing, or the leather application on the covers differ substantially. Why these differences occur is not explained, all authors used the Paris edition by Prosper Ricard (1925).
[77] G. Bosch et al., *Islamic bindings and bookmaking* (1981), p. 38.
[78] A. Gacek, 'Arabic bookmaking and terminology' (1990-1991), p. 108.

continuous doublure is used, usually made of leather, binders did not first apply an additional lining on the fore-edge flap. A lining of the fore-edge flap as depicted is encountered frequently enough, but then it is combined with individual doublures for the inner board and the envelope flap, made either of leather, cloth, or paper. Two separate drawings would be needed to illustrate the variation clearly. The stub itself is certainly a frequently encountered feature, though it is not as common as an inner joint formed by the projecting flanges of a leather spine-lining. For readers to learn to distinguish between the inner joint structures, and to enhance the understanding of the dual function of the spine-lining it would be important to present the latter structure prominently; this drawing only represents a variant structure and does not focus the attention on the actual board attachment.

Within the scope of the present study, discussion of the structural components of the Islamic manuscript is of special interest. When Bosch et al. describe the procedure for lining the textblock spine, one of the important functions of the spine-lining is omitted. The support that the lining provides for the primary endband sewing and the protection it offers at the same time for the paper spine-folds is not mentioned.[79] This is especially crucial because on several occasions Bosch et al. indicate that the binding structure is, in essence, a case-binding (as will be elaborated on below). As explained in Part Two, paragraph 2.5, the dual function of the spine-lining is one of the counter-indications of that structure. Furthermore it should be noticed that these authors mention cloth explicitly and solely as a spine-lining material, whereas leather was also often applied. Subsequently, the *additional* application of leather or paper hinges is noted, with a reference to both Ibn Badis and Sufyani. However, what those historic sources actually describe is the spine-lining proper. Furthermore, according to Bosch et al. there is little evidence that paste-downs were used in the fourteenth to seventeenth centuries, instead of doublures. However, such evidence is provided by the survey results: in the Leiden collections, over 30 manuscripts from this period were provided with paste-downs.

The description of the endband sewing, both primary and secondary, is very clear and comprehensive and apparently not based only on the patchy primary sources. Especially the observation that slight changes in the processing of the threads when the secondary endband is sewn results in variations of the chevron pattern, and that the patterns vary in size depending on the thickness of the threads and the applied interval between the primary tiedowns, indicates examination of preserved specimens. The subsequent remark, however, is a misjudgement probably caused by the poor condition of the manuscripts involved: "more often than not the protective endband core is omitted with the result that the primary endband threads (not being anchored around a core) cut into the spine folds of the paper gatherings and eventually tear out".[80] Endband cores are prone to damage or loss once delamination or tearing of the spine-lining has caused damage to the tiedowns, but the large majority of endbands were definitely originally sewn on an endband core.[81]

Bosch points out that manuscripts were not necessarily sewn and bound, a custom which could have eased the copying of texts, as it allowed for the simultaneous distribution of gatherings among several copyists.[82] According to Bosch, when left unsewn a portfolio was constructed to protect the loose gatherings, which is said to be made with additional flaps at head and tail. However, no examples of such multiple flap structures are given, nor to my

[79] G. Bosch et al., *Islamic bindings and bookmaking* (1981), p. 50.
[80] Ibid., p. 53. Most likely, the paper damage occurred when the spine-linings were torn, pulling at the tiedowns which keep that little strip of leather in place. The missing endband core is an additional damage.
[81] See Part Four, paragraph 2.4 and Part Five, paragraph 3.3.
[82] G. Bosch et al., *Islamic bindings and bookmaking* (1981), p. 45; the remark about copying schemes is found in note 156. However, there may well have been other reasons for the intentionally unsewn manuscripts kept in wrapper bindings, which I first described after my pilot survey in 2010, see K. Scheper, 'Refining the classification of Islamic manuscript structures' (2011), p. 379. This issue will be further explored in Part Five, paragraph 1.8.

knowledge published in other sources, and although the UBL collection contains unsewn textblocks with wrapper bindings, none of these specimens show additional flaps or remnants of such flaps; their wrapper covers are very similar to the Type Two cover (see Part Two, paragraph 2.6 and Part Five, paragraph 7).

The most important point of criticism I want to make concerns the characterisation of the binding structure. The authors stated that "Regardless of the sequence of operations used to construct it, the Islamic book cover [...] can be considered as a separate structural unit", and the structure is designated as a portfolio.[83] They also put forward that "examination of Islamic bindings with fore-edge and envelope flap indicates that usually the book cover was prepared as a unit separate from the textblock right up to the completion of the tooling and other decoration, somewhat like the case bookbindings developed for the mass production of books in Europe in the nineteenth century".[84] We should keep in mind that the authors worked with a particular collection, consisting of a selection of manuscripts and, importantly, a collection of covers which were separated from their contents. It is likely that the condition of these objects influenced the authors' perception of the materials; indeed, they point out that the intact survival of so many loose covers attest the case-binding structure. Given the selection of objects they worked with, there may have been no manuscripts at hand with original bindings produced with the two-pieces technique, or, if they existed, damage may have rendered this feature difficult to detect. In addition, one often needs to be aware of the existence of a certain characteristic before one is able to observe it and at the time, the two-pieces technique appeared to be unknown. Additionally, conclusions derived from loose covers have inherent limitations. It would have been necessary to examine the bound volumes for such details as the use of the flanges to support the board attachment, the presence of tabbed spine-ends, and signs of the use of the two-pieces technique, in order to draw conclusions of the binding structure. In Part Two it was argued that the two-pieces technique is by definition not a case-binding technique since the cover is not completed as a sort of cassette before attachment. The difference may seem quite subtle, for the book covers are partly prepared in advance. Nevertheless, the covers are prepared separately and individually, and the binding is assembled on the textblock. Ultimately, this distinction is essential for the qualification of the structure, as well as the fact that the spine-lining material, with the sewn-through tiedowns, forms a strong bond with the flesh-side of the cover-spine leather(s).

The importance of *Islamic bindings and bookmaking* cannot be underestimated. It has informed and shaped the ideas of the scholarly community working with Islamic manuscripts. Apart from the significant facts and understanding that this publication provided, the misperception of the authors concerning the construction of the manuscripts also influenced the acuity of other scholars. As a consequence, the notion that Islamic book structures are case-bindings is deeply-rooted and too often are Islamic manuscripts judged as weak structures, whereas in fact they are functional and durable. It is true that due to natural decay in combination with intensive use, wear and tear and unfavourable conditions, many Islamic manuscripts were damaged. The flexing parts proved to be most vulnerable and covers tended to tear along their joints. Yet, such damage is to be expected, considering the organic materials and the mechanism of a book. In those instances where bindings are preserved separate from their textblocks (usually in Western collections), they often carry the traces of that intensive bond with the former spine-lining on the inside, such as traces of thread or parts of the lining. Even the complete lining may still be adhered there, showing holes where the tiedowns passed through the material (as in figs. 75 and 76, in Part Two). Certainly, many covers were re-used for other manuscripts, but usually only after the application of new

[83] G. Bosch et al., *Islamic bindings and bookmaking* (1981), p. 56.
[84] Ibid., p. 64. The analogy with the nineteenth-century mass production of case-bindings is particularly unfortunate. It seems to underline the supposed weakness of the structure and devalues these custom-made bindings by equating them with ready-made bindings.

leather on the spine, new inner joints and possibly other adjustments. Therefore, the re-circulation of covers does not indicate that the covers were initially made as a cassette. Covers only have the capacity to lead a second life when they are adjusted or repaired. When they are preserved as an individual object, traces of the former structure are usually disguised by repairs, which are meant to cover any split edges or loose materials. Such adjusted covers, and the re-use of covers in itself, do not prove that the bindings were made as case-bindings, nor that the original structure was a feeble one.

3.2 *Déroche*

In 2000, François Déroche published his *Manuel de codicologie des manuscrits en écriture arabe* , which became available in English translation in 2006.[85] Apart from being an excellent introduction to the codicology of Islamic manuscripts, Déroche's subdivision in three binding categories (see also Part One, paragraph 4.2) is widely adopted and used as a guide to describe bindings.[86] The different materials for bookbinding are addressed, subdivided further in the discussion of the different components: boards, covering materials and doublures. However, the actual construction of these components is not explicated. When Déroche typifies his three categories, he touches on the surface of technical aspects of bookbinding but does not clearly specify what differences can be found in the binding structures, nor how the bindings are actually constructed. Accordingly, the classification is mainly based on the outer appearance of the artefact; it is either a box binding (Type One), a binding with a fore-edge and envelope flap attached to the back cover (Type Two) or a binding without flaps (Type Three). [fig. 119]

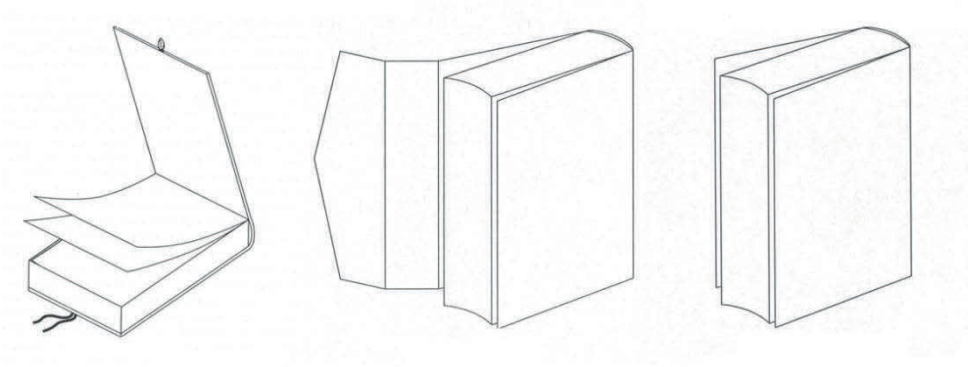

Fig. 119. The type One, Type Two and Type Three binding, reproduced from Déroche (2006), pp. 262, 260 and 258.

With regard to construction, Déroche describes the predominant sewing structure – the link-stitch on two stations – but adds that little research has been done on this issue.[87] The endbands are clearly and correctly described as important for the manuscript's stability, however, the spine-lining is omitted in the description of the sewing structure; the sewing of the primary endbands through the lining material is not pointed out. The spine-lining is mentioned under the description of Type Two, where it is only indicated as a constructive element because the extensions of the spine-lining are pasted onto the boards. Furthermore, just as in Bosch et al., only cloth is mentioned as a lining material. It thereby passes over one of the most common techniques, the use of a leather spine-lining with flanges that are used to strengthen the board attachment, and that remain visible in the joint and are combined with doublures without a stub.

[85] F. Déroche, *Manuel de codicologie des manuscrits en écriture arabe* (2000), translated (by Deke Dusinberre and David Radzinowicz and edited by Muhammad Isa Waley) as *Islamic codicology. An introduction to the study of manuscripts in Arabic script* (2006).
[86] Ibid., pp. 256-262 and 286-290.
[87] Ibid., pp. 274-276.

The somewhat cautious statement that "from a technical point of view, it (the predominant form of bookbinding) is close to the modern 'pasted down to ends' style in case-binding in which the block is attached directly to the endpapers" appears to be a recapitulation of Bosch et al. (1981).[88] In the footnote the term "case-binding" is explained as the covers being made separately from the book. Déroche then continues with the visible characteristics of the bindings.

When dealing with the covering of the exterior, full leather bindings are mentioned, but the two-pieces technique is not referred to. With regard to the partial leather bindings, which are only described under Type Three bindings, Déroche employs the terms "half – binding" and "quarter-binding". Confusingly, the terms are used with explicit mention of coverings consisting of leather spines with leather covered *corners* or *corner pieces*, and without *corners* or *corner pieces*.[89] In and of itself, as was pointed out in Part Two, the use of the terms "half-binding" and "quarter-binding" is confusing enough, since they are borrowed from Western bookbinding descriptions, while the lay-out of the partial leather Islamic bindings clearly diverges from their Western counterparts. For Islamic bindings covered partially in leather, long strips of leather were used to cover all board edges, or, in simpler variety, only the front-edge was covered with leather. Either way, a variety in which only the corners of the boards were covered with leather is highly unusual in the Islamic world. The fact that these varieties in covering styles are discussed in the paragraph dealing with Type Three bindings, is somewhat unfortunate, and as pointed out above the reference to "corners" complicates the issue further. For those unfamiliar with the wide range of covering schemes in Islamic manuscripts this could imply that the partial leather techniques mainly occur in Type Three bindings, whereas in fact they were made more often with envelope flaps than without.[90]

3.3 *Gacek*

The importance of Adam Gacek's contributions in which he makes the Arabic historic sources accessible to a larger public, is unmistakable. They are the basis of and cited in many publications on Islamic codicology published since. Without them, it would have been impossible to write the first section of the current Part, for example. More recently Gacek published his highly informative *Arabic manuscripts. A vademecum for readers*. This reference work has a different character and aims to combine information from historic sources with knowledge acquired from contemporary research. Although all kinds of textblock aspects form the major part of the book, the *Vademecum* does hold entries on *bookbinding, sewing* and *endbands*. Gacek uses Déroche's division in three major types (box-bindings, bindings with flaps and bindings without flaps). He describes Type Two as a: "'roundback', i.e. the upper and lower covers flow smoothly round into the spine without a strengthening ridge", after which he stipulates that the spines of Islamic bindings are never a "hollowback". The "ridge" denotes the point where the side of the spine and the edge of the front or back cover join each other, and with "strengthening ridge", Gacek probably refers to the 'backing' or 'rounding' operation used on Western books in order to form shoulders (the ridge) to accommodate the boards.[91] Such an operation, however, has no positive influence on the strength of the joint and therefore the lack of it has no negative consequences.

Gacek's description of the structure follows the view of Bosch et al. (1981): "Most of the bindings produced after the 7/13th century are essentially 'case bindings', that is, bindings produced independently, as a whole, and then lightly attached by paste to the lining of the

[88] Ibid., p. 260; Déroche, however, refrains from further use of the term 'case-binding'.
[89] Ibid., p. 258. In French the terminology is comparable: "pleine reliure" and "demi-reliure", Déroche (2000), p. 279.
[90] See Part Four, paragraph 2.7.
[91] See for example: B.C. Middleton, *The restoration of leather bindings* (1998), p. 12 ('backing'); p. 32 ('outer joint'); this ridge can also be referred to as 'outer joint' or 'shoulder'.

backs of the sewn quires".[92] The drawing of the inside of this assumed case-binding is particularly interesting because it shows a completed cover prior to attachment, with the doublures already adhered.[93] [fig. 120]

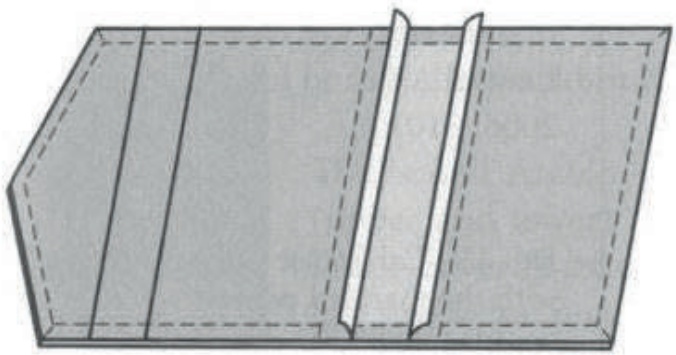

Fig. 120. Depiction of the inside of 'a case-binding' as represented in A. Gacek, *Vademecum* (2009), p. 27.

On the spine-side of both doublures the joint-hinges are also already drawn, which are either stubs, from the doublures, or additional strips; the dotted lines seem to mark their position underneath the doublures. The extending parts of this joint material is supposedly adhered onto the outer leaves of the textblock later on (after the spine of the cover is adhered on the textblock spine). This type of construction is theoretically possible but not in accordance with the empirical findings (see Part Four). Moreover, the drawing displays turn-ins over the spine area at head and tail, which are in reality not found on the predominant Islamic binding type.

When Gacek discusses Type Three bindings, he remarks on the covering of the bindings (which was not done for the Type Two bindings). Next to full leather bindings, the occurrence of partial leather bindings is described. The three images which are meant to explain this type of covering are found under the lemma "Half-bound books". A binding that only has leather on the spine is called "quarter-binding", and when leather covers the spine and corners, the term "half-binding" is used, conforming to Déroche's terminology.[94] The drawings can only cause confusion since they depict a covering scheme mainly used for Western bindings.[95] Although the dominant Islamic partial leather binding is not illustrated under the lemma "Half-bound books", when Gacek addresses the Type Three binding he affirms the use of the term *çaharkuşe cild*, for bindings with the spine and edges covered in leather.[96] As mentioned above, this type of covering is certainly not restricted to Type Three bindings. It seems that this brief overview is largely based on the description of Déroche. It is however noteworthy that in addition, Gacek mentions the occurrence of limp bindings (covers without boards) in the Type Three category.

[92] A. Gacek, *Arabic manuscripts. A vademecum for readers* (2009), p. 25.
[93] Ibid., p. 27; the figure is based on W. Bull, 'Rebinding Islamic manuscripts: a new direction' (1987), p. 26.
[94] A. Gacek, *Vademecum* (2009), p. 27.
[95] Ibid., pp. 118-119. The first depiction of "half binding" is certainly a Western covering scheme, the second does occur both in the Islamic as well as in the Western binding tradition. However, when this scheme is used for Islamic books, the strip of leather used to cover the front-edge of the boards is significantly smaller than depicted. The fact that none of the schematic drawings include a fore-edge and envelope flap contributes to the Western appearance of the book. According to the *Vademecum*, manuscripts covered in partial leather are especially encountered in the eighteenth and nineteenth centuries. The survey findings attest that such bindings occur just as often in the seventeenth century.
[96] Ibid., pp. 27-28.

Endbands are attested to serve both a structural and aesthetic function but Gacek does not elaborate on the construction. The dual structural function – the formation of extra sewing stations in each gathering close to head and tail and securing the spine-lining to the textblock spine – is not mentioned. More attention is given to the decorative function of the secondary endbands.

Under the entry "notabilia and finger tabs" mention is made of "thread tabs, often made of twisted multi-coloured silk or cotton threads [...] sewn through paper on the level of chapter headings or sub-section of the text and protruded outside on the side of the fore-edge".[97] Perhaps it is typical that this much disregarded binding element does not even have a fixed name or its own entry in the *Vademecum*; in the present study the characteristic is recorded and referred to as 'page-marker'.

When sewing is discussed, Gacek describes the occurrence of a link-stitch sewing on four stations along with the much more common link-stitch on two stations. However, the drawing of the former sewing-structure represents two separate link-stitch structures next to each other, rather than a continuous link-stitch sewing on four positions.[98] This representation accords with the two parts of the sewing thread visible in the spine-fold, but not with the actual structure. At least, it deviates from all the sewing-structures on four stations encountered in the UBL collections, in which the thread passes from the second sewing station to the third on the spine-side of the fold, where it makes a loop around the thread from the sewn gathering underneath (see Part Two, figs. 31, 32).

4 Structure as a starting point

4.1 *Szirmai*

Janos Szirmai looked at manuscripts from a truly material perspective when he wrote *The archaeology of medieval bookbinding* (1999). He related historic sources to physical evidence, the latter through examination of many original manuscripts. This resulted in an excellent and profound overview of the evolution of the codex form. However, for the chapter on Islamic codices he based his account mainly on the manuscript findings in Kairouan (early 1940s) and Sanaa (1972), which brought to light text and binding fragments from the first centuries of Islam up to the twelfth or thirteenth century. For this particular topic he relied on the written accounts of other researchers when making his comparisons. Examination of the physical evidence by these researchers had proved difficult because of the condition of the material. In fact, the bulk of the material consisted of loose covers or even smaller parts of bindings, additionally, incomplete textblock fragments or loose leaves were found. It is unfortunate that Szirmai, with his discerning eye and attentive mind, did not examine early Islamic manuscripts himself. The findings from both Kairouan and Sanaa were fascinating and exceptional, nonetheless, it is also very difficult to reconstruct binding structures from such damaged and broken remnants. To draw conclusions with regard to the functionality of Islamic manuscript structures on the basis of this particular collection is treading on dangerous ground, for these covers were discarded because they were so damaged. They were no longer useful and probably considered to be beyond repair; many of them were already mended several times.

One should therefore question his assertion that "the binding is constructed as a modern case binding [...]".[99] There is no explanation, or reference to a single item from the findings, to support his claim, but Szirmai linked the treatise of al-Sufyani to the case-binding technique. Sufyani indeed explained the making of the pasteboard and the possibility of

[97] Ibid., p. 169.
[98] Ibid., pp. 247-248. The drawing seems to be inspired on the illustrations of Coptic and Ethiopic sewing structures as represented in J. Szirmai, *The archaeology of medieval bookbinding* (1999), pp.17-18, 21, 46-47.
[99] J. Szirmai, *The archaeology of medieval bookbinding* (1999), p. 53.

applying the leather on the boards when they are separate from the textblock, to which they were attached in a later stage, with adhesive only. Apart from my conviction that these individually prepared boards, made with the two-pieces technique, are not case-bindings (as explained in Part Two, paragraph 3.1-3.2) Sufyani wrote his text in 1619 and the fragments in question date from before the thirteenth century, so some caution seems in order in trying to explain early binding structures using a treatise written many centuries later. As we have seen, Ibn Badis, whose treatise is more or less contemporary with the objects in question, was unambiguous in describing the application of leather only after the boards were attached to the textblock.

Szirmai put considerable emphasis on 'the weakness in the construction'. He clearly qualified "the manuscripts, sewn with extremely thin thread on two sewing stations and provided with a case binding" as being technically inferior to its predecessor with structural board attachment and multiple sewing stations.[100] In my opinion this description of the structure does not do justice to the Islamic binding. Firstly, a vital component in the structure – the endband – is not mentioned by Szirmai. The primary endband sewing provides two extra sewing stations in each gathering close to head and tail, which in itself enhanced the stability of the sewing. Additionally, this endband sewing was applied after a full length spine-lining was adhered to the textblock spine, which further strengthened the structure. Possibly Szirmai did not fully realise the importance of the endband to the manuscript types with pasteboards and an envelope flap, since from the Kairouan findings only the covers with wooden boards showed remnants of endbands.[101] Secondly, the assumption that the covers were case-bindings is not without bias. Szirmai suggested the shortcoming explicitly: "[...] the weakness of the board attachment of case bindings and the ease by which it can be severed constitutes a problem for the student of oriental bindings [...]".[102] This preconception seems to be based on reiteration of other scholars, rather than on solid conclusions from the two reference collections used. All in all, while most of the other chapters in *The archaeology* are based on structural examination of substantial corpora and provide excellent insight into structures and materials, the chapter on Islamic codices is deficient and misleading as an introduction to Islamic binding structures.

4.2 *Merian*

The material aspects of the Armenian binding tradition have been researched and outlined by Sylvie Merian.[103] In the years prior to 1993 Merian examined the structure of several Islamic manuscripts with the objective of making a comparison with Armenian binding structures; she also compared the Armenian bindings with Byzantine and Syriac bindings. Unfortunately not many 'real' manuscripts were used to make the observations first hand; with respect to the Islamic book, information was in large part gathered from published material. Bosch et al. (1981) were her main informants. Merian's interpretation of the bookmaking process is therefore based on known material and does not offer new insights. We see a repetition of thoughts when she states that "Examination of the large number of detached covers from Islamic manuscripts has indicated that the covers *must* have been prepared separately and even covered with leather and tooled before being attached to the sewn text block. The idea is

[100] Ibid., p. 56.
[101] The primary endband sewing thread was attached to the wooden boards of the box-bindings through holes in the corners close to the spine; such a connection is not known on manuscripts with pasteboard covers, either from the literature or from physical evidence. On manuscripts bound with pasteboard covers, the endband is only, though securely, connected to the textblock. As a consequence, when remnants of bindings and loose covers are found without their associated textblocks, the absence of endbands is to be expected.
[102] Ibid., p. 57.
[103] S. Merian, *The structure of Armenian bookbinding and its relation to Near Eastern bookmaking traditions* (1993); Idem., 'The characteristics of Armenian medieval bindings' (2008).

similar to modern case bindings".[104] To support the theory, Merian interpreted a footnoted remark by Arnold and Grohmann, about the makers of cases (for Qur'ans) who worked in the vicinity of booksellers, and suggests that: "the making of cases may even have been a separate craft".[105]

Especially the assumption that "board attachment consisted of the previously made hinges (cloth, paper or leather) which had been pasted to the spine", without recognising that these hinges are the actual spine-lining that also supports the primary endband sewing and therewith constitutes a constructional cohesion between the gatherings and the cover, does not do justice to the complex structure of the Islamic book. The same goes for the conclusion, that "the board attachment, therefore, is accomplished simply by the use of adhesive on some type of hinge, which had previously been attached to the spine of the text block with adhesive. This would not be an extremely strong attachment, and indeed, it is quite common that the bindings of Islamic books be detached from the text block and found separately".[106] As a further argument, similar to Szirmai's line of reasoning, the finding of many loose covers in the Great Mosque of Kairouan (Tunisia) is mentioned. However, many of these fragments belong to the box-binding category and are therefore not comparable. The covers with wooden cores may even have been un-detached from the start and perhaps just functioned as a weight to rest on the stacks of gatherings.[107]

Merian put forward the idea that the doublures could also have been applied to the separately prepared covers, prior to attachment to the textblock. This is hardly feasible for most Islamic bindings. After all, even when one supposes that the lining is not structurally connected to the textblock by sewing, the flanges from the lining usually are adhered onto the inside of the boards underneath the doublure. Presumably Merian was not aware of the occurrence of leather spine-linings, and based her idea on the description of Bosch et al. that the leather block-stamped doublures frequently have a stub which is pasted onto the textblock. With such doublures, and when one ignores the use of the flanges, the application to the boards prior to board attachment is indeed feasible. Bindings with leather stubbed doublures, however, form a minority group, and even with stubbed doublures one can usually find flanges of a cloth lining underneath the doublure.

Merian concluded that the structure of Islamic manuscripts indicates that these books may have been made more hastily than Armenian bindings. In support of this assertion, she suggested that there "was a great market for books because of a large literate class, and that bookmaking seems to have been much more of a business endeavour rather than a secluded monastic activity".[108] She hinted that bindings may have been made cheaply. Apart from a rather significant number of bindings that are very elaborately embellished, the idea of cheap production does not at all corroborate with the care and effort taken by the scribes to produce the manuscripts, nor with the generally accepted notion of the high position manuscript making holds in the Islamic world. It is more reasonable to assume that costly, precious and highly regarded manuscripts were respected accordingly by the binders, and were therefore supplied with attractive *and* functional covers. Binders were evidently aware of the eventual damage the structure could suffer; they repaired broken bindings often

[104] S. Merian, *The structure of Armenian bookbinding* (1993), p. 159. My italics; with the "must" in this quote the theory of Bosch et al. is amplified, not just repeated.
[105] Ibid., p. 159, n. 38. Arnold and Grohman, however, only point out that booksellers and paper-makers had their own section in the bazaar, and they refer to Al-Maqrīzī who wrote that the makers of cases for Qur'ans worked not far from this section. Th.W. Arnold and A. Grohmann, *The Islamic book. A contribution to its art and history from the VII-XVIII century* (1929), p. 32, and n. 141, p. 108.
[106] S. Merian, *The structure of Armenian bookbinding* (1993), p. 160.
[107] G. Marçais and L. Poinssot, 'Objets Kairouanais: IXe au XIIIe siècle. Reliures, verreries, cuivres et bronzes, bijoux' (1948), p.16; Th. W. Arnold and A. Grohmann, *The Islamic book* (1929), pp. 30, 33-34, 44-46.
[108] S. Merian, *The structure of Armenian bookbinding* (1993), p. 167.

enough. Still, it is likely that the bindings were thought to be durable for a certain amount of time although we do not know what that expected lifespan would have been. Of course, economics played a part; bookbinders were constrained to meet high levels of production, so they developed their bookbinding techniques to meet that demand. Strength in structure, however, was never compromised in order to reduce labour or costs. For example, the survey findings prove that the spine-linings kept their dual function throughout the whole period of the manuscript era. Also, the number of tiedowns was not reduced over all these centuries; all gatherings were structurally connected to each other as well as to the spine-lining, even though this amount of warps was not strictly necessary to create the secondary endband sewing, as the common practice of coupling the tiedowns (two by two, for example) demonstrates.

4.3 *Fischer*

Preparation work for an exhibition entitled *The book in the Orient* (1982-1983) confronted Barbara Fischer, conservator of the Bavarian State Library in Munich, with Islamic manuscripts. Fischer knew little of Islamic bindings and this work prompted her to examine the structure, and especially the endbanding, more closely. Her intelligent account throws a clear light on the construction of the endband sewing as an elementary part of the manuscript structure.[109] Using publications from Paul Adam and Emil Kretz and direct observations of her own, she managed to disprove a theory Karl Jäckel proposed in 1961.[110] Her research mainly concerned the sewing of the secondary endband but also addressed the structure of the endband sewing as a whole.

Jäckel had devised a method with twisted threads or cords in two colours that resulted in a chevron pattern. However, instead of weaving the secondary endband on tiedowns he connected these twisted threads with an additional thread that was only then fastened to the manuscript. Not only was this a reversed procedure, every twisted thread had to be cut at the outer ends and glued on the sides to prevent them from fraying. This action in particular was unsatisfactory to Fischer because it created a discord with the otherwise sound and elegant characteristics in the structure.[111] Also, none of the specimens she had to treat showed traces of such a procedure. Searching for other sources, Fischer found that observations recorded by Paul Adam, fifty years earlier, did correspond with the originals. He described the primary endband sewing "as part of the sewing, actually [...] was at the same time the outermost stitch of the sewing, replacing what we call the kettle-stitch".[112] However, since Adam did not go into detail describing the secondary endband sewing, Fischer explored Oriental textile techniques and then set out to create models. These reflect the variety she observed in the secondary endbands; they could either be sewn on single or bundled tiedowns and with dissimilar types of thread. Fischer thus illustrated clearly that chevron patterns sewn on bundles of three or more tiedowns become elongated. In the same way a diverse chevron form is created by a combination of thin and thicker thread. Lastly, Fischer mentioned the sporadic occurrence of diverging patterns as a result of a changed course of the sewing threads.[113] She concluded that more variations were to be expected and information about regional and temporal varieties might be generated through systematic study.

4.4 *Espejo and Beny*

As part of a project that researches the materials and production techniques of al-Andalus Arabic manuscripts, several bound manuscripts from that region and period – Iberian

[109] B. Fischer, 'Sewing and endband in the Islamic technique of binding' (1986).
[110] Ibid., pp. 183-188 and notes 4-6 and 11-12.
[111] Ibid., p. 183; Fischer described this cutting and gluing as 'an open end'.
[112] Fischer translated from P. Adam, *Das Restaurieren alter Bücher* (1927), pp. 9, 11.
[113] B. Fischer, 'Sewing and endband in the Islamic technique of binding' (1986), p. 198.

Peninsula, ca. the eighth to the fifteenth century – were examined by Teresa Espejo and Ana Beny. They came to the conclusion that al-Andalus bindings differ in technique from the predominant Islamic structure.[114] Most importantly, the gatherings of the textblocks that the authors examined were not sewn in the same way as most manuscripts from other Islamic areas, although a link-stitch sewing technique was used. What distinguishes these structures is that the first and final pair of gatherings were not sewn on two stations. Instead, a more elaborate technique was used, resulting in a long running stitch using four positions. Moreover, since the sewing thread of these outer gatherings also passed through the cloth spine-lining, the spine-lining was connected to the textblock not only by the primary endband sewing, but even more securely, by sewing the outer gatherings through the spine-lining as well. As a third remarkable divergence, the textile lining was also used to cover the complete inside of the boards as a doublure, whereas the majority of the cloth spine-linings are just used as inner joint and board attachment. Although this specific characteristic seems to bear a strong resemblance to Mamluk bindings with textile doublures, the two structures have not been compared in a detailed study and therefore any conclusions on this particular detail would be premature. The sewing structure Espejo and Beny observed certainly seems an anomaly in the Islamic bookbinding tradition. In the UBL collections, however, two manuscripts with a similar construction were encountered.[115] Yet, it is not certain that these manuscripts originate from the Iberian Peninsula; at least one of them is thought to be made in the Maghreb. As the materials used in the UBL manuscripts differ slightly from the al-Andalus bindings (leather was used for the spine-linings and doublures instead of cloth) the two techniques are not identical, but a close sphere of influence is certainly suggested.

In their conclusion, Espejo and Beny question the accuracy of the general assumption that Islamic bindings are case-bindings.[116] They rightly argue that, since the cloth lining is structurally attached to the textblock and makes up part of the cover, this designation needs to be reconsidered, at least for the al-Andalus bindings. Indeed, when a cover is clearly not made in its entirety separate from the textblock, the definition of case-binding is not applicable.

5 Structure as a side issue

Many publications concerned with Islamic book culture or art history also consider bookbinding techniques to a certain extent. Usually, they either sketch the 'archetypical' structure briefly or discuss only certain details. These extended catalogues or individual studies focus on a certain period, a style or a collection in which the technical aspects of the manuscripts comprise a few paragraphs. That, of course, indicates the significance the subject is usually accorded: the materiality of the manuscripts is considered interesting but is not the primary focus of attention. Hence, much of the information found in such chapters appears to be copied from the major sources, such as Bosch et al. or Déroche, and the interpretation of the material aspects of the items in question may be limited. However, some contributions dealt with structural aspects quite prominently and either provided new insights or they illustrate the misunderstood construction; these are considered in the next paragraphs.

5.1 *Raby and Tanındı*

Turkish bookbinding in the 15th century (1993) covers the development of the design and use of covering materials of Ottoman manuscripts in the second half of the fifteenth and first

[114] T. Espejo and A. Beny, 'Book I from the collection of Arabic manuscripts from the Historical Archives of the Province of Málaga: an example of al-Andalus binding' (2009), pp. 121-133.
[115] Or. 241 and Or. 1313.
[116] T. Espejo and A. Beny, 'Al-Andalus binding' (2009), p. 130.

quarter of the sixteenth century.[117] This well-illustrated work reflects the visual impact of manuscript bindings from this period. With respect to binding structures, the authors stated in the introduction that "Like a modern cased binding Islamic covers were prepared separately from the text block", and continued one paragraph later with "The processes involved in the production of Islamic cased bindings have been described in considerable detail by Gulnar Bosch and Guy Petherbridge [...]".[118] Throughout the whole book this case structure is not questioned. Interestingly enough, in the first appendix to *Structural features of the Ottoman book*, the authors point out that their perception of the sewing structures sometimes diverges from the description in *Islamic bindings and bookmaking*.

The authors often encountered a sewing structure which, instead of a link-stitch sewing on two stations, was thought to be sewn on four stations, and according to the authors, this sewing involved additional stitches in which the thread passes over the head or tail edge from the outer positions.[119] To the more technically specialised reader, this observation seems to be a clear misconception: the outer threads that pass over head and tail of the gatherings are the primary tiedowns. Had the authors been able to inspect the textblock spine or known what to look for, they would not have found the sewing thread passing from the middle link-stitch onto these outer positions because the two sewing structures are not linked. In fact, what they depict is exactly what Bosch described. Contrary to the suggestion of the authors, there is no change in technique that can be related to differences between the earlier, medieval Arab manuscripts that formed the basis for *Islamic bindings and bookmaking* and the somewhat later manuscripts from the Ottoman court binderies. They mistook the endband's tiedowns for link-stitch sewing in the multiple instances where the primary endbands were sewn with thread similar to that used for the textblock sewing. When they were sewn with different thread, the tiedowns were not confused as being part of the textblock sewing. The misinterpretation is caused by lack of a full understanding of the binding technique.

However, Raby and Tanındı did notice a second, truly diverging sewing pattern, which they called B. This pattern is described as being sewn on six stations, in line with the mistaken description of the predominant link-stitch sewing thought to be sewn on four positions. In fact, in pattern B only four stations are used; the outer positions are again related to the separate primary endband sewing. The manner in which this type B sewing structure is sewn corresponds with the link-stitch on four stations as described in Part Two, paragraph 2.1.

The authors remarked that pattern A was standard and suggested "that pattern B occurs only in manuscripts that have been restored".[120] This last observation is interesting; in Part Two we have seen that this sewing structure also occurs occasionally in the UBL collections and indeed, from the survey results there appears to be a relation with the re-sewing of manuscripts.

5.2 *Haldane*

In *Islamic bookbindings* (1983), Duncan Haldane mentions a few characteristics that are interesting, even though he did not address bookbinding constructions.[121] In describing the Islamic bindings in the V&A collection, Haldane divided the binding styles into Arab, Persian,

[117] J. Raby and Z. Tanındı, *Turkish bookbinding in the 15th century. The foundation of an Ottoman court style* (1993).
[118] Ibid., pp. 1-2.
[119] Ibid., pp. 215-216. This is the so-called sewing pattern A, however, the included drawing illustrates quite clearly a pattern that can be identified as a link-stitch sewing on two stations with the primary endband sewing in place.
[120] Ibid., pp. 215-216.
[121] D. Haldane, *Islamic bookbindings* (1983). The descriptions of the bookbinding styles in this case solely refer to the artistic and stylistic features; the use of materials are discussed as long as they play a part in the development of decoration and ornamentation.

Turkish and Indian bookbindings. Within the Arab world, further categories were formed by Egypt and Syria (which Haldane considered the production centres of the finest Arab bindings), with the Maghreb on one side and South Arabia and Yemen on the other. He writes "The majority of bindings in the Museum's possession are loose covers which in part is a reflection on the different sewing techniques used in the Islamic world which often led to the binding coming apart from the text block. In some cases glue was used to attach the binding to the spine of the book which was even less secure".[122] This quotation illustrates the common perception about the weakness of the structure, while at the same time it shows a gap in understanding since the bindings that 'were attached to the spine with glue' are singled out as especially fragile structures. It suggests that the author was not aware that the spines of *all* Islamic bindings were attached to the textblock spine with adhesive (with the exception of manuscripts that were never sewn and have wrapper bindings). Collected for their beauty and outstanding craftsmanship, these loose covers provided little information on their manufacture. When Haldane talked about 'techniques', he referred to tooling, cutting of filigree-work leather, painting and gilding, all decorative techniques used to embellish the interior and exterior of the covers.

One of the major developments in Persia was the introduction of lacquer techniques for bindings. While the base layer of the first lacquer bindings were composed of heavily chalked leather or, according to Haldane, parchment, soon paper boards, fixed with gypsum or chalk, were being painted and finished with multiple layers of lacquer.[123] In introducing the technique, Haldane used the term pasteboard twice; after that he referred to the core of the covers as "papier-mâché".[124] The use of this term seems to have become part of the general vocabulary when lacquer bindings, or indeed other Oriental lacquer objects, are discussed. Since the term also appears to be used for the covers of lacquer bindings that are actually made of pasteboard – which are no different from the pasteboards used for non-lacquered bindings – this is confusing if not misleading.[125]

[122] Ibid., p. 7.

[123] Ibid., p. 70; the use of parchment as a substrate for lacquer bindings is neither referenced nor is an example included in the book, while examples of chalked and painted leather covers are provided. The source of this statement therefore remains unknown. As parchment had become a rare material for Islamic bookbinders by the fifteenth century, its use for board material would be remarkable indeed.

[124] Ibid., pp. 70-71, 140; however, for object descriptions, concluding and illustrating each chapter, Haldane used the term pasteboard almost as often as *papier-mâché* when lacquer bindings were concerned: seven versus nine times in the Persian section; the three lacquer bindings in the Indian section are all described as being *papier-mâché*. This could point at a deliberate use of both terms: perhaps some boards were slightly damaged at the corners, revealing the material of the cores. If so, it signifies a difference between the two materials that is not specified. Did Haldane intend to define *papier-mâché* as a pulp substance, as opposed to pasteboard consisting of sheets of paper pasted together? On the other hand, if the core material of these lacquer bindings was not always visible, the terms could have been used randomly. Be that as it may, what is noteworthy is that the term *papier-mâché* seems to be used for lacquer bindings exclusively, though not consistently.

[125] See N.D. Khalili, B.W. Robinson and T. Stanley, *Lacquer of the Islamic lands* (1996); in this comprehensive work on lacquer objects, *papier-mâché* is used to describe the substrate (if it is not wood). Adam Gacek is more reserved, stating that the lacquer was applied on pasteboards "and possibly (especially in the later period) on *papier-mâché*"; A. Gacek, *Vademecum* (2009), p. 138. On page 29, however, discussing book covers, Gacek states "The most common boards were pasteboards which consisted of layers of sheets of paper, often reused, placed one on top of the other and glued together. *The same technique was used for what is known as papier-maché in connection with lacquered bindings*" (my italics). Avoiding any confusion, Déroche described the technique as being used on pasteboards, except for the few early examples made on leather drawn boards; F. Déroche, *Islamic codicology* (2006), p. 270. Moreover, when he discusses board materials he explicates: "Lacquer binding boards, [...], are traditionally dubbed papier mâché: this term in fact disguises the familiar pasteboard made out of layers of sheets of sized paper", p. 264.

Along with the increasing influence of Western styles on the decorative arts of the Ottoman empire in the eighteenth and nineteenth centuries, some technical adaptations or changes can be seen. In the section on Turkish bindings, the slipcase is mentioned as an example. Its appearance is associated with European influence and Haldane estimated its introduction in the first half of the eighteenth century.[126] In the same paragraphs the term "European format" is used to describe bindings without an envelope flap, as if to suggest that the type without a flap did not occur in earlier times, when the shape and design of the Islamic binding is not associated with Western influence.

5.3 *Porter*

In an instructive book that mainly covers the technical aspects and artistic considerations of Persian miniature painting, *Peinture et arts du livre* (1992), Yves Porter devoted one chapter to what he called "Reliure et operations particulières".[127] The study is based on historical treatises dealing with the craftsmanship of illuminators and calligraphers. Although the Indo-Persian source from the nineteenth century that Porter used to explicate binding techniques seems almost too recent to be informative on traditional techniques (*Resâle-ye jeld-sâzi*, dated 1812), actually it is very accurate in describing one of the characteristic features. There seems to be no other primary source explicitly making the distinction between the sewing system using two stations (*yek-bandi*, which would translate as 'one stitch') and the one using four stations (*do-bandi*, 'two-stitches').[128] The description of the latter includes the making of a loop on the spine, when the thread from the gathering underlying the one that is being sewn is linked to the sewing thread. This accords with the Islamic link-stitch sewing on four stations as described in Part Two, paragraph 2.1. [figs. 30-32] And what is more, the source actually suggests that sewing on four stations is profitable for elongated books.

Referring again to *Resâle-ye jeld-sâzi*, Porter struggled with the description of how the endbands were made; he indicates that the source text leaves out some steps in the process and is, in parts, too technical. The procedure includes the adhesion of a leather strip on the spine after sewing the textblock, then the preparation of the boards and continues with the sewing of the primary endbands. This seems to suggest that the leather strip is the spine-lining; had it referred to the endband cores, then the use of two strips would have been mentioned or one would expect that the position of where to put this leather – at head and tail – would have been explicated. The indication of leather, instead of cloth lining material, is all the more noteworthy as the treatise is a fairly late source; in this period cloth appears to be more commonly used for spine-linings than leather, but the text suggests that leather still was an appropriate choice for this specific application, at least in this geographic region.

The last detail of interest is the description of the primary endband sewing. It is advised to leave "un ou deux doigts de dépassement", not understood by Porter but it seems to indicate the distance between the edge of the textblock and the sewing position, or, to put it differently, the length of the tiedowns. According to the source, usually the space of two fingers should be left, while for smaller books one finger suffices.[129] This very practical instruction indicates the need for the artisans to be flexible in their approach and to have a sound understanding of the material artefacts.

---

[126] D. Haldane, *Islamic bookbindings* (1983), p. 140.
[127] Y. Porter, *Peinture et arts du livre. Essai sur la littérature technique indo-persane* (1992), pp. 117-124.
[128] Ibid., p. 119. The terms *yek-bandi* and *do-bandi* refer to the number of stitches visible in the fold-line of the gathering, not to the number of sewing stations visible on the spine. Both methods accord with the common link-stitch used for the majority of Islamic bindings. The highly unlikely method of sewing that Porter describes at the beginning of this chapter – each gathering is supposedly sewn individually and with an additional sewing these gatherings would be linked together on the spine – seems to be a result of the incomplete information in the source text. The erroneous explanation may have been caused as well by his limited understanding of sewing structures.
[129] Ibid., pp. 119-120.

Equally interesting is the quotation of a sixteenth-century traveller from France, Jean Chardin, who described the habits and trades of the Persian people. After expressing his disappointment with the poor quality of paper making, Chardin voices astonishment about the work of Persian binders. He states that it will be difficult to believe, but these binders do not even know how to bind a book properly in one piece of leather. Instead, he says, they take two pieces that are glued together on the spine, to which he adds that although they do this neatly, this seam will show in time. He cannot have realised how important this observation is to students of book archaeology, since other sources from this particular region and period are lacking. That Porter himself did not emphasise the value of the description is probably due to the fact that the binding craft is not his field and at the time, the two-pieces technique had not been described yet; nevertheless in giving Chardin's observation, he provided a remarkable historical affirmation of the two-pieces technique.

Porter also quoted William Hoey, the officiating city magistrate in the city of Lucknow, Northern India, in 1879-1880. As a licence and tax officer Hoey described and commented on the Indian trades and manufactures in the region, which included the bookbinders' trade as well. Hoey offers information on the costs of some of the materials and he describes the use and the making of pasteboard, which he calls "country-made" – just as he qualifies the sheepskins used for covering the bindings as country-leather. His account does not add anything to our knowledge of techniques but his overall impression represents the Orientalist view of the European being superior to the Oriental: "The work of the oriental bookbinder has not the durability or finish of English work. His appliances are rude, and consist of a wooden screw-press, called *shikanja*, a long steel blade, called *saifa*, for cutting the edges, and a long coarse needle, '*suja*', for sewing".[130]

5.4 *Gruber*

In a collective volume containing eight contributions covering a variety of aspects of Islamic book arts, Christiane Gruber expressly introduced the manuscript as an artefact, not just a carrier of text.[131] Her description of the development of the Islamic book structure, from the horizontal format in the first few centuries of Islam to the vertical format from the tenth century onward, and its particular features, captures the character of the binding tradition. "The folios of the book are sewn together and then affixed to the spine, thus transforming the binding into a kind of skin that is inseparable from the quires of folios. In their technical treatises on the subject, a number of practitioners in fact describe the various parts of a bookbinding by comparing them to parts of the human body, thereby stressing the functional integrality of a binding's constituent members".[132] This recognition of the implicit strength of the construction and the total absence of a reference to the covers being a separate product is a refreshing approach.

5.5 *Miller*

The historian and conservator Julia Miller wrote *Books will speak plain* (2010) as a handbook for identifying and describing historical bindings.[133] The use for such a handbook illustrates that binding historians are increasingly aware that the materiality of the book has high information value. Miller, an exponent of the Western book-tradition but acquainted with the Oriental book as she participated in a conservation survey project in the Coptic Museum in

[130] W. Hoey, *A monograph on trade and manufactures in Northern India* (1880), pp. 122-123. An interesting detail mentioned by Hoey is the use of marbled paper, called *abri*, and the observation that it takes two days to make twelve books.
[131] Chr. Gruber, *The Islamic manuscript tradition. Ten centuries of book arts in Indiana University collections* (2010), pp. 3-50.
[132] Ibid., p. 15; the practitioners referred to are the authors of the historic treatises, of which Bakr al-Ishbili's text is the most prominent example.
[133] J. Miller, *Books will speak plain. A handbook for identifying and describing historical bindings* (2010).

Cairo,[134] incorporated some information about the Near Eastern binding traditions in her outline of the Western book tradition.[135] However, she concentrated on the Coptic binding tradition, which received its own section heading and twelve pages, and clustered the other book cultures in the region under the heading 'Beyond Egypt'. Put in the shadow of Coptic bindings, the Islamic book practices are mainly referred to when decorative techniques and designs are concerned.

An exception is made when the Western book in the nineteenth century is described: "[...] by the end of the nineteenth century, the structure of the bound book was remarkably similar to some aspects of fourth- and fifth-century Coptic bindings and almost identical to the style that was consistently used in Islamic binding since the twelfth century: unsupported, link-style sewing, limited spine linings, and a case-like construction".[136] As this European case-binding is generally dismissed as inferior to the earlier products of hand-bookbinders, the comparison also disqualifies the Islamic book as a sound structure. In the glossary the Type Two binding is defined as: "By the twelfth century, the earlier styles of Islamic binding [e.g. the box-binding] had merged into the style that remained constant through the rest of the Islamic hand-bookbinding tradition. The structure has these features: unsupported link sewing with relatively few sewing stations, cloth spine linings brought over as text-to-cover attachments, and a distinctive style of endbanding. The covers were generally made off the book with goatskin over pasteboards, made flush with the text block with a fore-edge flap on the lower cover. The case-to-text attachment is generally through a tight-back spine and the spine lining extensions. Most bindings have narrow hinge strips spanning the board and text block, and usually have paper or leather paste-downs generally referred to as doublures".[137] Note that the function of the primary endband is not mentioned, nor is the use of leather as spine-lining material or the dual, structural function of this binding component.

The inclusion of ten pages of guidelines to conduct a physical condition assessment, especially directed towards Islamic manuscripts, seems contradictory to the minor attention paid to the Islamic structural features in the body of the book, even though they are hidden in Appendix 3.[138] The rather extensive overview of characteristics in these guidelines, though not exhaustive, provides important additional material information lacking in the chapters outlining the history of binding. The guidelines to describe binding and structure were meant to support cataloguers with a limited knowledge of the manuscript's materiality, hence the elaboration on the materials and their properties (such as ink, leather or boards), and structural details (such as accordion folds or limp bindings) are quite extensive.

5.6 *D'Ottone*

Early Yemeni bindings often blend into the category of so-called 'Mamluk' bindings, yet they are in some ways distinguishable. Arianna D'Ottone examined two collections of Yemeni manuscripts in the Vatican Library and the Ambrosiana Library and reflected on the historic

[134] In 2009, Miller joined the team that conducted a conservation survey.
[135] J. Miller, *Books will speak plain* (2010), pp. xii-xiii; Miller chose to include the near Eastern book tradition of the first millennium since this book culture clearly preceded and influenced the Western (European) binding tradition, and explicitly refrained from outlining "the long, rich, and interesting history of the many non-European binding traditions from around the world". However, while describing the development of the Western book tradition of the second millennium, comparisons are made with the Islamic book Type Two, and especially decorative designs as they occur on Islamic bindings from the twelfth or thirteenth century onwards.
[136] Ibid., p. 177; two pages on the disapproval of the Western variant of this structure is further explicated: "Modern hand binders did not care for the sewing style, the simple case construction, and the perceived weakness of the binding style. [...] a sewing-and-case structure designed to perform best on lightweight texts was often misapplied to books too heavy for it with a resulting high level of damage among such books".
[137] Ibid., p. 442.
[138] Ibid., pp. 402-411.

sources and some recent literature on the subject.[139] She focussed on the tooling of the covers in particular, and presented two conclusions. Her observations give evidence that the tools were heated before stamping. According to D'Ottone this method of tooling is still a matter of ongoing dispute although the historic texts do point to the use of heat. Secondly she observed the presence of decorated borders using epigraphical stamps, containing scripts with short dedications or devotional inscriptions. This particular characteristic is thought to be indicative of Yemeni bindings.[140] In referring to the historic documentation, D'Ottone understood from the text of al-Muzaffar that the leather decoration of bookbindings was executed before the leather was pasted on the boards; from the sequence of the procedure described, however, it can be deduced that the leather is dyed and burnished, then the boards are mounted which is followed by more polishing, and only then the covers are marked for tooling, if tooling is required.[141]

5.7 *An assortment of (mis)perceptions*

The 2010 catalogue *Treasures of the Aga Khan Museum* offers an appendix with a glossary of terms used in the arts of the book.[142] The entry "Islamic bindings" includes three drawings representing the three categories of Déroche. Especially the reference to Type Three is unfortunate since this glossary designates the flapless type as a western-type binding, even suggesting they may have cords or clasps. The drawing further suggests that the covers extend beyond the edges of the textblock, which is also a Western feature. For additional information on the subject the reader is referred to Déroche, as if the information provided already derives from *Islamic codicology*. However, Déroche himself did not indicate a similarity between Western bindings and the Islamic binding Type Three, apart from not having a flap. Although the drawings in both books resemble one another – the ones in *Treasures* are obviously based on Déroche's – the original drawing clearly lacks the projecting boards.[143] Under the same entry in the glossary it is indicated that "The earliest Islamic bindings were box bindings or case bindings". Again this illustrates that the perception of the Islamic manuscript as a case-binding structure is widespread and very persistent.

Other myths of the structure's weakness can be found in many varieties. In a work about Qur'an manuscripts Colin Baker writes that "decorative endbands were not part of the primary sewing structure of the book, but, when used, were generally made with two coloured threads tightly woven together".[144] It suggests that the endbands are optional, though they certainly were not; they are very much part of the sewing structure. Another example is the introduction to the Islamic bindings preserved in Malta.[145] "The book was chain stitched [...]. The book was then attached to the cover from the endpapers that were first tipped to the textblock, though they [the textblock spines] were sometimes lined with thin cloth. The result was that many bindings came apart from the textblock". Somewhat further on it continues "The covers were cases made off the book". The suggestion that textblocks were only incidentally lined is incorrect, just as is the generalisation that endleaves were

[139] A. D'Ottone, 'Some remarks on Yemeni medieval bookbindings' (2007). "As for the type of book covers these Yemeni manuscripts belong to the most common Arabic-Islamic type of bookbinding that is the bookbinding with the fore-edge flap [...] even if sometimes this fore-edge flap has gone", p. 52.
[140] Ibid., pp. 52-54.
[141] Ibid., p. 50. See also A. Gacek, 'Instructions on the art of bookbinding' (1997), p. 63.
[142] M.S. Graves and B. Junod (eds.), *Treasures of the Aga Khan Museum. Arts of the book and calligraphy* (2010), pp. 351-354.
[143] See F. Déroche, *Islamic codicology* (2006), p. 258 and M.S. Graves and B. Junod (eds.), *Treasures of the Aga Khan Museum. Arts of the book and calligraphy* (2010), p. 352.
[144] C. Baker, *Qur'an manuscripts* (2007), p. 106.
[145] J.E. Critien, M. Camilleri, J. Schirò, *Fine bookbindings from the National Library of Malta and the Magistral Palace Library and archives, sovereign military order of Malta, Rome* (1999), p. 21.

tipped on. The authors probably indiscriminately copied from Bosch et al. when they wrote that covers were made as a case.

6 Structure as a conservation issue

Over the last few decades, several contributions on conservation topics have been published featuring Islamic manuscripts. Of course, topics include both condition problems of the textblock or binding, as well as structural form. For the present study, textblock-related problems such as copper corrosion or ink flaking are not relevant; papers on these issues are therefore not included. Of interest are all publications concerned with the structure of manuscripts and the materials used for their production, whether they provide conservation options or merely refer to the Islamic binding tradition. Reading these contributions, we should keep in mind that most of these authors are conservators trained in the Western book tradition. Their perspective is formed subconsciously by a standard based on the products of Western binding methods. The use of this standard to qualify structures and materials as they occur in the Islamic tradition is debatable, yet without more thorough knowledge of the exotic structure, decisions were based on this reference frame.

6.1 *The eighties and nineties of the twentieth century*

Although the first more or less experimental conservation treatments must have been carried out earlier, the first published reports to be found in professional journals are from the late eighties and early nineties of last century. Indeed, the first article even indicated a transitional period, as Islamic book conservation was moving towards a more professional level. In 1987, William Bull, member of the Society of Bookbinders and Book Restorers, stated that the practice to rebind Islamic manuscripts by Western methods was widespread. He described the usage of the Western method of sewing on supports and the construction of the 'hollow back', of which he wrote: "Both of these western methods of binding are of course perfectly good in themselves, but it has surely been a mistake to apply them indiscriminately to Islamic manuscripts to which they are almost always ill suited in one way or another".[146] He recommended the use of an alternative structure; the Islamic structure itself was also dismissed, since "deficiencies are known to exist".[147] Bull acknowledged the individual character and subsequent conservation needs of each manuscript before he described the treatment of one particular case. The suggested sewing structure consisted of a link-stitch sewing on multiple stations with the outermost sewing stations close to head and tail, the exact number depending on the size of the manuscript. The textblock spine was then to be lined with alum tawed goatskin. Additionally, the proposed new binding would be made with a hollow spine, using a flexible board in the hollow.[148] This construction was thought to provide protection and to enhance the book's functionality, especially with regard to the wish to achieve 'a flat opening'.[149] The considerations and treatment testify to a growing awareness of the characteristics of the Islamic book and of the shortcomings of Western binding techniques for these objects, yet, the proposed treatment was developed from a Western point of view.

In 1990, in accordance with Bull's observations, David Jacobs and Barbara Rodgers wrote that many of the Islamic manuscripts in the India Office Library had been rebound in Western styles, which were no longer considered appropriate and sometimes downright

[146] W. Bull, 'Rebinding Islamic manuscripts: a new direction' (1987), p. 23.
[147] Ibid., p. 31.
[148] Ibid., pp. 33-34.
[149] Ibid., pp. 31-32. Bull explained that the Islamic *rahl* allowed the manuscript to open only to 90 degrees, but the flat opening (an angle of 180 degrees) was required because of the Western bookstands used at the time.

dysfunctional and harmful to the objects. Therefore, the Binding Studio of the British Library was to develop a new method of binding, keeping in mind the demands of library use.[150] Their paper is an account of the new guidelines they developed and the methods which were used in that new context. Whenever resewing was required, the original structure was indicative for the new structure. That is, the old sewing stations could be used, but often positions were changed and stations added in order to reduce the strain on fragile paper or to stabilise large-size manuscripts. As an additional safety measure the chain stitch was often upgraded with an extra twist or knot to prevent the thread from pulling the fragile spine-folds of the paper.[151] Although the applied new endband structures were made to conform to the traditional Islamic endband, the sewing structure was 'improved' according to Western standards but Islamic techniques were used. The method described to attach the boards and to cover the manuscripts in full leather is based on Western techniques. As the drawing of the leather application shows, the leather was turned-in on all edges including the head and tail of the spine.[152] Endleaves were added because they were thought to enhance the board attachment. It is also noteworthy that boards were made slightly larger than the textblock (so-called square), supposedly in order to protect the edges of the textblock better than the original boards – which were flush to the edges – ever did. Especially since all the manuscripts were to be stored in clamshell boxes, this extra 'improvement' of the structure is remarkable. In my opinion this is a typical consequence of the Western perception of what constitutes 'sound structures' combined with a rather uniform preservation approach, in which the individual requirements of these artefacts are not always recognised.

In the same year Scott Husby presented a paper at the conference of the American Institute of Conservation, on the treatment of a number of Islamic manuscripts as preparatory work for an exhibition ('A jeweller's eye', opening November 1988) in the Freer and Sackler Gallery of the Smithsonian Institution.[153] The mainly fifteenth and sixteenth-century volumes suffered from inadequate rebindings in improper structures, or their condition "reflected [...] most common problems in books from this time and area. [...] The very weak sewing structure so typical of traditional Islamic bookbinding had broken down". Because the link-stitch sewing structure was disqualified as a proper structure, a different method was chosen when the textblocks needed resewing. Either a long-stitch sewn through a laminated support of airplane linen and Japanese paper was used, or a link-stitch was sewn all along the length of each gathering on more stations. The second option was combined with a subsequent spine lining of Japanese paper and airplane linen. Remarkably enough it was decided to not replicate the endbands. Although considered attractive, "in order for the chevron pattern to really show, these headbands need to be fairly wide which contributes to restricting the opening a bit and creates a point of vulnerability at the head and tail of the folios where the pages must flex around the tie down threads".[154] Clearly the interventive treatment was given serious thought. Yet, the function of the Islamic endband was not understood, and aesthetical considerations prevailed over practical solutions. While an endband could easily have been sewn on a small core, which would preserve the endband function without hampering the manuscript's opening, this was not considered worthwhile. The final result of this eclectic treatment reflects the general misconception of the traditional structure. Overlooked was the critical relationship of the endband sewing with the relatively simple link-stitch sewing and

[150] D. Jacobs and B. Rodgers, 'Developments in the conservation of Oriental (Islamic) manuscripts at the India Office Library, London' (1990), p. 110.
[151] Ibid., pp. 117-119.
[152] Ibid., p. 125. Neither text nor drawing explain the reason for this explicitly, but as the making of turn-ins across the spine was such a routine procedure in Western bookbinding, it probably was not given any particular thought. It does illustrate though, that the Islamic tabbed spines were not recognised.
[153] S. Husby, 'Islamic book conservation' (1991).
[154] Ibid., pp. 46-47.

spine-lining, and therefore a treatment was applied to 'solve' the problem through a Western approach. The observation that wide endbands could cause tension and hinder the ease with which a manuscript can be opened may be true, but for conservation purposes one only needs a small endband core and tiedowns to connect each gathering and the lining; the visual quality of the secondary endband is – for conservation purposes – of secondary importance.

Finally, a treatment report of a late medieval Yemeni manuscript, published in 1996, should be mentioned.[155] The manuscript had been rebound in an unsympathetic Western quarter binding and the book did not function well because of the excess of animal glue on the spine. The manuscript's paper was degraded and damaged, and, according to the report, it was decided that the paper was to be leafcasted, and a new binding had to be made. The conservation approach is well accounted for: "The conservation binding of the Yemenite Taj was designed to be sympathetic with Middle Eastern binding styles, but also durable and functional".[156] This already presents the point of view: the durability and functionality of Middle Eastern binding styles is not relied upon. The subsequent choice for a supported sewing and a Western binding structure is further explained in the following paragraph: "Middle Eastern bookbindings, it is safe to say, are typically structurally weak. The weak points in the classic form include the sewing (sometimes using silk, and no sewing supports), a flexible spine (using a single lining of cloth), and weak connections to the cover. Covers were usually made as a case, that is made separately from the textblock".

6.2 *The first decade of the twenty-first century*

The increase of articles and papers dealing with the examination and preservation of Islamic manuscripts of the past decade is indicative of maturation in the field. As Nil Baydar phrased it, while addressing traditional features and conservation problems of Turkish manuscripts: "Although there are not enough trained conservators in Turkey who adopt an ethical approach to conservation, conservation has recently and gradually become a field of science".[157] In this paper Baydar touched on the method of board attachment and leather application only briefly, without actually indicating the technique(s) used to produce the book. Although the sewing structure is also not discussed in great detail, it is stated that sewing stations were made by cutting or sawing the spine of the textblock. Furthermore this technique is said to be not just Turkish but used throughout the Islamic world.[158] The manuscripts in the UBL collection do not confirm this, nor do any of the literary sources to my knowledge. Usually, the gatherings are just pierced with a needle or perhaps pre-pierced with an awl. As a spine-lining material, Baydar only mentioned textile and paper. The omission of leather is significant, not only because leather was the principal lining material in the first centuries of the Ottoman era; it also seems to indicate that the leather joints in those manuscripts are not recognised as being part of the spine-lining and, as such, a structural component of the manuscript.

In 2010, at another IIC conference, Baydar presented some characteristics and techniques used in Islamic book making that have only recently been recognised.[159] One of them, concerning structure, is the wrapper binding with unsewn textblocks.[160] Specimens were located in Cairo (Egypt), Constantine (Algeria) and Konya (Turkey), all through rather

[155] G. Ruzicka et al., *A Yemenite Taj. A case history in cooperative book conservation* (1996).
[156] Ibid., p. 8.
[157] The paper was a contribution to the IIC (International Institute for Conservation) congress in Baltimore, 2-6 September 2002. See N. Baydar, 'Structural features and conservation problems of Turkish manuscripts and suggestions for solutions' (2002), p. 10.
[158] Ibid., p. 7.
[159] Idem., 'Newly identified techniques in the production of Islamic manuscripts' (2010), pp. 69-73.
[160] This type is discussed in Part Two, paragraph 2.6. See also K. Scheper, 'The conservation of the Middle Eastern manuscript collection in the Leiden University Library. Results of a conservation assessment survey' (2008), p. 68.

quick surveys in parts of the extended collections in the institutes involved. From this it must be assumed that more examples of this specific manuscript type will be found when one would actually start to look for them.

At the same conference Kristine Rose addressed the two-pieces technique, which she observed during a conservation project of the Turkish collection at the Chester Beatty Library; this was the first time that attention was paid to the use of two pieces of leather to cover full leather Islamic bindings.[161] Nearly half of the thirty-two manuscripts in this collection that needed extensive treatment appeared to be constructed using this technique. None of those manuscripts were very large and although they greatly differed in age, dating from the sixteenth to twentieth century, they were all produced with great care, and the overlapping pieces on the spine were hardly visible. Rose concluded that the occurrence of the technique is significant, for it does not corroborate with the case-binding structure usually associated with the Islamic binding tradition. The suggestion that this technique makes much sense on a practical level because it offered ways to economise on materials is true, as is the remark on the possible use of the technique to allow for a better fit of the binding.[162]

A third contribution at the IIC conference in 2010, by Silvia Pugliese, provided information on some other features.[163] Pugliese reported on the conservation project of the Oriental manuscript collection in the Marciana National Library, Venice. Roughly a hundred manuscripts retaining original Oriental bindings were examined, and the technical information was recorded. The thread used for the link-stitch sewing was analysed and appeared, in two-thirds of the cases, to be made from plant fibres while the remaining manuscripts were sewn with silk. Pugliese also mentioned the use of coloured thread for page-markers, stitched to the front-edge margins of the page. As a variation, bookmarks were also encountered consisting of longer strands, tied to the head endband.[164] Pugliese observed that most spine-linings were made of undyed fabric, others consisted of either leather or dyed cloth. She described over two-thirds of the original bindings as being covered in full leather, without mentioning, however, whether the two-pieces technique was noticed or not; presumably this oversight was due to unawareness of the existence of the technique and the thus the possible difference in composition that one must look for. The remaining manuscripts were made with partial leather bindings that had coloured or marbled papers on the boards. Subsequently, the majority of the bindings were described as case-binding structures, and as most of them had a flap, they were indicated as Type Two bindings. More interesting is the description of five limp bindings.[165] These limp bindings seem to be of Oriental origin and consist of brown leather without a flap, some of them with turn-ins, of others the leather was cut flush to the textblock. The textblocks of these items are sewn with the predominant link-stitch and the leather is, as usual, directly applied to the spine.

[161] K. Rose, 'Conservation of the Turkish collection at the Chester Beatty library: a new study of Turkish book construction' (2010).
[162] Ibid., pp. 48-49.
[163] S. Pugliese, 'Islamic bookbindings in the manuscript collection of the Marciana National Library in Venice' (2010).
[164] Ibid., p. 53. In the Leiden collections these fixed page-markers are not uncommon, but the bookmarkers affixed to the endband were only encountered three times, and on manuscripts of fairly recent date.
[165] Ibid., p. 53. Images of these limp bindings were not included and for lack of a more detailed description a comparison with the Leiden specimens is not possible. (Unanswered questions are: Do these manuscripts have an endband sewing and are there signs of a spine-lining? Are they completely without boards and were doublures applied?) Still, the presence of such limp leather bindings in other collections seems to suggest a wider use of this particular binding technique. The limp bindings are discussed further in Part Five, paragraph 4.4.

As part of a graduate programme (2005), Katherine Beaty investigated the materials and the structure of an eighteenth-century Qur'an. Introducing the treatment of the Qur'an at hand, Beaty described the book tradition briefly and stated that "Islamic bindings are made off the book similar to a case binding".[166] This illustrates how easily young professionals copy from the literature whilst the counter-evidence is in front of them, on the workbench in the form of a real object. Indeed, almost immediately following that assertion she described the damaged manuscript at hand as a full leather binding made in two pieces. She observed that "[...] when each board was covered, a flap of leather was left at the spine [...] pared so thinly [that] the two leather surfaces blend together, so that the overlap is barely visible. [...] the flaps of each of the boards can be pasted over the spine individually".[167] Beaty in fact disqualified the structure as a case-binding by describing the technique that she observed had been used to make this binding. With respect to treatment decisions, familiar conservation techniques and materials – deriving from Western book conservation – were preferred over authentic techniques. Thus, Japanese paper was chosen as a spine-lining material instead of cloth, even though cloth would have better supported the primary endband sewing and board attachment. Furthermore, the repaired cover was reattached by means of a paper hollow tube, decidedly a Western invention.[168] Beaty accounted for the alteration of the structure by explaining that this solution enhanced the opening of the textblock without putting stress on the spine.[169]

6.3 *Model making practice*

One of the best ways to try and thoroughly understand a book structure is to make models of it. When an opportunity presented itself in 2002 to do so under the guidance of an experienced conservator, I attended a *Fortbildungskurs* entitled *Der orientalische Bucheinband,* at the *Fachhochschule für angewandte Wissenschaft und Kunst*, in Hildesheim (Germany). The experience was extremely useful, not least because the manuscript structure we ended up producing was not exactly an Islamic one. Notwithstanding all the images we looked at and the characteristics we discussed, the final product was a hybrid binding, with both Islamic and Western features. This was done intentionally, at least for a large part. The instructor explained the adaptation of the sewing structure (we had to sew the gatherings through the cloth, used as the spine-lining afterwards) as an improvement to the otherwise weak structure. The leather turn-ins we made at head and tail of the spine – instead of tabs – were not explicitly accounted for, and none of the students questioned this particular aspect. In retrospect, I think the tab was just not recognised as a characteristic at the time. Also typical for a Western interpretation of a poorly-understood feature was the way we applied a leather inner joint. Instead of using a leather spine-lining with flanges, or – the other possibility – an additional strip of leather pasted as a guard in the joint, we applied the strip of leather even

[166] K. Beaty, '21st century remedies to 19th century repairs of an 18th century Koran: materials analysis, treatment, and housing' (2005), p. 4.
[167] Ibid., p. 4.
[168] Ibid., p. 17. The initial use of hollow backs followed from the desire of late sixteenth century Western binders to decorate the flat spines of their leather bindings lavishly with gold; tight spines inevitably had to flex so much that a rich decoration was bound to lose its lustre. The introduction of the hollow tube followed from this development. The paper hollow has its merits in book conservation. However, since its use alters the functioning of an Islamic manuscript to such a large extent and also introduces new tensions in the structure, the application of a hollow is not an obvious solution. Apart from the structural consequences, the leather covering and specifically the spine endings need to be considered. A tab on a hollow would make an odd and hybrid solution, while a turned-in leather spine, as Beaty chose to make, is not an elegant option either, even though it is consistent with the Western interpretation of the binding.
[169] For less explicit reasons the method is also described as a current conservation option by Valentina Sagaria Rossi, see the reworked and extended manual based on *Manuel de codicologie*: F. Deroche and V. Sagaria Rossi, *I manoscritti in caratteri arabi* (2012), pp. 36-38.

before sewing the textblock. It was folded around the outer gatherings and sewn with the textblock, similar to the leather joint strengtheners used in the nineteenth century on Western printed books.

Five years later another workshop was offered at the University of Melbourne. After a three day symposium on the care and conservation of Middle Eastern manuscripts, a two day workshop on structure was organised by the Centre for Cultural Materials Conservation, of the University of Melbourne, Australia, in November 2007. Again I was fortunate enough to attend. Partly because of the wealth of information exchanged in the three days prior to the workshop, I expected a more authentic approach. Nevertheless, once more the model we were to make was adapted to Western standards. Interestingly, the instructor justified the decision to change the structure (we used a link-stitch sewing on four stations in the way Coptic manuscripts are sewn) for reasons of strength. It was argued that the damage of many manuscripts – detached boards, broken joints, deteriorated sewing thread – proved the flaws in the structure. However, it is debatable if the additional stations, so close to the position of the tiedowns, really increase the strength of the structure significantly. I also questioned the necessity to aim for an increase in strength for manuscripts now kept under museum conditions, or those used sporadically in research institutes. Much of the damage many manuscripts suffer is strongly related to intensive use, real wear and tear, combined with the natural aging of the materials. Nonetheless, I made the model according to the instructions given. Apart from the 'improved' sewing structure, we made turn-ins at head and tail of the spine, and the leather inner joint was applied (as a variant of the sewn joint strengthener in the 'Hildesheim model') by gluing the leather strip around the spine-fold of a loose bifolio, that subsequently was adhered onto the spine edge of the outer gatherings. Thus, the smaller side of the leather guard was hidden between two pages stuck together at the spine edge, and the other, broader side was used as the inner joint. The extra bifolio functioned as an endleaf in an un-Islamic fashion, adding to the final result of a hybrid model that gave the impression of being an Islamic manuscript, but, when closely examined, shows details not found on authentic manuscripts.

The inclination to improve the original structure and adjust it using Western binding elements appeared to be persistent among Western conservators. At another, more recent workshop on Islamic bookbinding that I did not attend,[170] many images of original bindings were shown and the 'general' binding technique was discussed, including information concerning the application of the leather covering with the one or the two-pieces technique. Subsequently a model was made using most of the original features, but again for reasons of strength some Western binding elements were introduced on purpose.[171] It seems this practice is not restricted to model making; the same approach is recognisable in the conservation approach of many conservators who are rooted in the Western book tradition.

Coming from that Western tradition myself, the tendency to compare the two traditions is not at all unfamiliar to me. Indeed, my initial acquaintance with Islamic manuscripts and their sometimes poor condition made me wonder why the binding tradition appeared to be such a conservative one. I asked myself why, when so many items clearly did not survive the ages intact, was the construction not altered over time? For comparison, I looked at the materiality, the structure and appearance of the Western book, which displays major changes over the centuries.[172] For what reasons did Islamic bookbinders abide by this

[170] A one-week course was held at Montefiascone, Italy, 2011. One of the attendees was so kind as to discuss the produced model with me.

[171] The tab, for example, was intentionally not made, a turn-in at the head and tail of the spine was made instead. The instructor acknowledged that turn-ins are not generally found on Islamic bindings, but it was felt that the joints would be stronger with turn-ins, and therefore this adaptation was standard procedure for conservation and rebinding purposes.

[172] That is not to say that the development in the Western bookbinding tradition is an upward trend in terms of strength or quality. On the contrary, for a large part the technical and material changes reflect

one structure, although they did develop new decoration patterns and embellishment techniques? Fortunately, conservation treatments offered the opportunity to see and feel the physical evidence of the varieties and the intrinsic strength of the constructions. Based on these original structures I started to make more models, in which I refrained from alterations and supposed improvements. These model objects, with their new materials still in full strength, effectively show that the Islamic manuscript structure is not a weak one. The construction is the result of the aim to produce a manuscript which can be made fairly quickly, and yet is functional and durable. The flexibility within the structure leaves all options open with regard to the final product; whether modest or luxurious materials and decoration techniques were to be used was entirely up to the binder or commissioner. This answered my questions adequately.

The misinterpretation and depreciation of the Islamic binding tradition is of fundamental importance in the discussion of how these objects are best preserved. Usually, the Islamic tradition is explained in a single-model format, which overlooks all the distinctive variations, and then the format is disqualified as a proper structure. This point of view is the basis of many binding courses and conservation instructions, which has huge consequences for the care and conservation of Islamic manuscripts. The inclination to explain the Islamic manuscript structure by comparison with Western techniques or bookbinding developments, and to compare isolated techniques with Western counterparts without the context of the whole construction, should change.[173] Ultimately, the essence of conservation is that we do *not* think in terms of single formats and uniformity, but instead, of individual manuscripts and heterogeneity. Accordingly, every item then requires an individual approach carried out by an attentive conservation expert.

7 The sum of the parts

The literature on Islamic manuscript structures goes back nearly a thousand years. These historic documents have a clear and direct relation with most of the manuscripts produced in the Islamic world, either contemporary with the treatises or made in the centuries afterwards. The historic treatises not only inform us about bookbinding techniques, they also provide a wider view of the bookbinding workshop, introducing the tools, equipment and adhesives that were used by the craftsmen. These treatises are not precise enough to guide a novice in the trade through the whole process of manuscript manufacture; the instructions are sometimes almost fragmentary and not one of the historic authors describes the final stages of the binding procedure. However, the great value of these primary sources for present research is that they serve as a benchmark for the physical objects that have survived and were surveyed in this study. Although they do not describe every binding feature that can be found, still many characteristics are represented and, most important, the differences in structure that were encountered appear to be actually documented. Thus these historic documents validate the research findings and provide a further argument to reconsider the current characterisation of the Islamic binding structures.

The bulk of the secondary literature has been generated over the last fifty years, and laid a firm foundation for further studies. Ground-breaking work was done by scholars who

---

the response of binders to developments in the book market, the ever increasing demand for more and affordable books. In addition, it seems we easily forget that from the preserved medieval Western books, also only a very small number of manuscripts survived in their original bindings, often damaged or repaired to the same extent as their Middle Eastern counterparts.

[173] At the thirteenth Symposium of care and conservation of manuscripts in Copenhagen, in October 2012, I examined this inclination to regard the Western bookbinding tradition as superior over Islamic bindings; the paper was published under the same title: 'Neither weak nor simple. Adjusting our perception of Islamic manuscript structures' (2014).

were not material specialists; their lack of expertise in this area explains some misinterpretations but at the same time makes their achievement all the more impressive. Over the last decade the number of publications has seemed to multiply, addressing diverse aspects of the physical manuscript. There appears to be a widely felt need to classify these manuscripts, which is illustrated by the general embrace of the typology introduced by Déroche. Many recent reference works as well as publications on conservation issues refer to Type One, Type Two or Type Three bindings as appropriate. However, it has also become apparent that this typology does not suffice as a system for classifying the real differences in structure.