# The Islamic Bookbinding Tradition. A Book Archaeological Study

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## 1 Recapitulation

This study set out to challenge the idea that bookbinding structures in the Islamic world were unchangingly made as weak, faulty constructions, based on the simplest link-stitch sewing system and a case-binding design with only limited connection between textblock and binding. In my conservation practice I found convincing evidence for a very different premise: the Islamic book tradition consists of and displays several different local traditions, a variety of structures, and there is a development over the centuries in the use of materials and techniques. Moreover, these structures are, in general, adequate and strong. To substantiate that new idea, all volumes from the Middle Eastern manuscript section and the manuscripts in Arabic script from the Southeast Asian section of the Oriental collections in the Leiden University Library containing original bindings and sewing structures, were assessed and relevant data was organised in a searchable database built for the occasion.

What this study also wanted to investigate was the possibility of classifying the Islamic bookbinding tradition with a more refined system than the 'Three Types' introduced by François Déroche. The box-binding (Type One) may irrefutably be an easily identifiable phenomenon, it is also a binding type that was only made in the very first centuries of Islam of which few specimens have survived. The other two categories (Type Two and Three) are distinguished solely by the presence or absence of the fore-edge and envelope flaps. It was felt that this subdivision was not so useful. First of all, the manifestation of a flap on a typical Islamic binding does not make that binding *more* Islamic than a typical Islamic binding without a flap. Additionally, the assumption that Islamic bindings without a flap are products of the last few centuries, made under the influence of Western books, was refuted by the UBL collection, since a substantial number of flapless bindings were found in the Warner collection, which came to Leiden shortly after 1665. Moreover, other distinctive characteristics were noticed, leading to the idea that such physical particularities might represent distinctive local and/or datable traditions. From conservation experience and preliminary investigations in the collection prior to the present study, it seemed at least possible to single out the Southeast Asian insular tradition as a specific and identifiable bookmaking culture. With regard to that particular region, further questions arose: What binding elements were due to the 'foreign' influences, and what features were of local origin and unique? And in addition to these questions, it seemed logical to ask: What other regional specific traditions – even if they were used for only a limited time – can be identified in the rest of the vast Islamic world? The assessment of the Leiden Oriental collections was designed to address these questions, and to examine the idea of a refined classification system.

It was felt that the point of departure, due to my technical interest and experience as a conservator, would guarantee a novel, craft-based approach and an insight into material aspects which have not been used to examine Islamic bookbindings, or the historic treatises on the Islamic bookbinding practice, so far. Additionally, I widened the scope of the research by verifying or testing findings from the physical assessment and the literature analysis through the making of models. This practical component in the study provided a unique opportunity to scrutinise actually used techniques and technical details or unexpected divergences. It also formed a basis to analyse the few existing historical treatises on Islamic bookbinding from a different perspective, and thus, already known sources proved to offer new insights into the bookbinding tradition. It is important to note that this method of analysis is not yet exhausted; the historic sources are not completely available in translation and as a consequence, the present study was based on only those parts or summaries accessible in English.

## 2 Development of the tradition

### 2.1 *The archetypal Islamic manuscript structure and binding*

The results from the survey testified that an archetype of the Islamic bound manuscript can be defined, but the multiplicity of techniques and materials used was also demonstrated. The Islamic manuscript is predominantly sewn with an unsupported link-stitch sewing, the textblock spine is lined and the lining material supports a traditional endband, consisting of a primary sewing and secondary, decorative sewing. The sides of the lining, projecting beyond the width of the textblock spine, are also used to strengthen board attachment. Furthermore, we have seen that most bindings were built on the textblock in stages, which could involve the partial preparation of the individual boards, separate from the textblock. By using this common language, bookbinders produced artefacts with a clear cultural identity, and as the structures of these manuscripts were functional, fairly durable and not complicated as a binding procedure, there was little further need to develop or alter the construction. Nevertheless, within the basic and archetypal binding structure the craftsmen found opportunities for personal interpretation. For example, the more or less equal occurrence of leather and cloth spine-linings over a long period of time and a large area, indicates that there was no shortage of one of these materials. Therefore, the choice of either leather or textile was probably transferred from master to apprentice without a particular technical implication, or it can be attributed to personal preference.

With most archetypal Islamic bookbindings an envelope flap is attached to the back board. Flaps are found with the oldest surviving examples from Mamluk times and they were applied throughout the Ottoman era. Thus, this distinctive Islamic feature spread from the Arabian peninsula to Spain and West-Africa, the Balkans, Central Asia and the Indonesian archipelago. However, the flap could be omitted while other archetypal characteristics of the binding were preserved; such bindings were first made in Turkey, in the early sixteenth century. It appeared that in total, nearly 20% of the bindings were made without a flap. Nevertheless, the envelope and fore-edge flap became the typical feature par excellence, directly associated with Islamic culture. Eventually, these flaps were also frequently attached to Islamic bindings not made in the archetypical way, for example, with a stabbed textblock or sewn on sewing supports. This illustrates the need to distinguish between archetypal appearance and archetypal construction; the two can overlap, of course, but each of them can exist in combination with various traditional or borrowed techniques and materials.

From close observation of the covering techniques, important new insights were obtained. Even though the existence of the two-pieces technique was not entirely disregarded before the present study, its frequent and early use – the earliest occurrence dates from the thirteenth century – was unknown. Moreover, up to the eighteenth century, bookbinders appeared to prefer the two-pieces technique over the use of one piece of leather for making full leather bindings. Furthermore, the two-pieces technique was occasionally used for partial leather bindings. Within this group, the overlapping parts of leather were found on a number of partial leather bindings with a paper covering on the boards, and on all the lacquer bindings. In the light of the popularity of this technique, it is also noteworthy that the survey outcomes display such a significant decline in its usage over the nineteenth century, resulting in its possible disappearance in the twentieth century. The rationale behind this development, the shift of preference from the two-pieces technique to the method of using one piece of leather, is as yet not known.

Of the partial leather bindings, no dated examples were found from before the sixteenth century. Comparing the full leather bindings with the partial leather bindings, it is worthwhile to mention the dominant and continuous use of leather. Even though the covering scheme of the partial leather binding became a common technique, it never was the prevalent method, and the use of decorated papers appears to be closely related to larger centres of bookmaking in which decorated papers could easily be obtained; in peripheral

areas the consistent use of full leather bindings may signify the unavailability of decorated papers in those regions. At the same time it is important to note that the partial leather binding is consistently manufactured with papers that were in some way decorated. When the papers are not marbled or block-printed, they at least are dyed in one colour such as olive green or pale red. This seems to suggest that this covering technique was never meant to be the cheapest possible product.

Another significant, and so far disregarded technical aspect is the application of the leather covering on the textblock spine, which offers essential information about the construction of the bindings. The large number of tabbed spines that were found convincingly point at a technique in which the binding is assembled on the textblock; moreover, the even more prominent absence of turned-in spine endings clearly signifies that the Islamic binding is not made as a case structure apart from the textblock. Only a few exceptions were found, and most of these manuscripts belonged to the group of unsewn textblocks with connective strips and wrapper bindings. For that particular group of bindings, the use of the turn-in technique at head and tail of the spine of the binding – continuous with the turn-ins over the board edges – is completely logical. Indeed, this technical characteristic actually supports the idea that Islamic bookbinders used techniques that were best suited, from a practical and economic viewpoint, for a certain binding type.

### 2.2 *A varied repertoire*

Apart from the archetype, and the different materials that could be used to manufacture that type, we have seen the development of different structures and binding types. It is likely that this development was promoted by a growing market and a wider reading public. Binders must have felt the need to develop bindings for a less prosperous clientele and the limp leather binding that emerged in the seventeenth century is an example of such a new binding type. The bookbinding practitioners probably anticipated and responded to the changing market, for example by offering note-books for personal use in a portable format, in varying degrees of luxuriousness.

Other changes were made in the sewing structure; we have seen the appearance of the link-stitch on four stations, which was possibly developed as a repair sewing technique. From the manuscripts studied it can be concluded that Islamic bookbinders adjusted their traditional techniques pragmatically and sensibly. For example, when thin texts comprising only two or three gatherings needed to be sewn, the archetypal construction was often adapted. Clearly, binders understood the structure well enough to be able to do so: refraining from the primary endband sewing, as in the case of the thin textblocks, required an extended link-stitch sewing. Similarly, in the nineteenth century we see variations of the predominant structure that appear to be a response to the altered materials the binder needed to work with, as in the case of the gatherings of thin and fragile machine-made paper, which were sewn with a link-stitch on four stations to divide the possible strain on the paper, caused by the sewing thread, over more sewing stations.

### 2.3 *Transmission of techniques and methods*

As the geographic boundaries of the Islamic world changed over the centuries, they included many cultures and ethnic groups in its different regions. With the spreading of Islam and the Arabic script we see that the manuscript tradition as a whole was disseminated. How this process came about is unknown. Did bookbinders from the established centres travel, and did they set up workshops and teach their art in the new regions? Or did indigenous craftsmen learn the new binding language by examining and imitating the manuscripts which were brought by their new rulers? It is likely that the portability of manuscripts eased the distribution of the craft. Thus, the bookbinders may have adopted Islamic features, or even complete structures, dependent perhaps on the adaptability of the techniques to their native methods. When we consider the fairly strong individual tradition in Southeast Asia, the

course of events probably evolved according to the latter scenario. Indeed, if traditional bookbinders had been brought from the established centres in the Middle East, it is not likely that they would suddenly have developed such a diverging form of their craft, including more complicated sewing structures and frivolous endbands. If, on the other hand, local craftsmen set out reproducing the imported manuscripts, they would necessarily have copied the manuscript structures and bindings by interpreting the archetypal manuscripts they had as examples. Before Islam was introduced in Southeast Asia, there was no culture of the codex. Texts were written mainly on palm-leaf, bamboo or tree bark. Also, it would have been quite logical to introduce region specific materials such as dluwang, and rattan or bamboo. In addition, for this specific region we have to keep in mind that the Islamic culture was not the only important influential factor; there may also have been European books which could function as an example for bookbinders, which seems a likely explanation for the occurrence of the use of sewing supports in some of the Southeast Asian Islamic bindings.

Another important discovery was made during the survey of the Malay collection in the UBL. It became apparent that a substantial number of manuscripts that I would have selected because of their binding characteristics, were beyond the scope of my survey since they did not conform to the criterion of script. These manuscripts were not written in Arabic but it scripts such as Javanese or Buginese.[1] The fact that the Islamic bookbinding tradition has been used for manuscripts in scripts other than Arabic, is noteworthy, and even more so that the content of some of these volumes can be originally associated with Hindu culture, as is the case with the Ramayana. The common format for manuscripts originating from the Hindu culture is very different from the codex; the textblocks have an elongated horizontal format and consist of single sheets; the leaves were not sewn.[2] The codex format was introduced in Southeast Asia with the advent of Islam, together with the Arabic script, and as we have seen, the Islamic community in this region left its mark on the Islamic binding tradition with a change in the sewing structure and the addition of the characteristic tufts to endbands. To find this type of binding on volumes in other script, containing texts – and sometimes miniatures as well – that originally belonged to the Hindu community, signifies that these texts have been incorporated into the Islamic culture. Otherwise, there would have been no reason for the physical transformation of these manuscripts. The same development is described by Brac de la Perrière (2008), who notes that the manuscripts from the Indian sultanates she examined are a priori manufactured in the same fashion as in the rest of the Islamic world, which would be true for Islamic as well as non-Islamic texts.[3]

In North and West-Africa, the Islamic manuscript tradition developed with still other features and a characteristic appearance. Although the awareness of the differences in the material characteristics help us to recognise regional variations, unto date we do not understand how and why these varieties developed. Also, the assumption that a cultural or religious background can be easily identified by the physical appearance of a book, needs to be reconsidered. When books differ in shape and key features, their otherness seems to be obvious, but we need to be aware that, as the technique of bookbinding spread and developed, traditions and practices may have mingled. We have seen examples of manuscripts which appeared to be bound in what we call an Islamic binding; in the UBL collection a few manuscripts were found with a strong Islamic outer appearance, yet they appeared to

[1] For example, in Javanese script, Or. 4931, a Ramayana, and Or. 4946, a cosmogony; in Buginese script, Or. 5449, a historical manuscript from Luwu', and Or. 5450, a collective volume, containing the story of the Prophet Muhammad's ascent to heaven and the 'Book of the Thousand Questions', with some Arabic script.

[2] This format has its origins in the use of palm leaves, which was the predominant writing material in early Hindu and also in Buddhist cultures. Even after the introduction of paper, the elongated horizontal format remained the common shape of the textblock.

[3] E. Brac de la Perrière, *L'art du livre dans l'Inde des sultanats* (2008), p. 109.

originate from the Arab-Christian community. They were only sewn with a link-stitch that could be called Coptic, but otherwise bound according to the Islamic tradition.

### 2.4 *The complex nineteenth century*

Trying to disentangle the jumble of data that characterises the nineteenth century is like starting on the wrong side of a knot every time. Many factors play a role in the developments of the bookmaking industry in that period and we have not enough facts to support any particular line of thought. Materials changed, the quality of imported paper from Europe declined, because handmade papers became scarce and machine made papers, often made of wood pulp, increased in quantity. Mechanical processes also adversely influenced the quality of other materials such as leather and thread. At the same time, the general acceptance of the printing press in the Islamic world stimulated book production and the need for bookbinding, especially cheap, as the printing industry first and foremost supplied the general reading public. Apart from these circumstances, the declining Ottoman empire must have had its effects on the bookbinding industry in the big centres, such as Istanbul, while the influence of Western bookbinding methods and their visual appearances become more noticeable. What the situation was like in the more remote areas is guess-work. Much of the material evidence seems to indicate that binders moved farther away from the archetype and traditional methods. Hybrid structures and bindings are no exception, books could be sewn on cords – as a Western book – but still look like a typical Islamic binding. Other specimens are sewn with a typical link-stitch sewing but their covers may extend beyond the textblock, making the books resemble Western bindings. Of particular interest, however, are the constructions that are not a straightforward result of the Islamic binding tradition and do not evolve from European techniques either. Examples are the saw-cut endband or the endband concealed underneath a thick and rigid, long tabbed leather spine. These features can be explained as economising methods, but it is quite possible that in some way the traditional techniques eroded and binders sought methods to create features that resembled the archetype they were remotely familiar with.

Most of these more or less uncharacteristic elements or altered structures seem to be a negative development; the artefacts lack the compact, light but strong quality they had in earlier centuries and one gets a sense of the loss of a tradition, as if the binding language is no longer understood. In certain cases, the loss of strength or functionality is evident. However, this slackening of tradition may also have provided room for some new ideas and attempts to improve the familiar book construction and format. An intriguing example of this is a binding with a fore-edge and envelope flap in which, when closed, the envelope flap rests in a space left vacant in the front board.[4] The layers of the inner surface of the front board have been cut to size or were peeled away to create a space for the flap piece. [figs. 192-194] Although typically the board thickness was the same of all parts of a binding, in this case the board of the envelope flap is thinner than the rest of the front board or the back board so as to fit nicely in the space thus created in the front board. After covering and application of the doublure, the intervention in the board is hardly visible. But, when the book is closed and the envelope flap is nicely accommodated in the front board, we can see how this adjustment of the book shape would lead to a more even stacking of books when shelved horizontally. The upper surface of the manuscripts – as it lays on its back cover – is more level with the ground surface than it would otherwise have been. As a result, the final stack wouldn't be leaning over. All the same, only one item with this particular board adjustment for the flap was encountered. Was the new feature not well marketed? Was it judged too peculiar and not worth copying? Did the economic and cultural situation dictate retrenching instead of

[4] Or. 12.454, a manuscript that is dated 1673, but was rebound in the nineteenth century, which follows from the machine made papers that were used as tipped-on endleaves.

complicating the production process? Until more examples are found these questions cannot be answered.

### 2.5 *The transition to printed books*

A preliminary survey of the Arabic printed book section in the UBL brought to light a number of interesting facts.[5] The incunabula of the Islamic presses were bound as if they were manuscripts[6]; the materials and techniques used to make these volumes do not differ from the manuscripts made in the same period. Moreover, since this concerns the period in the Islamic bookbinding tradition in which several regional specific varieties develop, it is interesting to observe that the printed book appears to adopt those features that define the manuscript tradition in the region of production at the given time, such as tabs and two-pieces, a twig in an endband core, fringed and saw-cut endbands, and connective strips; they do not merely display the archetypal binding characteristics. [figs. 195-198] Accordingly, we find books printed in Cairo, bound in typical bright red leather with modest tooling, their endbands similar to the roughly made endbands found on manuscripts of the same provenance. Several printed works from Istanbul display gold painted decoration on the leather covers, which were also found on nineteenth-century Turkish manuscripts. There are stabbed volumes and saw-cut endbands from Yemen. [fig. 199] The similarities of printed books and bound manuscripts make visible how the binding tradition resonated in the bookbinding industry of printed works.

Quite surprisingly, the section of Arabic printed books also contains unsewn textblocks with connective strips and wrapper bindings, in substantial numbers.[7] [fig. 197] The theory as proposed in Part Five, which hypothesised that the unsewn manuscripts in wrapper bindings may have functioned in copying workshops because the loose gatherings could be easily, and simultaneously distributed among several copyists, loses relevance in the light of these printed equivalents. Would one still have had to worry about the copying process when there were multiple printed copies available? The other theory, however, could also hold true for these printed books: the unsewn manuscripts in a wrapper binding were a product of the retailer, to keep them safely accessible and eventually to sell the specimen cheaply. From the results of the preliminary survey we can also learn that the practice of not sewing the textblocks was more wide spread. In the UBL manuscript collection, the only dated and localised unsewn textblocks with wrapper bindings were specimens from Egypt. Among the printed volumes, we also found examples from Saudi-Arabia, Turkey, and Malaysia.

Likewise intriguing is the occurrence of partial leather bindings with the two-pieces technique on printed books. [figs. 200, 201] Another item from the printed collection is an

[5] This survey was undertaken together with Hélène Merlet, as part of her internship during November 2012-February 2013. From the Arabic rare printed book section in the UBL, all volumes with Islamic bindings were identified. In total, 529 volumes were recorded. From this selection Merlet focussed on books printed in Cairo and Istanbul. See: H. Merlet, *Le livre islamique entre Orient et Occident. Considérations techniques et historiques sur les reliures orientales et leur conservation au travers des collections de la Bibliothèque universitaire de Leyde* (2013).

[6] It is difficult to determine the Islamic incunabula period precisely. Ibrahim Müteferrika founded the first press that printed texts in Arabic script in the Ottoman Empire, in 1727 in Istanbul. It was active between 1729 and 1743; in 1784 it became a governmental publishing house. In Egypt, the first press to print Arabic in movable type was founded in 1819, in Bulāq, Cairo, just shortly after the first book in the Persian language was printed in movable type in Iran, in 1817. The advantages offered by lithographic techniques, however, motivated many publishing houses to use this technique instead; especially in Iran and the Indian subcontinent many books were printed in lithograph from the second quarter of the nineteenth century onwards. See M. Pehlivanian, *Exotische typen. Buchdruck im Orient – Orient im Buchdruck* (2006), pp. 90-127.

[7] At least 83 unsewn textblocks with connective strips and wrapper bindings, often with the additional protection of a matching slipcase, were recorded. See H. Merlet, *Le livre islamique entre Orient et Occident* (2013), pp. 24-25.

Fig. 192. Or. 12.454. The arrow points at the recessed part in the front board, made to accommodate the envelope flap.

Fig. 193. Or. 12.454. The front board is thinner along the fore-edge, and the envelope flap fits this space.

Fig. 194. Or. 12.454. Closed, the front board accommodates the envelope flap.

Fig. 195. UBL 891 E 37 (Singapore 1877). The endband core is a wooden stick, the secondary endband is missing.

Fig. 196. UBL 891 E 37 (Singapore 1877). A stabbed textblock, though the gatherings consist of proper bifolios.

Fig. 197. UBL 865 C 24 (Cairo 1876). An example of a printed work with unsewn gatherings. Remnants of the connective paper strips are visible on the spine.

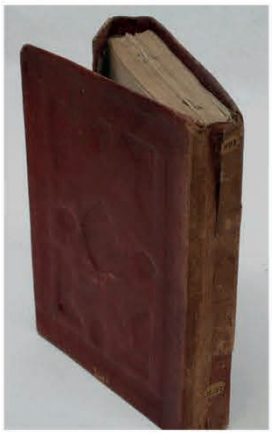

Fig. 198. UBL 891 E 37 (Singapore 1877). A binding in full leather with the two-pieces technique.

Fig. 199. UBL 845 A 19 (Sanaa 1928). A saw-cut endband on a book printed in Yemen.

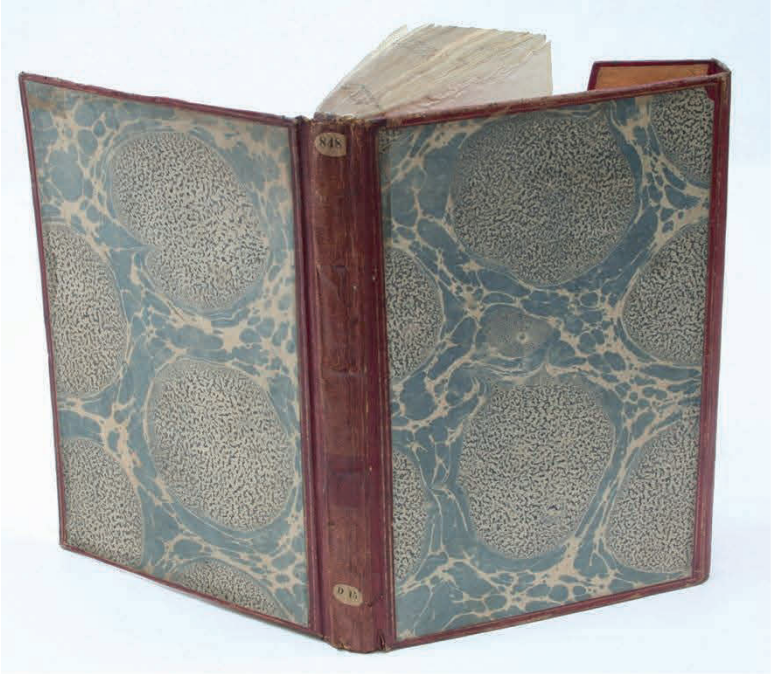

Fig. 200. UBL 848 D 15 (Istanbul 1804). A partial leather binding with all edges covered in leather, and a marbled paper covering the boards.

Fig. 201. UBL 848 D 15. Detail of the spine; the arrow points at the seam of the two-pieces of leather.

Fig. 202. UBL 870 E 25 (Istanbul 1860). A binding with typical Southeast Asian features, such as the dluwang endpapers, the endband with frilled sides and a secondary sewing in three colours.

Fig. 203. UBL 870 A 6-8 (Cairo 1852-1857). A set of three full leather bindings, made with the two-pieces technique. With two volumes the titles are written on the tail edges; the volume lying on top has the title inscribed at its head edge.

interesting reminder of how one should be aware of possible differences between place of printing/production and binding, and how study of a book's materiality can help in establishing its provenance. This is a small Qur'an, printed in Istanbul, shelf-mark 870 E 25. [fig. 202] Its binding consists of full leather covers and a fore-edge and envelope flap, a twig or reed forms the endband core, and the secondary endband has fringes on the side. We now know that these endband characteristics point to a manufacture of the binding in Southeast Asia, and this structure, with its dluwang doublures, is a typical Southeast Asian, possibly Javanese product, whereas the textblock was printed in Istanbul. The textblock of this Qur'an may have been bought by a Haji, and then brought back to Indonesia and bound there.

And there are still more practices that we associate with the manuscript culture that can also be found with printed books, such as shelving the volumes on their front or back covers, instead of placing them upright on their bottom edge. The presence of numerous titles written on the tail edges of printed book textblocks testifies to that practice. [fig. 203]

Given the preliminary stage of the study of the printed books, this paragraph can be no more than a tentative exploration of the topic. However, it illustrates the potential source of information to be found in the materiality of Islamic printed books. As the later centuries of the Islamic manuscript tradition seem to be defined by variety in shape and construction, and the traditional techniques become more scattered, there is an extra need for a large corpus to study, representing as many production centres in the Islamic world as possible. The material characteristics of printed books may provide important supplementary data.

### 2.6 *A profile of the repairs*

As many manuscripts were used frequently, materials and structures suffered from handling, travelling or changes in climatic circumstances. The damage could be remedied in different ways, varying from professional repair or rebinding to well-meant but rather clumsy mending. At the lower end of the scale it is difficult to capture the execution of the work in a general description, other than that the repair patches and interference are of an unorthodox nature. It seems that whatever was at hand could be used, whether such materials matched those in the original bindings or not. Moreover, it was not uncommon to repair repairs, which confirms that aesthetics were not of great importance. Depending on the ability of the mender to use needle and thread, the repair patches were attached with adhesive or they were sewn. In some cases leather strengthening patches were sewn with leather lace, which would require specific tools such as an awl, and a needle specifically suitable for leather and tongs to pull the lace through the layers of leather and pasteboard. This may point at the possible involvement of shoe or saddle makers in the making of these repairs, as they would have had such tools and leather at their disposal.

Although it is not always possible to say whether repairs were carried out by a binder or a well-informed layman, many manuscripts were repaired by persons who knew very well what they were doing. They used proper materials congenial to the object and applied techniques deriving from the Islamic bookbinding tradition. A few details are of particular interest. The leather covering of spines is particularly vulnerable to wear and tear, the joints may wear out after too much flexing or friction. As a consequence, although the boards may still be intact and capable of protecting the book, damage to the joints may undermine their capacity to provide that protection. Repair of the joints is then the obvious solution. Assuming that the level of intervention depends on the amount of damage to the spine, the exterior joints could be mended with relatively small strips, or the old spine covering could be replaced completely. Especially when the textblock itself required resewing, the renewal of the covering spine would be the obvious choice. What is remarkable is that the repair spine is often applied with the two-pieces technique; one could wonder why the binder did not take one piece of leather for this intervention. At least two theories would logically answer that question. The use of two pieces of leather would allow the binder to use up even smaller strips of leather, a welcome opportunity to economise. Additionally, however, the use of separate

strips may also be inspired by the wish to preserve as much of the original tooling along the board edges as possible. With the two-pieces technique, the leather application would start at the board's edge and so care could be taken to paste the new leather carefully underneath the old covering leather, or else over the old leather but neatly along the tooled frame-line. The extending part of the leather was then pasted onto the textblock spine. Working with one piece of leather only would not allow for such precision. As the two-pieces technique was a common working method anyway, this repair technique is not such a surprising option.

The aesthetics of the repairs is another matter. As mentioned above, they may roughly be divided in repair treatments that aimed to go unnoticed, and mends that primarily served to keep the manuscript's composite elements together or maintain its accessibility. The leather spines are vulnerable to abrasion and the tabbed ends may get torn or they decompose. As mentioned in Part Five, paragraph 5.2, it is quite feasible that many of the once existing tabs were cut more or less flush with the endbands as a preventive measure, to avoid further damage. Other books have repair pieces of leather at head and tail, and it was noted that repaired spines were often executed with tabbed spine-ends. Again, some of the mends blend in with the original and others are executed more clumsily. Often the new leather was pasted on top of the old leather; sometimes the colour matches the original beautifully, but often there is a colour difference. This difference may not have existed while the intervention was done, however; due to the dissimilarity of the leather dyes used the skins may start to show colour differences when aging. In other cases it is rather clear the repair patches never harmonised with the original.

The oldest and most frequent repairs can be found in the spine-folds of gatherings. They serve in the resewing of textblocks, and often these paper repairs display the admirable manual skills of the binders. The common repair and resewing of textblocks can be divided into two groups. The largest by far consists of manuscripts that were resewn in the traditional manner, with a link-stitch sewing on two stations. These manuscripts were not treated any differently than new manuscripts. The smaller group of manuscripts, resewn with a link-stitch sewing on four stations teaches us that some binders took extra care to avoid tension on the weakened paper. How the manuscripts resewn with stabbed sewings fit into this picture can only be explained tentatively. Was this simply a time-saving repair, keeping the damaged textblock together but avoiding the investment of time and materials necessary for repairing the paper and individually sewing the gatherings? Or was this method used perhaps because of a lack of expertise? In many instances the actual circumstances underlying such repairs will remain unknown to us.

## 3 Discussion

### 3.1 *The perception of Islamic bookmaking from a Western perspective*

Over time, the outward appearance of Islamic bindings was appreciated in several ways. Decoration techniques such as gold tooling and marbling, and the design of the ornamentation were widely admired, and as a consequence imitated by European binders. Think of the interlaced knotting patterns and the use of central medallions, flanking medallions and corner stamps which inspired European binders. An admiration for the aesthetic qualities of Islamic bindings is also illustrated by the numerous institutions and private collectors who purchased Islamic manuscripts and even empty covers, solely because of their exquisite craftsmanship and splendid designs. If, for some reason, the exotic quality enhanced the appreciation, it only affected visual characteristics, however. With regard to the structure's composition, it seems that the unknown really was unloved. In the literature analysis multiple examples are given of this phenomenon. One of the first to express ignorance of the Islamic binding procedure was Jean Chardin, who deprecated the sixteenth-century Persian bookbinders for using the two pieces of leather technique rather than one

piece as Western bookbinders would.[8] This negative conception was confirmed by William Hoey, when he wrote: "The work of the oriental bookbinder has not the durability or finish of English work".[9] This nineteenth-century view percolated through to influence the perception of twentieth-century students of the Islamic manuscript. That the Islamic book structure is a faulty construction, not fit for the manuscript's function, is a misconception shared even by many of those who, otherwise, clearly expressed their appreciation of the Islamic manuscript culture.[10]

In judging the Oriental binding structure, our observation is blurred by the Western point of perspective. The Western binding tradition is unmistakably regarded as superior to the Eastern tradition, if only for the reason that it shows development and change. That this change is not necessarily positive, or equivalent to improvement, is easily disregarded. Indeed, from the invention of the printing press onwards, bookbinders in Europe started economising, mainly by speeding up the sewing process and developing methods to simplify the operation, and secondly by using cheaper or less material.[11] This meant cutting down on the thickness of the sewing supports, reducing the number of sewing supports used – both for sewing and board attachment – and diminishing the structural function of the endband. Additionally, adhesives were introduced to mask the resulting weaknesses in the binding structures, sometimes inhibiting proper functioning. When the consistent Islamic binding tradition finally started to decline in the nineteenth century, binders began to adopt techniques and materials from the West, while the Western bookbinding tradition, at that point in time, was at its lowest ebb. The resulting loss is larger than just the disappearance of the classic Islamic binding tradition. The idea that the historic structures were not functional or failed to protect the content properly, led to rebinding campaigns in the Islamic world throughout the twentieth century on a vast scale. Often, modern Western binding techniques and materials were employed in the rebinding even if the original boards were reused or new covers were made according to Islamic design.

### 3.2 *Observation and experimentation*

Initially, it was the examination of a rather random selection of original manuscripts which led me to believe that much was to be learned about Islamic manuscript structures. What had been written so far about their manufacture was not always correct, and I noticed a general misconception about their functionality and strength. In order to generate more coherent information, the database was restructured and the assessment of the physical characteristics extended to the whole of the Arabic collection. The outcome testifies to the intrinsic value of the artefacts. The autopsy of the manuscripts also proved very helpful in studying the historical sources; without the original objects as a reference, it would not have been easy to try and explain the summary instructions written down in the historic treatises. However, a

[8] J. Chardin, *Voyages en Perse, et autres lieux de l'Orient*, vol. 4 (1711), p. 259. See also Part Three, paragraph 5.3.

[9] W. Hoey, *A monograph on trade and manufactures in Northern India* (1880), pp. 122-123. See also Part Three, paragraph 5.3.

[10] G. Bosch et al., *Islamic bindings and bookmaking* (1981), state for example: "Noteworthy in Islamic manuscripts is the frequent use of a sewing thread, of linen or often silk [...], which is much too thin for the binding function it should perform, and which characteristically breaks down. Also usually only two sewing stations are used, unrelated to whether the format or weight of the book requires sewing support at more points", p. 46, and "Regardless of the sequence of operations used to construct it, the Islamic book cover [...] can be considered as a separate structural unit – as the fact that so many covers have survived intact, but separated from their original textblock, abundantly witnesses", p. 56.

[11] I argued this line of thought further in the paper 'Neither weak nor simple' (2014), pp. 253-269. For an elaborate description of the economising methods of Western bookbinders, see N. Pickwoad, 'Onward and downward: how binders coped with the printing press before 1800' (1994), pp. 61-106.

third method of study proved essential to test the findings from the visual examination and analysis of the historic treatises: the making of book models.

These mock-up manuscripts were made in accordance with the observations generated by the survey, which means that a variety of types and constructions had to be made in order to experience any difficulties associated with particular methods and techniques. From this exercise it became convincingly clear, for example, that it is highly unlikely for çaharkuşe bindings to have been made as case structures. Also, the experience of making partial leather bindings as built-on structures then led to the idea that full leather bindings of the two common types – covered with either one piece of leather or with two pieces of leather – could have been made in the same way. For the full leather binding made with one piece of leather, this built-on structure is more obvious; nevertheless, a binding with the two-pieces technique could also be made this way. It seems logical that this particular method had initially been developed in order to prepare and decorate the boards individually, off the book, which would be adhered onto the spine after tooling the outside covers. However, the two pieces of leather can also have been used to cover boards while they were positioned on the textblock, in the same manner as was done with partial leather bindings. The technique allowed the binder to focus on the adhesion of the leather on one board and the spine; and then, only once that cover was satisfactorily attached, he continued to the other board and the second piece of leather. Regardless of the exact execution of the full leather bindings made with the two-pieces technique, it has become clear that both these techniques, as well as the partial leather bindings and the full leather bindings made with one piece of leather can be considered built-on structures.

The making of manuscript mock-ups proved invaluable in a way I could not have predicted. (Examples of models are given in figs. 204-214) Without making the actual models the inevitability of the tab's presence may not have occurred to me. Using the variety of materials also available to the Islamic craftsmen taught me how these materials behaved, and why the oriental binder did not question the strength and functionality of the link-stitch sewing; indeed, he experienced the soundness of the structure while sewing the primary endbands on the sewn and lined textblock, as did I when making the models. Thus, testing the theory through practical experience, and experiencing the workflow, greatly enhanced the understanding of the process as a whole.

### 3.3 *The impracticability or drawbacks of a typology*

A typology aims to simplify and categorise a large amount of data. Its main purpose is, of course, to bring structure to this data, and subsequently, to allow for easy-reference and generalised description of the objects that provided the data. However, a typology may obscure the overview of the whole spectrum when the subcategories are too broad and based on specifics that are, in fact, not so very specific. The typology of Déroche is an example of this. Apart from the first category he proposes, the Type One (the box-binding), it only distinguishes between manuscripts made with or without a flap. The manuscripts within the group with an envelope flap, the Type Two bindings, contain virtually all specific features and particularities that one can find in the Islamic bookbinding tradition, in a wide range of varieties. However, the same goes for the manuscripts that make up the other group, the Type Three bindings; except for the envelope flap, within this group all other Islamic binding techniques and structural characteristics can be found. As a consequence, this method of division is not very useful as a typology for classifying or surveying manuscripts for region-specific features. On the contrary, it has a counter-productive effect as it has the pretence of being a useful tool while it is not: people may stop looking further for distinctive characteristics.

On a stylistic level, the political and cultural periods have provided useful anchors for classifying the bindings. Terms like Mamluk, Safavid or Persian bindings are generally accepted as a first categorising of the bindings, although the term Ottoman covers already

Fig. 204. A model of a full leather binding with cloth doublures on the boards, a leather doublure on the flaps, and an additional leather inner joint. The leather turn-ins overlap the cloth.

Fig. 205. A link-stitch sewing on four stations. The cloth lining is incomplete and the leather spine not attached so as to keep the sewing visible.

Fig. 206. A leather spine-lining with flanges long enough to form the covering of the interior; at the front the doublure is not attached so that the warp threads remain visible.

Fig. 207. A see-through model with a cloth spine-lining; the full leather binding is made with the two-pieces technique.

Fig. 208. A see-through model with a leather spine-lining. The binding has a partial leather covering with leather strips on all board edges.

Fig. 209. The inside at the front of the same model. The upper part of the leather flange is not pasted onto the board to show structure.

Fig. 210. A model of an unsewn textblock with connective strips (of leather) and a wrapper binding.

Fig. 211. The making of a partial leather binding. After the application of the spine leather, the extending leather at head and tail need to be cut in line with the joint, to allow for the making of the turn-ins.

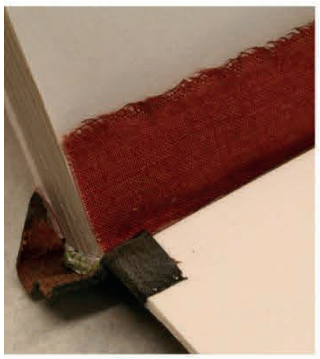

Fig. 212. Detail, after the cut was made and the small part of the spine leather was turned-in over the board edge.

Fig. 213. The making of the next cut at the other joint, so that the next turn-in can be made. After this, the remaining extending part of the spine leather forms the tab.

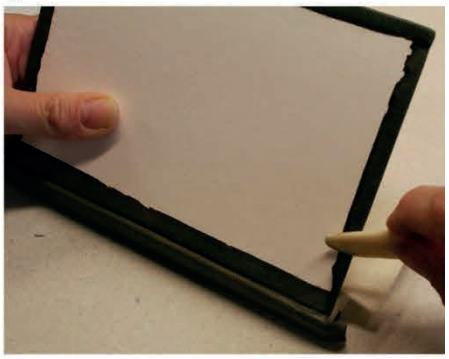

Fig. 214. After the leather on the spine has set and dried, and the turn-ins over the boards are made, the remaining edges of the board are covered with strips of leather.

such a huge geographical area and such a long period that it can only be a first indication of a type. But, though these categories work as an art-historical criterion, with respect to structural features they are not useful. Basic characteristics of the archetypal Islamic binding, such as the two-pieces technique, tabbed spines and leather or cloth full length spine-linings, are found in all periods and cultures. These labels, based on historical periods or dynasties, are therefore not suitable as a basis for a structural typology.

Ideally, a typology differentiates between technical structures, and allows for further subdivision with respect to the outer form and the materials used. In the case of the Islamic bookbinding tradition, this results in a complex system, as both the differences in sewing structures and variations in covering schemes are essential for the technical classification. For example, the two-pieces technique is found as a common method of leather application for full leather bindings, but can be used for çaharkuşe bindings as well. What is more, it is also used for those bindings that have a leather spine only, such as lacquer bindings. Manuscripts with lacquer bindings, however, so far only seem to be made with a link-stitch sewing, whereas the textblocks in full leather bindings – made either with one or with two pieces of leather – can be link-stitched, stabbed textblocks, or sewn on supports. Conversely, unsewn textblocks clearly stand out as a specific category, as they appear never to contain a wrapper binding made with the two-pieces technique; these bindings can be covered in full and partial leather though. Accordingly, it seems that technicalities traverse almost all binding types, though bookbinders had specific reasons to exclude certain practices from certain categories. As a result, the ramification of possible varieties is large. This significantly complicates the grouping of the different features, and a nomenclature would become artificial, or pointlessly lengthy when the characteristics involved are to be incorporated in the name. It also means that a relatively simple typology is not an option, contrary to my initial thoughts that the variant groups within the Islamic bookbinding tradition needed sub-classification. Rather than trying to fit a manuscript and its binding into one category, implying thereby that its characteristics can be neatly typified, I would suggest the diverse aspects need to be described individually and specifically.

### 3.4 *Further study*

In the process of identifying the selection criteria for the assessment, some features were regarded as not being useful to include at that particular stage of the survey. These features offer avenues for further study.

With regard to material knowledge, for example, there is still much to learn about the leather made and used in the Islamic world. Images of a 'typical' grain pattern of goat, sheep or calf leather can quite easily be found in handbooks on bookbinding or in conservation literature; often drawings are provided, representing the archetypal patterns in order to stress the difference between the animals. Unfortunately, many of the skins we encounter in reality do not resemble these patterns, they lack the clarity and straightforwardness these illustrations conjure up. Apart from the fact that determination of leather is hampered by aging and damages such as abrasion and physical-mechanical damage, the natural deformation of the grain patterns in 'armpit' areas and pleats towards the belly complicate pattern recognition. But more importantly, although it seems that different species of goat and sheep have particular characteristics, some of these animal species seem to share overlapping features. In addition, it is evident that we lack in-depth knowledge on the differences in the other types of leather that may have been used in the Islamic world. It seems that sometimes camel leather may have been used, or leather made from the skin of a mule or donkey or different kinds of deer. Given the enormous geographic region from which the bindings come, it is likely that a wide variety of species was used as a source of leather. Further study might help to identify these species, and subsequently, the origin of the artefacts.

Another topic of material study concerns the Islamic and European papers, used for writing the text as well as for the decorated papers made in the Islamic world. Apart from the limited knowledge about the handmade Arabic papers and papers made in Central Asia, there is still much to learn about the trade of European papers to and within the Islamic world. Additionally, the use of decorated paper could offer clues as to the origin and dating of manuscripts. Current studies in decorated paper mainly focus on the manufacturing of these papers in Europe, but with regard to the Oriental book it would be interesting to know how these papers were traded and exported to different parts in the Islamic world, and whether certain techniques such as the making of brocade papers were ever practiced locally. That way, the contribution made by the materiality of the manuscripts as a source of information to establish provenance may be enhanced. The sub-Saharan manuscript culture especially deserves to be mentioned here. Though excluded from the present study when these artefacts lack a relevant construction due to the use of single folios, the material features of these manuscripts provide leads for further research on their papers, leathers, fabrics, colorants and the stylistic characteristics used for their wrappers and additional enclosures such as bags, pouches or slipcases.

Material research in diverse manuscript collections will be indispensable for a codicological framework. This is not just a matter of quantifying and verifying the findings of the present study. It will prove particularly informative to conduct surveys in different regions of the Islamic world, as it is believed, generally speaking, that most manuscripts in a certain geographic region are products of that same area. Such assessments of local collections will offer much information on regional characteristics and will probably provide insight into the development of certain trends. Material research in other manuscript collections, in the Islamic and Western worlds alike, may also shed more light on some of the theories proposed in this thesis. For example, the hypothesis that the composite leather binding evolved from a repair technique is now based on the flimsy evidence of five manuscripts in the UBL collection only. Other examples of the same technique will doubtlessly offer further clues. By the same token we need more evidence as to the first occurrences of the four station sewing technique. Was this a repair technique that developed into a regular sewing method, or was it an alternative sewing method which proved to be especially functional for the resewing of damaged textblocks? No doubt additional studies of the physical characteristics of Islamic manuscripts will teach us other things as well.

The study of the material culture and the binding trade are interrelated. As yet, little is known about the movements of binders, the trade in the tools, or the dissemination of decoration schemes and stamps; we may yet find written sources to fill this gap in our current framework of knowledge, otherwise the information needs to be built up piece by piece through physical examination of the artefacts.

As mentioned above, additional information may be gained from a renewed study of the historic treatises on bookbinding. With an increased awareness of the various sewing structures and covering schemes, a thorough study and full translation of these sources may provide new clues as to the use of such techniques. It seems attention should particularly be directed to the paragraphs on board attachment, covering and the application of doublures or endleaves.

Historic travel literature is a further potential source of information. As mentioned in previous Parts, three rather matter-of-fact remarks on bookbinding practices were found in such travel journals or accounts. They turned out to be early observations of certain features, supporting some of the findings in this study, while references to these specific techniques were not always found in relevant codicological or conservation literature. Furthermore, even though these texts may not offer a direct explanation of the characteristics described, they do provide context and add a period or geographical region to our framework. Although the three examples could be flukes, they do seem to hint that more information about local practices is to be expected in this genre of literary sources.

Art-historical aspects of the bindings were not included in the present study, as it first and foremost concerned a pioneering research into the technical aspects of Islamic bookmaking. To extend it with a correlative study of stylistic features could be profitable; such an extension could consist of a sub-survey, including only the manuscripts preserved with their first sewing and binding. Thus, the results could eventually lead to the inclusion of more precise data on the decorative characteristics of particular periods and particular regions.

Finally, collaborative projects will be needed. The considerations put forward in Part Four illustrate how the technical framework can be refined when a more detailed system of classifying Islamic scripts becomes available, and when further research into the distribution of Western papers in the Islamic world or a typology of identified Islamic papers would offer more concrete data. On a different level but at least as significant, joint efforts between specialists with in-depth knowledge of the contents of Islamic manuscript collections and specialists of the manuscripts' physical aspects are essential. Ideally, the fields of expertise such as palaeography, philology and codicology would be combined with the necessary book-archaeological knowledge in one person, but given the learning and experience required for any of these specialisms, it is more likely that the desired combined knowledge will have to emerge from collaborative projects.

## 4 Conclusion

### 4.1 *An adjusted identity*

The general appearance of Islamic manuscripts has not changed over the centuries in the way Western books have altered structurally and materially. Despite this apparent conservatism, significant differences in construction can be found, as a consequence of different local workshop practices or regional variations. On a more detailed level, we have seen that binders applied certain techniques in particular situations, for example when they chose to sew a formerly sewn, damaged manuscript with a link-stitch on four stations. They utilised the structural function of the primary endband sewing fully, but pragmatically; for instance, when they had to bind two gatherings only, they preferentially adjusted the sewing structure rather than supplying an endband they could not finish properly. We therefore have to conclude that bookbinders in the Islamic tradition had a certain range of technical and material possibilities to carry out the job, from which they made a selection in keeping with a given commission or situation. Accordingly, paying attention to the possible variations and the underlying rationale of their use may offer information on the provenance of a manuscript or the circumstances of its production.

The image of a conservative Islamic bookbinding practice was not only based on the relative consistency in the appearance of the books, it was founded also on a limited understanding of how a trade like bookbinding remained constant in the centuries before industrialisation. Gulnar Bosch et al. for example compare the implements for bookbinding that were described by Ibn Badis, Sufyani and Qalqashandi to later depictions of such tools and scenes of the trade in a nineteenth-century Kashmiri manuscript of crafts and a seventeenth- or eighteenth-century watercolour of a North Indian bookbinder. They conclude: "It is a measure of the conservative nature of the Islamic bookbinding craft that most of the tools mentioned by these earlier authors can be seen in the later depictions [...]".[12] Let us compare this with an observation from Nicholas Pickwoad about the Western binding trade: "From the end of the middle ages until late in the industrial revolution, the equipment and materials used remained essentially unchanged, to the extent that a binder from an early

[12] G. Bosch et al., *Islamic bindings and bookmaking* (1981), p. 41; the images they refer to can be found on the pages prior to the discussion of these tools.

16th-century shop could have walked into a workshop in the early 19th century and started work with scarcely a moment's hesitation – unless it were over the choice of decorative finishing tools he would have found at his disposal".[13] It appears that both in the Orient and in the West the craftsmen's workshop and his tools hardly changed over many centuries; in the West, however, the techniques of sewing, board attachment and covering and the materials used to bind books did change substantially. As a consequence, the consistency in the tools used does not indicate a stagnant bookbinding practice, it merely proves that bookbinders had no need to change their tools, even though they changed their methods. By the same token, the development of the variety in techniques we have seen in Islamic bookbindings must have been possible with an unchanged selection of implements.

Besides the idea of a stagnant and simple tradition, the image of the Islamic binding as an insufficient and weak product appears to be faulty. First and foremost, it is based on a profound misunderstanding of the construction, which is largely caused by a biased Western perspective. The misjudgement is a result of looking at the isolated techniques instead of observing them as a composite functional whole, and secondly, by comparing them to Western equivalents which are, in fact, not equivalents at all. The link-stitch on two stations was dismissed as a proper sewing structure since its use in Western bookbinding is mainly for temporary structures or the sewing of ephemeral publications such as pamphlets or almanacs. By the same token, the leather inner joints were thought to be inadequate board attachments because the actual function of the spine-lining was not recognised and leather inner joints in Western bookbinding were not elementary for that binding construction. Perhaps the most significant misperception is the notion that Islamic bindings were made as case-bindings. Not only is the term a misnomer for the actual structure of the manuscripts, as we have seen, but, since case-bindings in the Western tradition are products that resulted from extensive economising and speeding up the binding process with a mass-production component, they do not exactly have a favourable image. This has contributed to the depreciation of the Islamic manuscript structure.

To know the falsity of these two prejudicial notions fundamentally changes our understanding of the Islamic bookbinding tradition. It also has an impact on preservation strategies and the conservation needs of these items.

### 4.2 *Implications for conservators*

Conservators equipped with more knowledge about the technique of Islamic bookbinding will approach these manuscripts differently. The rehabilitation of the Islamic manuscript structure and an awareness of its possible variations affect both the documentation made prior to treatment, and the treatment itself. The manuscript's composition as a whole requires attention, and careful observations need to be made in order to register possible traces of former sewing and binding. It is the conservator's task to indicate how a specific volume was constructed, and what materials were used. In short, the wide range of techniques and materials found in Islamic books requires a detailed report, and conservation documentation and object descriptions will have to reflect the conservator's understanding of the manuscripts' materiality.

Secondly, a better understanding of the structure has an impact on the possible treatment of these items. A conservator, prejudiced about the strength and suitability of an object's construction, has a perspective different from one who respects the object's material qualities. The first would be likely to approach the intervention thinking in terms of 'improving' the object, whereas the latter would be more inclined to display the professional integrity so necessary to truly preserve these objects. In addition to this considerable change in approach, it is to be expected that conservation techniques themselves will be adapted. Some methods, developed for Western books structurally so dissimilar from Islamic ones, are

[13] N. Pickwoad, 'Onward and downward' (1994), pp. 61-62.

inappropriate or even harmful to Islamic manuscript structures. An understanding of the original construction *and* a respect for this other identity allows for a different methodology, and may instigate the development of new treatment solutions.

On a different plane, it has become clear that there is still a lot to know and learn from the physical objects, which has further implications for the conservator's practice. The awareness of the manuscripts' materiality as an extra stratum of information may cause a shift in preservation approaches. In some cases, it may even cause a conflict between the traditional valorisation of the artefact – which may be primarily art-historical and aesthetical in a museum context or first and foremost content-directed in the context of a research library – and the newly recognised importance of certain physical characteristics. For example, when the conservation of a manuscript for the purpose of an exhibition on the development of bookbindings would require the cosmetic treatment of a split joint and the addition of some new covering material to improve the visual reception of the artefact, such an intervention might disturb evidence of the original covering technique. Similarly, when accessibility of the manuscript is the most important reason for treatment, certain repair techniques may seem necessary, even though they may be undesirable from the book archaeological point of view. Such conflicts do not have to result in a deadlock in the preservation process. On the contrary, they may stimulate the development of new or adjusted techniques and an original use of conservation methods. The responsibility for pointing out the possible risks from the loss of information about the original object will often lay with the conservator, who should be fully aware of the consequences of an interventive treatment. In that sense the conservator has a signalising and a resolving task.

Though book archaeological studies serve the book conservator, the reverse is also true. Conservators of manuscripts can – and should – contribute to the field of book archaeology. They have, after all, an exceptional opportunity to investigate the anatomy of the objects that come to them on the workbench, supported by the material and technical expertise they bring to their observations. With the present study, I have used my experience and insights to make a contribution to the field of Islamic manuscript studies. It is my hope that the results, in the form of the new understanding of the artefact's materiality and the outlined avenues of extended study, will inspire further research.