

New Evidence in Armenian Codicology: the Reconstruction of an Unknown Sewing Structure*

*Marta Silvia Filippini, ICRCPAL, Rome,
Lucilla Nuccetelli, ICRCPAL, Rome,
and Maria Letizia Sebastiani, ICRCPAL, Rome*

Summary

This essay focuses on the analysis of an Armenian illuminated manuscript, discovered in 2014 in the Museo Cappuccini in Reggio Emilia and now property of the Library of the same Order in Bologna. The results of the codicological and scientific analysis of MS FMBCap Ms. Arm. 2 confirm the provenance from the fourteenth century Cilicia: the manuscript has a typical Armenian leather binding, blind-tooled with residues of the fore-edge flap and of the fastening (of the leather strips and wooden pegs type). A particular Armenian sewing structure is illustrated here for the first time: a herringbone stitch with supported kettle stitches.

In 2014, two Armenian manuscripts were accidentally discovered in the Museo Cappuccini in Reggio Emilia: an illuminated Gospel book from the fifteenth century and a liturgical manuscript from the fourteenth century. Both are now property of the Library of the same Order in Bologna. The codices were extremely deteriorated and there was a high risk of loss both of the text and of the binding elements. In March 2015, the manuscripts were taken to the Istituto Centrale per il Restauro e la Conservazione del Patrimonio Archivistico e Librario (ICRCPAL) in Rome for analysis and conservation.

The first part of the project, involving the codicological analysis and the conservation of the liturgical manuscript, FMBCap Ms. Arm. 2, was concluded in April 2016. The conservation treatment was used as an occasion to learn more about Armenian medieval bindings and to investigate the materials and the techniques used by Armenian craftsmen, thanks to the cooperation with the conservation and the scientific department of ICRCPAL, with professors Gabriella Uluhogian and Anna Sirinian, and with the librarian Elisabetta Zucchini.¹ The present paper summarizes the results of this research.

Manuscript FMBCap Ms. Arm. 2

The manuscript FMBCap Ms. Arm. 2 is a richly decorated copy of the *Maštoc*², the liturgical book that contains different rites of the Armenian church (Ritual,

* This is the written version of a paper presented by Marta Silvia Filippini at the international conference *Comparative Oriental Manuscript Studies: Looking Back—Looking Ahead*, Hamburg, 26 September 2016.

1 We would also like to remember Luca Richard De Bella, a wonderful person and an incredible restorer who left us in October 2015, without whom this work could not have been possible.

or Euchologion): the content varies depending on whether the codex is for a priest, a bishop or for the Catholicos (the chief bishop and spiritual leader of Armenia's national church). The manuscript stands out not only for the quality and richness of illuminations, but also for the cultural relevance of the finding. The codex escaped destruction when three Mekhitarist monks entrusted it to the Capuchin missionaries in Trebisond before losing their lives in Turkey in 1915 during the massacre of Christian Minorities.²

Further information on the history of the manuscript may be found in the colophons. FMBCap Ms. Arm. 2 has three colophons, two of them by the scribe, Yovanēs, where the name of the person who commissioned the manuscript is reported: Step'annos, the Archbishop of Kastalōn and Anazerbo.³ The third colophon, in a later hand,⁴ attests the restoring and the re-binding of

2 As is reported in a descriptive note by Giorgio Bonsanti (Sovrintendenza Gallerie, Modena) and Sesto Bertagni (Cappuccini) from 15 October 1975 and confirmed by the studies of Gabriella Uluhogian, see Uluhogian 2014–2015.

3 Here quoted with the translation by Uluhogian, *op. cit.*:

(ff. 76v–77r) Հաւատամք և ի Սուրբ Հոգին որ ի Հայրէ ելանէ և ընդ Հայր և ընդ Որդոյ երկրպագակից և փառաբանակից, որ խաւսեցաւ յարէնս և ի մարգարէս և յաւետարանս, որ էջն ի Յորդանան, քարոզեաց յառաքելսն, բնակեցաւ ի սուրբսն [...] ‘Crediamo anche nello spirito santo che esce dal Padre, e col Padre e col figlio [è] co-adorato e conglorificato, che ha parlato nella Legge e nei Profeti e nei vangeli, che scese sul Giordano, ha proclamato negli apostoli e ha abitato nei santi.’

(f. 176v) Հաւատա՞ւս յամենասուրբ Երրորդութիւն, ի Հայր և յՈրդի և ի Սուրբ Հոգին, յերեք անձինքն և ի մի բնութեան, մի աստուածութիւն և մի թագաւորութիւն, և ի բնաւ տնաւութիւն որդոյն Աստուծոյ, ի ծնունդն և ի մայր Աստուածածին, ի մկրտութիւն, ի խաչելութիւն և ի խաչն Աստուծոյ <խաչ>, ի թաղումն, ի միւս անգամ գալուստն իւրով մարմնով, և ի յարութիւն մեռելոց, ի դատաստանն յաիտենական հոգւոց և մարմնաց, ի պսակն սրբոց մշտենջենաւոր և ի կորուստ մեղաւորաց, ‘Credi nella santissima trinità, nel Padre e nel figlio e nello spirito santo, nelle tre persone e nell’unica natura, unico Dio e unico regno, e nell’intera economia del figlio di Dio, nella nascita e nella madre, Genitrice di Dio, nel battesimo, nella crocifissione e nella croce di Dio, <croce>, nella sepoltura, nella sua seconda venuta col suo corpo e nella resurrezione dei morti, nel giudizio eterno delle anime e dei corpi, nell’incoronazione eterna dei santi e nella perdizione dei peccatori?’

4 Here quoted with the translation by Uluhogian, *op. cit.*:

(f. 187r) Յիշեցէք ի սուրբ և արժանաւոր յաղաթս ձեր զառաջնորդ Սուրբ Փրկչի վանացս գտէր Աստուածատուր կրանաւոր և գովանէս վարդապետն որ ետուն զսուրբ Մաշտոցս, որ է Գիրք ձեռնադրութեան, վերստին նորոգել և կազմել իւրեանց հոգոյն յիշատակ: Զձեզ աղաչեմք, ով ընդերձաւորք, որ մէկ Հայրմեղայիւ <մի> յիշել ի Տէր: Ով որ յիշէ յիշեալ լիցի ի Քրիստոս Աստուծոյ մերոյ. ամէն: Եւ է սա յիշատակ ի դուռն Սուրբ Փրկչին. ամէն: Հայր մեր որ յերկ, ‘Ricordate nelle vostre sante e degne preghiere tēr Astuacatur monaco,



Fig.1. Bologna, Bibliotheca Capuccini, Ms. Arm. 2.

the codex and confirms that the actual binding was realized in the Armenian area, or at least by Armenian craftsmen, as supported by the codicological analysis.⁵

When the manuscript arrived at ICRCPAL, it was described in detail, providing documentary and photo-

graphic evidences for every page and every item of the binding. As the Italian terminology for bookbinding was lacking technical terms for the description of some elements of the Armenian binding, specific terminology was proposed and used for description (figs 2, 3).

The archaeological examination of the FMBCap Ms. Arm. 2 involved the use of non-destructive scientific techniques for the analysis of all the components of the manuscript, including parchment, pigments, inks, leather, threads, textiles, and wood. At the end of the study, the manufacturing process of the codex was clarified and the provenance of the codex from the Armenian Kingdom of Cilicia of the fourteenth century was confirmed.

The text block: parchments, inks and pigments

The *Maštoc*⁶ is a parchment manuscript, made from sheep and goat skins, following Armenian manufacturing techniques. It currently measures 215 x 165 mm, but the text block had been trimmed during an ancient rebinding. It is composed of 188 leaves: 17 irregular gatherings and two endleaves made with reused parchment. The manuscript has the following quire structure: 1² (ff. 1r–2v), 1^{10–1} (ff. 3r–3bis–10v), 2–5¹⁰ (ff. 11r–50v), 6^{10–1} (ff. 51r–59v), 7¹⁰ (ff. 60r–69v), 8¹² (ff. 70r–81v), 9¹⁰ (ff. 82r–91v), 10–15¹² (ff. 92r–163v), 16¹⁰ (ff. 164r–173v), 17^{14–1} (ff. 174r–186v), f. 187.

superiore del monastero di s. P'rkic', e ovanēs vardapet, che fecero restaurare di nuovo e riordinare questo santo *Maštoc*⁶ (Rituale) che è il *Libro dell'Ordinazione*, a ricordo delle loro anime. vi supplico, o lettori, di ricordarci al signore con un *Padre, ho peccato*. E chi ricorda sia ricordato da Cristo nostro Dio, amen. E questo è [a] ricordo presso la chiesa di s. P'rkic', amen. *Padre nostro che [sei] nei cieli*'.

5 Indeed, no evidence of a further re-binding was found.



Figs 2, 3. English-Italian terminology for Armenian mediaeval bookbinding.

An inspection of the gatherings revealed that all the pages had been repaired with paper during an ancient conservation treatment. A particular feature is that in the gatherings from u (1) to p (8), ff. 3–81, the bifolia are made of two paired single leaves, glued at the fold.

All the leaves are ruled with a hard point; few leaves with a light gray carbon line. The pricking was detected only in the outer margins of few leaves, because in most cases it was cut off when the margins were trimmed. The layout of the page is the same in the whole manuscript, so the complete *mise en page* diagram (fig. 4) was reconstructed combining the evidence found in different pages.

After the parchment was pricked and ruled, the text was written by the scribe in *bolorgir*, Armenian cursive writing. The writing surface is justified to 165 x 105 mm and the text is written in one column, on 16 lines. Headings and rubrics are in blue (natural ultramarine), red (cinnabar) and gold. Raman spectroscopy evidenced the presence of two different inks: the original one, used by the scribe, and the one used during the ancient restoration to rewrite the missing text. Often Armenian inks have been identified as carbon based inks, because of their deep black colour; yet, the analysis conducted confirmed the absence of carbon and the use of iron gall ink.

The manuscript has gilded illuminations in Cilician style: brightly coloured headpieces, marginal arabesques, birds, and decorative letters. Occasionally, marginal figures that are directly connected with the text are represented, for example a bishop, a seven-armed candelabrum, and a cross. Some of the miniatures and marginal figures were cut off and are now lost. Non-destructive analysis (microscopic examination, multispectral imaging, FORS and Raman spectroscopy, and Energy Dispersive X-ray Spectrometry) was undertaken to provide a description of the pigments used by the artist.

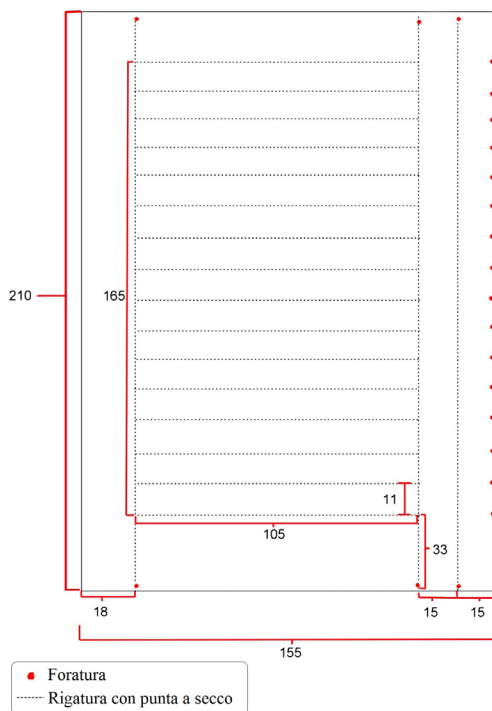


Fig 4. FMBCap Ms. Arm. 2, *mise en page*.

The absence of a ground layer was detected, and the entire palette was reconstructed: the wide use of natural ultramarine (pigment extracted from lapis lazuli), red lake, cinnabar, white lead and gold was documented. The absence of green pigments is significant; indeed all the green areas were painted with a mixture of indigo (blue) and orpiment (yellow pigment). The resulting palette was compared with those attested in other Armenian manuscripts⁶ and it is compatible with the origin in the Cilician Kingdom during the fourteenth century.

The Armenian binding

The codex is bound on the left side with a typical Armenian leather binding, blind-tooled with geometrical motives on the boards and ruled with parallel vertical lines on the spine. The boards are of the same size as the text block, and the spine is flat. Prior to restoration, remains of two raised embroidered endbands were hanging at the two ends.⁷



Fig 5. FMBCap Ms. Arm. 2, binding.

The deterioration of the binding provided a unique chance to study the codicological structure of the codex: the leather cover, the lining and the back doublure were almost completely detached from the boards, allowing us to investigate also the board attachment and the sewing structure. The inside front and backboards were covered with linen doublures and we detected the residues of the fore-edge flap, of the fastening (of the leather strips and wooden pegs type) and of the Armenian headbands were observed.

Grecquage and sewing

Going back to the manufacturing process of the codex, when the illustrations were completed, the bifolia were assembled into quires and the book

⁶ Orna 2013; Merian 1994, 136, 138; Brostoff et al. 2010.

⁷ The Armenian binding structure is meant for flat storage, which explains the raised endbands and the absence of the squares.

was ready to be sewn. To facilitate sewing the binder realized four V-shaped notches in the fold of each quire, one at each sewing station. No evidence of the earlier binding remains, except for the central notch (*grecquage*), cut in V-shape, in the fold of all the gatherings, that is no longer in use in the actual sewing system.

Finally, the quires were ready to be sewn. Sewing systems can be distinguished in two great groups: (1) supported sewings, in which the quires are linked to each other and to a support; (2) unsupported sewings, in which the quires are simply linked to each other, without the use of cords. Virtually all oriental binding traditions made use of unsupported link-stitch sewing, all but the Armenian, which was instead based on supported sewing. While the sewing structure most frequently reported in literature on the Armenian tradition⁸ is a herringbone sewing on double cords, a different system was observed in the *Maštoc*⁶, a herringbone sewing with supported kettle stitches, realized using a sewing frame. This structure has four cords: the herringbone is sewn on two double cords, while the kettle stitches are executed on two single cords.

At a first glance, it seemed that in the change-over stations, the thread simply came out from one quire and then entered the next one, passing over a single cord (fig. 6). On a more careful observation, we could attest that before entering the next quire, the coming out thread passed under the previous quire. For this reason we identified this procedure as a supported kettle stitch sewing (fig. 7). As far as we know, it is the first time such thread passages have been described. Moreover, thanks to the colophons, it is possible to claim that this structure was made by an Armenian binder.



Fig 6. The herringbone sewing with supported kettlestitches.

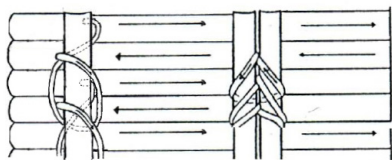


Fig 7. A diagram of the herringbone sewing with supported kettlestitches.

8 Szirmai 1999, 87–90; van Regemorter 1953, 1954.

Boards

The two wooden boards are made of very thin tangential section of poplar wood with the grain running horizontally, contrary to what usually happens in western bindings. Both boards were attached to the text block with the same method: the double cord was threaded through a hole drilled in the board and knotted at joint (fig. 8).

Spine lining

After the sewing and the board attachment, the spine was lined with a single linen beige cloth glued with starch. The spine lining covered also the outer side of the boards for 25–30 mm.

Endbands

Analyzing the remains of the endbands, we reconstructed the technique of the sewing of Armenian raised headbands as a ‘S’ variant, five needles-sewing. The primary embroidery was realized with a white cotton thread, while the secondary one with silk threads of red, white and black colors.

Doublures

The inside of the boards was covered with white and blue striped linen doublures, pasted with starch glue. In the front doublure later annotations written with different inks were observed.



Fig 8. The binding of FMBCap Ms. Arm. 2, almost detached from the textblock.

Leather cover

The codex was finally covered with a vegetable tanned calfskin, in a reddish brown color. The leather was turned inside the boards and pasted with starch glue. Near the inner joint, small slits were made on the leather, to allow the turns in the covering of the raised endbands. Small wooden pegs were used to fix the turns-in and at the end the manuscript had neatly mitered corners on the inside boards. The cover had finally been blind-tooled with geometric motif while the spine was ruled with the typical vertical lines. Only few traces of the fore edge flap and the three leather clasps were detected.

Red edge colouring

The edges of the text block were trimmed during the ancient rebinding of the codex and in that occasion the edges were also colored with a red pigment, minium, that stopped few millimeters before the endbands, leaving a horse-shoe shape uncolored area.

Conclusions

The conservation survey and treatment are always a valuable occasion for a research of the archaeology of mediaeval codices. In the case of FMBCap Ms. Arm. 2, not only it was possible to confirm what was already known concerning Armenian codicology, but new findings could be made, including the composition of the inks (the prevalence of iron gall ink) and the particular sewing technique (herringbone and kettle stitch). The analysis and conservation of the second Armenian manuscript of the Bibliotheca Cappuccini in Bologna, the fifteenth century illuminated Gospel book, shall be conducted during 2017. It remains to be seen whether the findings from that manuscript shall be similar or different from those observed in FMBCap Ms. Arm. 2.

References

- Brostoff, L.B., Y. Khan, T. Ohanyan, and F. Hengemihle 2010. 'Technical Study of a Fifteenth-century Armenian Illuminated Gospel from the Verin Noravank Monastery', in C. Rozeik, A. Roy, D.R. Saunders, eds, *Conservation and the Eastern Mediterranean: Contributions to the Istanbul Congress, 20–24 September 2010*, Studies in Conservation, 55, Supplement, 2 (London: International Institute for Conservation of Historic and Artistic Works, 2010), 62–68.
- Merian, S., T.F. Mathews, and M.V. Orna, 1994. 'Appendix. Pigment Analysis of Armenian, Byzantine, Iranian, Indian, and Persian Manuscripts', in T.F. Mathews and R.S. Wieck, eds., *Treasures in Heaven: Armenian Illuminated Manuscripts*, (New York: The Pierpont Morgan Library and Princeton: Princeton University Press, 1994), 135–142.

- Orna, M.V. 2013. 'Artists' Pigments in Illuminated Medieval Manuscripts: Tracing Artistic Influences and Connections—A Review', in R.A. Armitage and J.H. Burton, eds., *Archaeological Chemistry VIII*, ACS Symposium Series (Washington, DC: American Chemical Society, 2013), 3–18.
- Szirmai, J. A., 1999. *The Archeology of Medieval Bookbinding* (Aldeshot: Ashgate, 1999).
- Uluhogian, G. 2014–2015. 'Due manoscritti armeni salvati dai Cappuccini', *Revue des études arméniennes*, NS, 36 (2014–2015), 213–242.
- van Regemorter, B. 1953. 'La reliure arménienne', *Bazmavēp*, 8–10 (1953), 200–204.
- 1954. 'La reliure des manuscrits grecs', *Scriptorium*, 8 (1954), 3–23.