Conservation and restoration of calligraphic manuscript

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1. Manuscript – Identification

Treated book (Figure 1) is a very important piece due to its content and age. It represents work that was written in the eighteenth century, by an unknown author or copyist. The work is a part, more precisely the thirteenth chapter of the holy Quran¹, written in Arabic, with plenty of side comments and explanations on the sides margins. The manuscript consists of 62 pages, 32 sheets which are divided into four forms by 4 sheets and form of 6 sheets. The book format dimensions are: 12.8 cm x 21.6 cm, and 1.6 cm in thickness.

![Figure 1. Eighteenth century calligraphic manuscript (Ruhulah Hodžić, January 2016)](image)

¹ Quran (ar. القرآن) is the holy book of Islam, sent by God to His Prophet Muhammad A.Ş. from 610 until 632 AD in period of thirteen years in Mecca and ten years in Medina. The Quran consists of 114 suras (thematic units), divided into 30 juz (sections, according to the number of days in the lunar month).
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It is important to mention an interesting illumination, typical for this type of manuscript, which particularly refers to its content, i.e. the Quranic text. Especially decorated are the two first pages (Figure 2).

![Figure 2. First pages of the manuscript, so called golden pages (Ruhulah Hodžić, February 2016)](image)

The text in the manuscript is framed by two thin red lines, and moved toward the book spine. This leaves out bigger outer margin, as well as top and the bottom margin, used mainly by calligraphers and scribes for writing comments, reminders and explanations. The text is written in black ink. The book sheets, which is very interesting, consist of two parts, i.e. two, one to another, glued thin sheets of paper, obtaining in that way a high quality thicker sheet on which only then text would be written. The paper sheets, by glue weakening, started to separate from each other (Figure 3).

![Figure 3. Separated paper sheets (Azra Hasković, January 2016)](image)
2. Damages

2.1. Determination of damages

Damage to manuscript were visible in the form of harmful effects of moisture (Figure 4), insects (Figure 5), damage due to improper handling and use of book and its improper storage, as well as surface dirt and dust. Therefore, manuscript had chemical, biological and physical damage (Figures 6 and 7). After visual identification, a test was done which checked the paper pH, or acidity of paper, which showed that the paper was pH neutral.

Figure 4. Damage in the form of traces which indicated presence of mold, as well as presence of insects (Ruhulah Hodžić, January 2016)
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Figure 5. Damage in the form of small holes as the harmful effect of insects (Ruhulah Hodžić, January 2016)

Figure 6. Physical damage as the effect of tearing (Ruhulah Hodžić, January 2016)
Figure 7. Physical damage as the effect of tearing
(Ruhulah Hodžić, January 2016)

Figure 8. Damage in the form of oil stains in the corners of pages
(Ruhulah Hodžić, January 2016)

Figure 9. Multiple damages
(Azra Hasković, February 2016)
3. Cleaning treatments

It was found that the cleaning treatments should take several steps. Cleaning was divided into two stages, i.e. the two methods each requiring different materials. In the first stage it was approached to "dry" cleaning of every sheet individually, by using brushes, erasers (Figures 11, 12) and restoration sponges for dry cleaning, scalpels and small knives. In this phase, surface dirt, dust, leftovers of the old adhesive were removed. After completion of "dry" cleaning phase, it was then moved to the next phase which was second stage of cleaning, involving disinfection (Figures 13, 14 and 15). In this process were used 99.8% ethanol dissolved in water in ratio 1: 3, medicinal petroleum, distilled water and 5% hydrogen peroxide also dissolved in water in ratio 1: 3. Using this solution it was removed much of the dirt that it could not be removed in the first stage, and most of all it has been achieved by removing of dirt and oil stains in the corners of pages.
Figure 11. “Dry” cleaning with brush and eraser
(Ajla Redžić, February 2016)

Figure 12. Single sheet dirt and dust leftovers after completion of cleaning with eraser, restoration sponges and scalpels (Ruhulah Hodžić, February 2016)
Figure 13. Cleaning with water using a cotton swab
(Ajla Redžić, February 2016)

Figure 14. Cleaning and disinfection with alcohol
(Azra Hasković, February 2016)
4. Manuscript restoration

The restoration of manuscript involved the bonding torn sheets, gluing sheets in places where they are separated from each other (one sheet in the manuscript was composed of two), upgrading on places where one part was missing, strengthening paper structure. In the process of restoration all undertook actions were applied following the principle of reversibility and therefore all materials used are fully reversible. Tylose MH 300-methyl hydroxy ethyl cellulose (viscosity: 2000 cps at 2% in water, pH 7.0) was used as glue, as restoration paper Kozu K35 18 g / m2 (handmade paper with exceptional strength), filter paper and absorbent papers - blotter (thin acid-free paper with moisture absorbing property). Individual sheets restoration was conducted in this matter: the first step was to determine the extent to which paper could be divided and separated in to two sheets, in a way, by separating them to the point where the old adhesive was weakened (lost its bonding) then taking
measures and forms of Japanese paper which needed to be upgraded in missing places (Figures 16, 17, 18) determining the stability of paper in the middle or on the book spine, and preparing strips of Japanese paper, which will be attached to those places where the paper was weakened. After this, so to say, preparatory work, adhesive was inflicted between two separated sheets, then Japanese paper was applied on missing parts of old paper (Figure 19), as well as strips of Japanese paper used in the middle of paper form (in paper forms where it needed to be placed, especially in the two first pages of manuscript which were damaged the most). After these steps filter paper was used and smooth ivory stick over it in order to smooth the paper toward to its outer edges and to eliminated it from trapped inside air and excess of glue (Figure 20). The final step was placing the treated and restored paper sheet between the two filter papers, and two paper pads (filters have acted as protection to the treated sheet in order not to be stuck to paper pads, which absorbed moisture excess). The treated paper sheet was placed in safe "sandwich" like press in which it stood for 24 hours.

Figure 16. Separation of two paper sheets to the point where the old adhesive has weakened (Ajla Redžić, March 2016)
Figure 17. Preparation for Japanese paper measures and forms taking (Azra Hasković, March 2016)

Figure 18. Bonding of two sheets (Ajla Redžić, March 2016)
Figure 19. Bonding of Japanese paper between two sheets as annex to the missing part of original paper (Azra Hasković, March 2016)
5. Sewing of manuscript

After completion of restoration phase, manuscript was then sewed. In sewing process was used silk thread coated with wax. The sewing technique was the one usually applied in the Orient, referring to the specific manner of stitching that dates from time of which manuscript originates from. Also, traditional sewing technique was used especially in the restoration i.e. sewing and embroidering of the book spine, also using silk thread.

6. Conclusion

Conservation and restoration of this precious manuscript followed its pre-established plan. During the treatment difficulties were not encountered nor need for new conservation or restoration requirements. The manuscript has been successfully restored to the general joy and satisfaction of all those involved in the recovery of its former splendor and beauty.