

## EVOLUTION OF THE METHOD OF RESTAURATION OF MANUSCRIPT SOURCES

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**Abstract.** *This article briefly covers several methods used in the restoration of ancient manuscripts, their importance, scope of application, reasons for deprecation and introduction of other new methods into the restoration process.*

**Keywords:** *paper restoration, legibility, permanence, durability, sulking process, washing, bleaching, cutting, laminating.*

In recent years, our state has paid great attention to the field of preservation, conservation and restoration of written monuments kept in libraries and archives. In particular, the Decree of the President of the Republic of Uzbekistan dated July 16, 2021 "On additional measures to further improve the activities of the Center of Islamic Civilization in Uzbekistan under the Cabinet of Ministers of the Republic of Uzbekistan", dated February 10, 2022 Decree PD-126 "On additional measures improving the system of preservation and research of ancient written sources" assigned to experts the task of preserving many priceless works of our great scholars and thinkers, unique written sources and passing them on to future generations.

In order to pass the existing written sources on to the next generation, it is necessary to properly store them, conserve and restore them in accordance with world requirements.

Just because a written source is ancient/old doesn't mean it needs to be updated. A book or document that is usually in good physical condition will not be damaged by a pestle. If the source is damaged and needs repair, it will be sent to a specialist in the field of surgery for repair on a case-by-case basis.

The restaurateur specialist has an individual approach to the book and supports it based on its unique features.

However, as a result of many years of experience, observation and research of specialists, a general principle of restoration has been developed. In addition, the pill should meet the following three main requirements: They are: comprehensibility, permanence and endurance.

Clarity - After the pasting, no element, font or text has been copied, and the text ink has not been smeared.

1. Continuity - at the pre-treatment stage, it is necessary to identify the factor that is affecting the source, causing its deterioration, to remove the sticky tape (glue, scotch tape, etc.) or to make the source inept.

2. Durability - after restoration, the flexibility and flexibility of the source or document should be preserved.

The main reason for this feature is dandruff, which can cause damage to the skin.

The method, practice, research, experiment and results that have been tested for several years have been the basis for the formation of the main demand for the above-mentioned pest application in Japan. Below we will list a few of such restoration methods.

A few years ago, it was considered very important to preserve the text of the (figure 1), which is being rubbed or torn. From the 16th century, the *silking process* was the main method of

restauration until the first half of the 20th century (and in some places until the end)[5]. The silking was done by carefully gluing a transparent silk cloth to the back side of the torn paper. In the territory of Turkestan, the parts of the text of severely damaged sources were repaired with gauze. This method helped to keep the source in relatively good condition and prevent the beep from fading and disappearing. At the time, silk making was very expensive because it required a long time and highly skilled labor.



**Figure 1. It is a spring that is being squeezed and massaged**

An alternative to silk-screening, and becoming increasingly popular, is fabric covering, which is made by gluing a thin layer of tissue over the damaged fabric.

Tissue sheets are glued on both sides of the sheet due to the fact that the density of the fibers in them is very sparse so that they do not block the text and make it difficult to read.

Therefore, in order to increase the strength of the fabric, the thin fabric is glued with a thick glue[4]. However, since this type of glue tends to harden, over time the tape becomes hard and loses its elasticity, which means it becomes prone to breakage.

After a certain period of time, the condition of the silk and textile-glued for papers became dull, changed its shape and lost its durability. In addition, the wax paste used for gluing served as food for insects and fungus. Thus, over time, it became clear that the silk and textile covering method used in Japan for making pages was not sustainable.

*The washing method* was used in most of Western and is still used today (figure 2). This method, by reducing the amount of acid in the paper, cleans it from dust and stains, and also makes it more abundant. For Oriental manuscript, this method is very dangerous.

Because the ink used for text in Eastern country is water-soluble. For this reason, it is forbidden to wash such a manuscript, to wipe it with a damp cloth or two sponges. A special, water-free glue is used even for sealing.

*Whitening method* is also a widely used method in Western country, and it was used to remove from the page (figure 3). At this stage, it took a lot of time for the experts because it was necessary to wash and dry the each page separately.

However, the bleaching method does not increase the strength of the paper, on the contrary, due to the presence of chlorine and lime in the alkaline substances in it, it caused the paper to injected and the text to disappear.



**Figure 2. How to wash the bookcase**

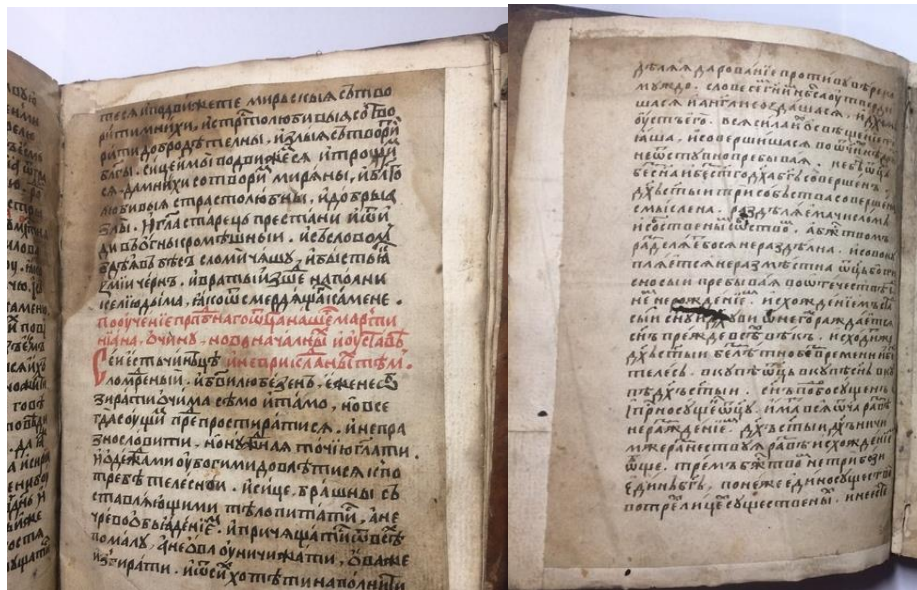
*The method of changing the size of the paper* was widely used by ordinary people, and it was believed that this method preserves the strength of the page. It is known that the cover of the book was torn off and fell off a lot. The most common type of damage is when the parts of the border in the main block of manuscripts are thinned and torn. In past centuries, scraping out pages of source material with tattered margins preserved the white book. However, when this method was used, the size of the book was reduced, the cover became larger than the main block, and worst of all, the marginal notes were cut off. But nowadays modern technology and methods of changing the size of the paper increase the possibility of speeding up the aging of Japan.



**3-figure. Whitening method**

*The inline or padding method* is a simple extension of padding the edge of one pad with a larger/wider pad (figure 4). This method is used to extend the length of the vapak, to prevent or stop it from shrinking and twisting.

In fact, the natural expansion of the paper, which is covered with moisture and moisture, occurs in the ancient paper and later in the pasted paper[3], never, double-sided paper glued to the beep-beep expands in the double-beep range. Thus, the inline method can lead to premature failure of the page.



4-figure. Lamination method

The lamination method is a Japanese method in which heat and pressure are applied to both sides of the paper. This method was used for the first time in the late 1930s as a means of restoring a damaged map. Based on the lamination method, a photo tape with a high permanent coating was obtained. When this practice was first used in the field of paper packaging, many experts thought it was the ultimate answer to paper packaging. Unfortunately, the laminating machine did not live up to the expectations of Ulap. The reason is that the present in the paper totalap did not disappear after lamination. With this, it was known that even when the film covered with bip and vapaklap was removed, the sticky substance from its base was absorbed into the vapaklap. In some cases, it even led to a change in the paper pan. After that, the lamination method in the direction of paper pasting was strongly pad by the specialist.

Scotch tape is a film of the same type, and the use of tape to protect a manuscript greatly affects the physical and chemical state of the source. The adhesive in the scotch tape causes the fibers in the tape to warp and zap.



5-figure. A book secured with scotch tape

Therefore, the question of how to restore the vapaqlap, which has become weak and weak, made the experts in the field think. It is considered the best and most effective way to restore the

torn, broken part of the bag with Japanese paper or special transparent tape (not with scotch tape), which is used in modern pasting.

Above, we explored the history of restoration and its evolution over time. Based on our research and the data we have gathered, we can conclude that with the passage of time, the available knowledge for the repair of medieval sources began to decrease. The reason was the change of climate, conditions of preservation of resources, and most importantly, the decrease of specialists engaged in the work of book reading.

It is also worth noting that some of the methods used in the history of restoration, such as silking, inline, resizing, and lamination, have been completely abandoned by world experts and replaced by new methods. In particular, in the restoration process, the use of adhesives such as Methylcellulose, Klusel-J, Zin Shofu, which have flexible-bending, reversible properties; using the most transparent type of Japanese paper (Hand made Japanese paper Hinging thick) instead of a thin cloth covered over the text during silking; instead of the inline method, pasting several types of Japanese paper depending on the position of the attempted parts of the source sheets; to consider and apply the available options for saving the tried parts without cutting them; It has been found more effective to make boxes and cases from acid-free cardboard than lamination to written sources.

Therefore, the use of natural raw materials, which are suitable for folk standards, for the creation of paper made from natural products and ink-based manuscripts, serves to preserve the culture.

To date, conservation and restoration works are being carried out in accordance with international and local criteria for the repair of written sources. However, it is one of the urgent issues to carry out constant research in this direction, to conduct scientific research to further improve the existing methods. Therefore, modern restoration is a constantly developing scientific-practical process. The importance of the "human factor" remains the most important element in the process of preservation of written sources, even with the creation of more advanced devices that provide data that allow restorers to make an accurate diagnosis in the repair of written heritage.

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