

Mounting and Short-term Rehousing of a Historic Decorated Fabric

Wafaa A. Mohamed, Mai M. Rifai, Fatmaa E. Sadat
Conservation Department, Faculty of Archaeology,
Cairo University
Egypt

ABSTRACT

Considerable care is needed when cleaning, consolidating, mounting, and rehousing textile items for storage or display purposes. Each textile item must be examined and evaluated on its own merits, particularly decorated ones. An Indian Moghul metal-decorated fabric (17-18th A.D.) was housed and conserved in the museum of Applied Arts, Helwan University, Egypt. The final stages of mounting, removal of previous repairs, mechanical consolidation of fragile parts, dyeing of restoration threads, and temporary rehousing are discussed for the case study. A scoured cotton fabric used for mounting was secured on a wooden frame. Previous repairs were gently released, and the silk threads for the consolidation process were dyed with natural plants. The temporary storage was suitable for the large artefact given its dimensions and the constraints of storage space. Folded and Rolled storage were explored as storage possibilities. The final decision was to roll and store the textile artifact inside a cylindrical inert tube thus making it easy to handled and transfer. The artifact was protected with padded with crushed folds of acid-free tissue papers and muslin. Maintenance conservation was assured with a micro-environment climate using silica gel as a desiccant was made to control temporarily the recommended humidity inside the storage unit.

Keywords: Rolled, temporary, consolidation, dye, storage, microenvironment

1. Introduction

When rehousing textile artifacts, for storage or display, each case must be considered, and the unique merits of the textile must be taken into account when cleaning and storing (Balázs & Eastop, 2004; NPS Museum Handbook, 2004; Bittner, 2004). A combination of multi-materials should be taken into account for the conservator; not only while cleaning, but during all the successive treatment stages as well (Kareem & Alfaisal, 2010; Mohamed et al., 2016).

M A historic fabric dated to about 17-18th A.D. needed to be rehoused after the completion of all cleaning processes (Sadat, 2011). Mounting the textile, before rehousing, is an essential stage in preparing the textile fabric to be displayed or stored. In addition, it is an initial step for the following conservation steps, such as the consolidation of fragile parts (Landi, 1992; Finch & Putnam, 1998). Selection of the suitable fibers for the mounting process, consolidation method of fragile parts, restoration thread type, and dye selection is discussed in this study and has been by many authors (Balázs & Eastop

2004; Sadat, 2011). Mechanical consolidation by different types of stitching is preferred by most conservators over the adhesive method because the latter is damaging in the long-term and is irreversible; which is very crucial to the conservator (NPS museum handbook, 2002; Bittner, 2004). The loose metal threads have to be re-sewn in their proper position with dyed silk threads (Balázs & Eastop, 2004; Kareem, 2010). Cellulosic fabrics cotton and linen were the most preferred fabrics; as silk and wool were described to be a poor choice because of their poor lightfastness.

In addition, wool is susceptible to insect infestation (Theile et al., 2004). The needlework using silk thread was preferred for consolidation. Silk was reported by many (NPS museum handbook, 2002; Norton, 1993) to be suitable for needlework restoration due to its flexibility, high accuracy, great properties for dyeing, and stability in climate change. Moreover, silk threads should be dyed with similar colors to match each fragile area. Regarding the dyes, there was a debate between trends to use natural dyes for conservation purposes, due to their safe nature and with the principle of like with like, particularly if the existing dyes of the case study were natural. Others preferred artificial dyes due to their high fastness because they will fade to a lesser degree than natural ones. But this is also a disadvantage, as the fibers will not fade to the same extent of artifact color, resulting in the fibers differing in appearance (NPS museum handbook; Landi, 1992). The decision to rehouse the case study to be either displayed or stored was decided based on the economic and space factors of the museum, and the renovations to which the museum will be

subjected. Furthermore, rolled or folded storage methods were both suitable for the case study because it was a 2-dimensional fabric. The Rolled option was chosen due to the lack of space in the museum and to make it easily handled and transferred (Balázs & Eastop, 2004). In addition to that, the fabric's metal embroidery was taken into consideration when storing it. Some guidelines should be followed when using the rolled-storage method.

The preventive maintenance is an essential part of the conservation practice to ensure the artifact's condition is preserved in a good state for as long a time as possible. Therefore, an interior microclimate environment was made to preserve the humidity level inside the storage unit. This method was stated by many authors to create a preservative climate for the conserved artifacts to not re-degrade with time. Many desiccants were used for this purpose, such as silica gel, artsorb, etc. The amount of desiccant is defined according to the volume of the storage or display unit being used (Watkinson & Neal, 1998). The desiccants helped protect the contents from an RH change caused by a temperature change. They alert the curators and conservators by changing to a blue color.

2. Case Description

The case study is a metal decorated table cover which was stored at the Museum of Faculty of Applied Arts, Helwan University, Egypt. It was registered with the number 118/9. Its dimensions are 142 cm, 150 cm, and 88 cm for the other lateral sides (Sadat, 2011; Mohamed et al., 2016). The metal decoration is directly embroidered into the basic ground fabric with hand-made embroidered back stitch “knots” (Figure 1).

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Figure 1. The temporary foam support and the polyethylene sheet used during restoration work in- situ (museum)

3. Unpicking Past Restoration Work

Removal of un-aesthetically-distorted stitches was done with precision using surgical tools. There were about seven un-aesthetically distorted seaming stitches used to darn some tears and missing parts; presumably in earlier restoration stages. The unpicking of these stitches was done using the appropriate tools, e.g., surgical forceps, needles, and tweezers. The stitches were loosened from the back at first; then the tied threads were removed with fine-edged scissors to avoid fabric unraveling. The thread end was then pulled smoothly to keep the fabric intact. Forceps allowed the cut threads to be picked out from the back (Figure 2 & 3).

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The case study was previously fully investigated and cleaned successfully (Sadat, 2011). So localized cleaning was only done to help remove the surface dirt and release the occurred shrinkage due to the unpicking of the stitches and to prepare the fabric to be properly re-stitched again. The simplest cleaning method was required, so "localized" Spot cleaning was the preferred method. This method of application was fully explained by Landi (1992) and Balázs & Eastop (2004). Wet cotton swabs dampened with deionized water was sufficient for superficial stains, aided by slight brushing by tamping, followed by ethyl alcohol for drying (Figure 4). This application should be applied to the pre-stitched areas to release the occurred shrinkage due to unpicking. The absorbent tissue was changed regularly to reduce the lateral spread of the solvent and dissolved dirt.



Figure 2. The Un-aesthetically-disfiguring seaming stitches used to darn the frayed areas and tears



Figure 3. Unpicking the past stitching using surgical tools (top), rolling the crumpled fabric out after removing the incorrectly pre-stitched areas (bottom)

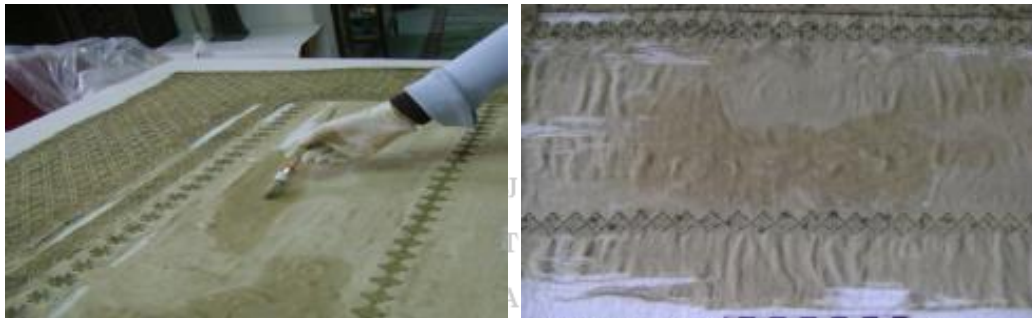


Figure 4. Spot/ localized cleaning of fabric after releasing the past stitching work

4. Mounting on Temporary Support

A wooden frame as a support/stretcher was made from pinewood for fixing the fabric during the next restoration stages. This stretcher was larger than the artifact by about 5 cm on all sides. A cotton fabric free from stripes and irregularities, with a plain weave structure of 1:1, similar to the technical analysis of the case study, was selected. Raw material should not be preceded by preparation or finishing processes. The cotton fabric was scoured, then dried, and

ironed to remove starching, then rinsed well to eliminate all the traces of soap. The washed cotton fabric was wrapped around the wooden frame and secured to the back of the mount with metal staples and pins. It was then wrapped along the sides of the wooden stretcher and properly tightened using a wooden stapler, to make it ready to be stitched on. It was then stretched taut and fixed by turning the extra material on each side over to the back of the board, and the corners of the cotton fabric should be trimmed (Figure 5) (Kareem, 2010).



Figure 5. The mounting process; the wooden frame (Left) and the scoured cotton fabric after wrapping it on the frame (Right)

5. Dyeing of consolidation silk threads

With the principle of like with like, the silk threads have to be dyed similarly to those of the case study. Creamy light yellow and golden yellow were the required colors for re-stitching the friable threads, torn edges, and darning the fragile ground fabric. Natural sources were preferred; however, using natural sources from other non-traditional plants was considered. This method is approved by Tera, personal communication, NIS. Pomegranate skins were used to produce both the creamy light yellow and the golden yellow. The pomegranate skins were prepared by washing and boiling, to get the extracted dye (Figure 6). About 500 gm of pomegranate skins were used for the two recipes. The extracted dye liquid was added

to 700-800 cm³ deionized water in a glass beaker and then boiled. Silk fibers (weighing 13.21gm) were added to the beaker in the diluted extracted dye; boiling at 800C for 30 minutes and continually stirring. The silk fibers were then washed using deionized water and were left to dry. For the creamy light-yellow color, the obtained color showed suitable fastness without mordanting. For the golden yellow color, mordanting with a little alum was needed to get its bright color. The pomegranate skins showed a high fastness degree for dyeing, which is measured by blue scale. The pomegranate skins mordanted with alum reads 1-8 on fastness degree scale (Figure 7) (Dye recipe taken from an unpublished paper by prof Ferial Tera, textile metrology research department, national institute of standards, Giza, Egypt).



Figure 6. the pomegranate skins during boiling to extract the dye liquid "A," the pomegranate skins within the extracted liquid "B," filtration of the extracted dye "C," Dyeing silk threads "D"



Figure 7. The given golden yellow threads (left), the creamy yellow threads (right)

6. Mechanical Consolidation "A Stitch in Time Saves Nine"

"A stitch in time saves nine." This quote indicates the importance of using just a few stitches; however, these few should be applied with precision and discretion. The new stitches should be sewn through the original holes. It is a good general rule to avoid using knots and to start a line of stitching with a back stitch (Casting on/off).

a. Temporary Needle Fixation

Initially, the temporary primary fixation of the object using running stitches was done to achieve the weight distribution using very fine needles (Bittner, 2004; Theile et al.,

2004). The most basic and common technique is used to lay a single or double thread in straight lines, leaving about an inch (2.5 cm) free at the start of the stitching line. The running stitches should be small and regular, approximately 1/4 inch (0.6 cm) apart. In this case, a single stitch that goes over both threads was applied. This prevents threads from "spreading out" at the corner and maintains the straight line at the thread. It was carried out using a different thread that was red. It was then followed by running stitch in the same color of the damaged area, golden yellow for the embroidered spaces, and the light creamy the yellow "beige" for ground fabric (Figure 8).

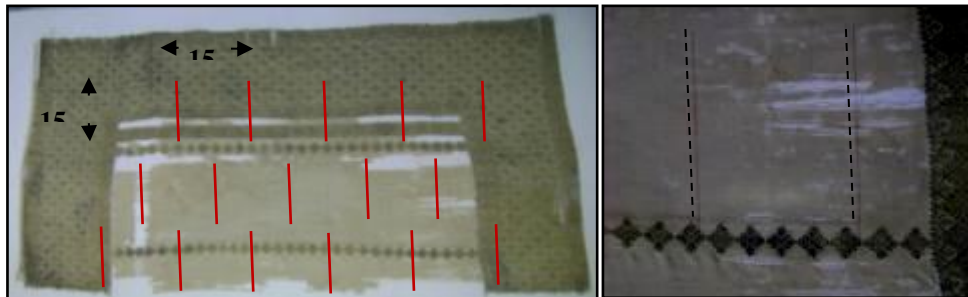


Figure 8. Temporary fixation of the case study (left), details of temporary and permanent fixation of the embroidered fabric using running stitches (right)

b. Final Needle Fixation

The permanent consolidation was then done using definite stitches, according to each damage form. It was necessary to consolidate the textile with the couching technique. The correct tension of stitching in question is of the greatest importance. If the stitches are too tight, they may cut into the old fabric and cause damage; even if they are also too small.

If stitches are too loose, they will not only be ineffective but will also allow movement between the support and the old textile.

Final fixation should be then done. It is an essential step to try to roll the unraveling and friable threads out using brushes dampened with deionized water; avoiding metal contact with water, to aid in flattening these threads (Figure 9).

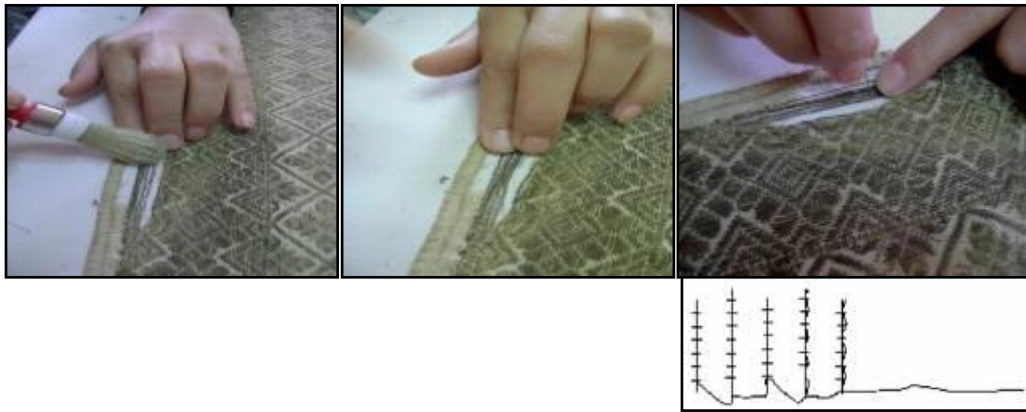


Figure 9. Couching technique used for stitching the friable metal threads on the border

A herring-bone stitch was used to secure the ragged edges and frayed threads (Figure 10). It was specifically used for fastening down

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the ragged edges and frayed threads (Figure 10). It was specifically used for fastening down the ragged edges of tears and holes. A blanket stitch, an open form of a button-hole stitch, was used to tidy edges and give a firm line along the base of fringing and other loosely woven borders (Figure 11).



Figure 10. Herringbone stitching to secure the ragged edges; aided by schematic diagram of herringbone (Left & right)

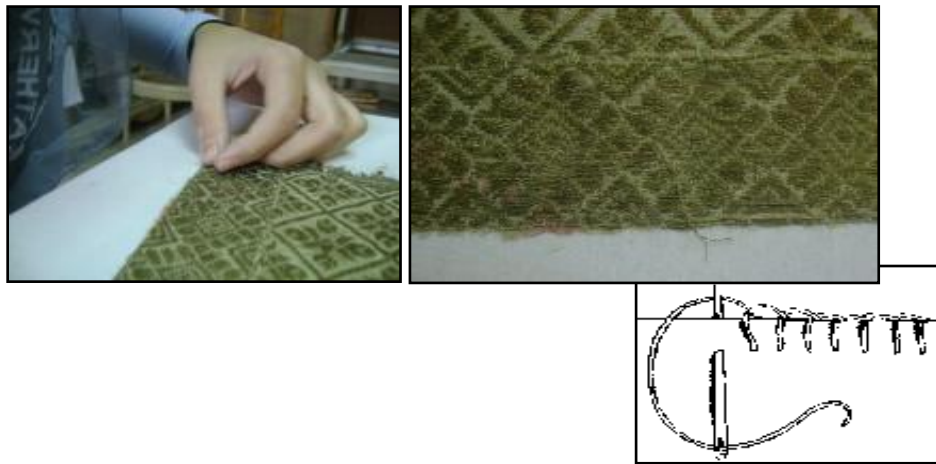


Figure 11. Blanket stitching to secure the untidy edges; aided by the schematic diagram of a blanket stitch

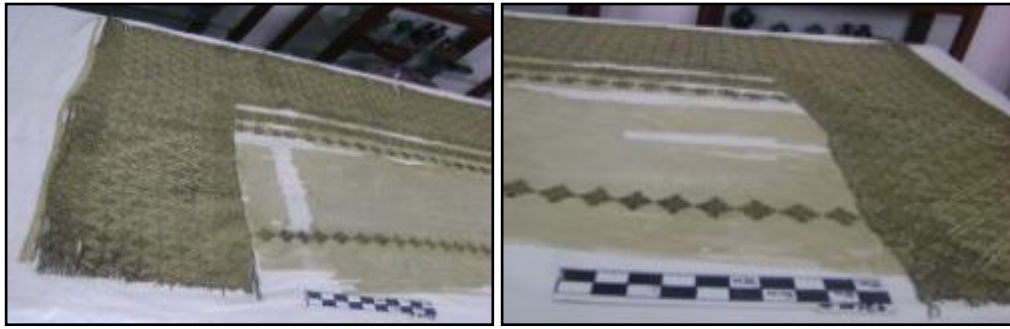


Figure 12. Parts of the studied object after the mechanical consolidation

7. Temporary Storage

The factors governing the choice of storage method should be attributed to many factors such as the artifact size and the museum conditions where it is located. The decision to store the case study was made because of the intended renovations that were going to be made to the museum housing the case study. Therefore, the wooden frame was released by unpicking the involved staples. The type of storage was a mystifying matter; rolled and folded storage were the most appropriate methods of storage for the case. The rolled storage method was selected for this case; while the folded storage was just demonstrated. Due to the lack of space and

possibilities in the mentioned museum, rolled storage was also chosen because of its space saving properties, and because the artifact could be easily handled and transferred.

J T A T M 7.1. Folded Storage

Folding should be kept to minimum folds; cushioned with plenty of crumpled acid-free tissue or 'sausages' made from acid-free tissue papers. Folded textiles should be periodically unfolded and refolded to avoid damage resulting from repeated folding in the same area. This option was only demonstrated in the following Figures (fan folding) (NPP museum handbook; Bittner, 2004) (Figure 13. left & right).



Figure 13. Demonstration of the folded storage "fan folding," interleaving crumpled tissue paper between folds to avoid sharp folds

7.2. Rolled Storage

Rolled storage was proposed and carried out in this case study. The embroidery represented here was somewhat flat "bas-relief"; rolled storage should be avoided for other cases of 3-dimensional embroidered fabrics. An inert tube can form the base of an excellent space-saving storage unit for flat or two-dimensional textiles that can be rolled. A high-quality inert pipe, 10 cm in diameter was used. The outside of a tube can be covered with bubble wrap to create an even larger diameter tube for oversized, fragile textiles. The tube should be at least 6" longer than the width of the textile (about 100 cm) (Figure 15). The textile was laid flat, gently smoothing wrinkles. Most textiles should be rolled face in so that the design will be face up when the textile is unrolled. But textiles with raised surfaces should be rolled face out. If the textile has a lining, roll lining side in. When a double thickness of fabric is rolled, the inner layer tends to wrinkle. It is preferable to create wrinkles on the lining rather than on the face of the textile (NPS museum handbook; Sadat, 2011). The tube was covered with polyethylene sheeting, and then the roll was wrapped completely with unbuffered, acid-free tissue paper, it can also be wrapped with prewashed cotton sheeting to help reduce problems with moisture

transfer. The tissue should extend slightly beyond the width of the textile but not beyond the edge of the tube (Figure 15). Unbuffered archival tissue was interleaved as the fabric was rolled to protect the face of the textile. Washed muslin was used to cover the wrapping and tied in place with cotton twill tape (Figure 14: D, E). For keeping the embroidered fabric rolled safely, it was stored in a roller tube of high-quality inert material "polyethylene" with a large diameter; which was used to keep plans and schematic graphs (Figure 15). This roller tube was covered inside with the pre-washed muslin and tissue paper, to prepare it for the rolled embroidered fabric to be kept in. The rolled fabric was then be inserted in (Figure 15). Identifying numbers and a card (ID) was attached to the dust cover to prevent unnecessary unrolling. Because rolled storage limits accessibility, good identification is important for easy retrieval. Each roll should have an identification tag attached. For identifying rolls, place a photograph of each item and a card with its accession number (ID) with dimensions into a plastic sleeve tag, and attached it to the roll. In this case, the external lid of the cylinder tube was used to facilitate the duty of identification; as it had a written label with the general description and the registration number.

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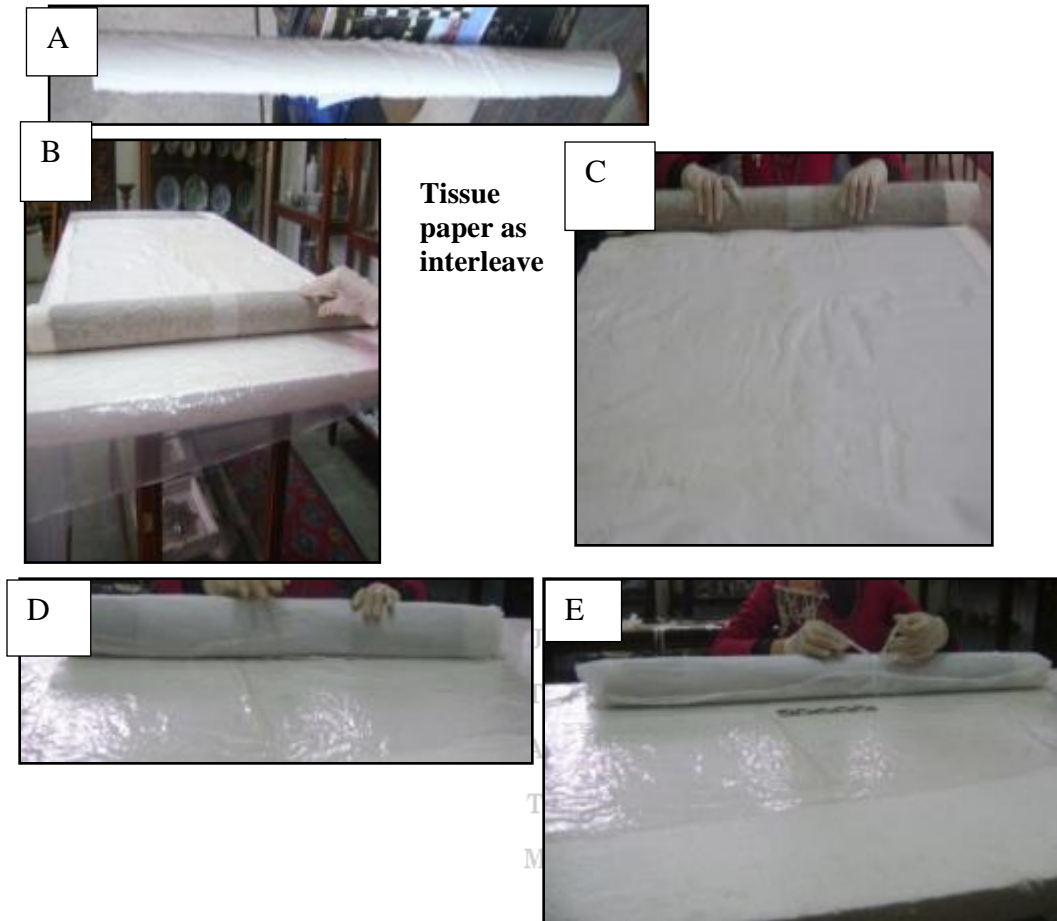


Figure 14. The detailed stages of the rolled storage of the case study. With embroidery face out and roll lining side in, adding acid-free tissue paper around the tube to provide a "leader" to guide the textile onto the tube. Final wrapping of cotton muslin, ended with cotton twill tape to secure the rolling.



Figure 15. Roller cylinder tube "100 cm long" (left), the large nozzle of the tube, inserting the rolled fabric covered with the washed muslin into the cylinder tube "storage unit," the identification label on the lid of the roller tube in Arabic (right).

8. Microenvironment Monitoring

A definite weight of gel "standard gel" as a desiccant was used to create dry microenvironment (below 40 % RH) according to the volume of the storage box. A silica gel of a self-indicating form was used which was characterized by its blue color change when it has reached its saturation point. The case is assumed well enough sealed. The volume of the cylinder was calculated, so the required amount of silica gel was calculated and weighed to be 7.9 gm, and then it was packed in a perforated polyethylene bag. This bag was put at the base of the storage cylinder to keep the relative humidity not more than 40 %. The moisture ratio should be checked periodically; once the blue color changed, the silica gel should be changed out or recycled again.

Currently, the case study is temporarily rolled-stored in the mentioned museum and is awaiting the renovations being done to the museum, the temporary maintenance was assured. A periodical inspection should be guaranteed to fix any observed alterations that occur over time.

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