ABSTRACT: The Conservation Laboratory of the National Museum, New Delhi, generally caters to the conservation needs of the collection housed within the museum. In the case of Thangkas, in addition to the conservation of these housed within the National Museum, which number approximately 150, the Laboratory has also worked on Thangkas from other institutions, including from living religious institutions. This article describes the methodology used in the conservation of Thangkas as followed by the Conservation Laboratory, National Museum, and various innovations tried in consolidation, reinforcement and presentation techniques of Thangkas.

Introduction

The Thangka is a scroll painting from the Himalaya region, made by Lama Monks or artists. The term Thangka is deduced from Tibetan ‘ta’ an ka or t’ an sku, meaning something that is rolled up, to be specific, a rolled up image or a painted iconostasis. It is also said to have derived its name from the Hindi words ‘tangne –ka’ or ‘for hanging up’.

A Thangka has a composite and complex structure. It consists of a support of cotton cloth, which is painted after applying a ground of chalk mixed with hide glue, on both sides of the support. A Thangka’s paint layer is normally composed of inorganic and organic colouring matter, and glue as a binding medium. In addition to the main painting, a Thangka has borders of silk and brocade stitched to the main painting, and wooden staves attached to it at the top and bottom. All these components of a Thangka have different properties and consequently behave differently to its environment. Because of the diversity of materials used in the composition of Thangkas, Thangkas do not fall in a single conservation category. In addition, various rituals and practices followed during their veneration may induce various types of deteriorations. Thangkas are religious objects and are used for veneration. There are some restrictions their devotees attach to Thangkas. Their conservation cannot be undertaken by strictly following the usual ethics of conservation.

Conservation at the National Museum, New Delhi

The Conservation Laboratory of the National Museum mainly caters to the conservation needs of its own collection, but sometimes, on request, conservation work on objects of outside institutions is also undertaken, subject to the importance of the collection. There
are about 150 *Thangkas* of different types in the collection of National Museum. Most of these are painted, while a few are woven. A major portion of this collection was procured in 1948. In addition to the conservation of its own *Thangkas*, this laboratory has undertaken the conservation of *Thangkas* from other institutions, such as from monasteries in Ladakh, and from the Picture Gallery in Baroda, India.

**Deterioration**

The *Thangkas* conserved in the National Museum’s Conservation Laboratory were in different stages of deterioration. The main factors responsible for this deterioration were:

- Rolling and unrolling/abrasion;
- Environmental conditions;
- Handling and use during religious practices;
- Acidic pigments;
- Smoke from oil lamps;
- Composite nature;
- Mishandling and inadequate storage.

The combined action of all these factors, which often interact simultaneously on different *Thangka* components, can result in various types of deterioration.

**Consequences of Deterioration**

As the various agents of deterioration act on or affect the *Thangka*, the consequences can be any or all of the following conditions:

- Weakening of the support (Figure 1);
- Dust, dirt and smoke accumulations disfiguring the work;
- Cracking and flaking of paint;
• Discolouration and fading of paint or dyes;
• Bleeding of colours;
• Stains;
• Folds and creases;
• Tears and holes;
• Loosening of joints or seams between different pieces of cloth.

Conservation

Conservation treatments carried out in our Laboratory can be methodologically divided into three basic operations: (1) Cleaning; (2) Reinforcement (or Consolidation); and (3) Restoration (or Re-integration).

(1) Cleaning

Cleaning refers to the removal of undesirable materials from a Thangka, which includes all those things which are not originally a part of the Thangka, and which put it at risk of further damage. Removal of dust and dirt is important as they often act as nucleus in condensation of moisture and catalyst in the conversion of gases in a polluted atmosphere to acids. But since cleaning is a process of deletion, it cannot be a reversible operation. It is, therefore, important to identify what is to be removed, and to what extent.

Various cleaning methods can be employed, depending on the material to be removed and the condition of the painting. Also, since cleaning is a non-reversible process, utmost care is to be taken in the decision as to what is to be removed from the painting and to what extent. Over-cleaning is avoided at all costs.

Methods being employed in our Laboratory for cleaning Thangkas can be classified into:

• Mechanical;
• Non-aqueous solutions;
• Aqueous solutions.

Mechanical Cleaning

Mechanical cleaning is considered as the first option of cleaning since it is thought to be safer than methods requiring the use of solvents (including water) or chemicals. Mechanical cleaning, in effect, is the application of force to dislodge the substance to be removed. So the force required to remove these accumulations has to be greater than the force of their adhesion to the surface of the painting. This force has to be kept lower than the force of adhesion between the paint layer and any layers below it (the ground, the substrate) so as to avoid any damage to the paint during the cleaning process. Front and back, both are cleaned within safe limits, by the use of tools such as:

• Dry brushes of different stiffness;
• Needles;
• Scalpels of suitable shape and size;
• Vacuum cleaner (by suction from the back).
Non-aqueous Cleaning

If stains on the *Thangka* have become absorbed within the materials and do not form a surface deposit or layer, mechanical methods would not help to remove them. Furthermore, it is not safe to attempt the mechanical removal of incrustations when the force of their adhesion to the painting is more than that of the paint layer with its undersurface. In such cases, the next option is to test the use of solvents other than water, so as to dissolve the stain or accumulation and to remove the dissolved stain by the use of blotting papers or a vacuum table/box. The solvent, or a mixture of solvents, is chosen after localized testing in inconspicuous areas. The most common solvents used are acetone, petroleum spirit, trichloroethylene, naphtha, toluene, isopropyl alcohol, carbon tetrachloride and ethyl alcohol, alone or in mixtures. All colours are tested individually for stability in the solvents used to avoid any bleeding of dyes or paint.

Aqueous Cleaning

Non-aqueous cleaning is quite useful and generally safe, as the medium and most of the pigments used in *Thangka* paintings are usually not sensitive to organic solvents. Sometimes however, certain dyes used in paintings or some markings like stamps are sensitive to solvents and may bleed, or travel from the front to the back or from the back to the front, when such solvents are used. In addition, organic solvents cannot help in removing stains or incrustations which are not soluble in them. For such cases, aqueous cleaning, though somewhat risky, is sometimes attempted.

Water may potentially be used to remove water stains and water soluble accumulations, or for softening certain hard incrustation like fly marks. This can be done either by localized controlled applications to the surface, or by applications to the *Thangka* from the back. The aqueous cleaning is normally done with one of the following formulations:

- Water and ethyl alcohol;
- Water and isopropyl alcohol;
- Water + alcohol + non ionic detergent (such as Lissapol or Teepol);
- Ammonia water for stubborn stains.

Since the binding medium of *Thangka* paintings is water sensitive, the following precautions are taken before, during or after aqueous cleaning:

- All colours (paints and dyes) are tested for their stability in water.
- Prolonged contact with water is avoided.
- Rapid drying is ensured to avoid any bleeding of colours.
- No manipulation is undertaken, while the painting is wet.
- Weak suction is used from the back to dry it rapidly and to reinforce the paint by regenerating the binding medium.

Before the application of water, other parts of the *Thangka*, such as different textile pieces of borders or wooden staves, are separated, because of the difference of their behavior with water. Before the components are separated, they are documented in detail (condition, dimensions, exact location, etc).
(2) **Reinforcement**

**Consolidation of Paint**

Cleavages between the paint and the ground as well as flaking paint, which are the result of degradation of the binding medium, used to be treated solely with polyvinyl acetate resin dissolved in toluene. Some other consolidants, such as gelatin and Paraloid B72, have now been added to the options. More recently, in certain circumstances methyl cellulose has been used with success as a paint consolidant.

The viscosity of the consolidant used is adjusted so that it wicks into the cleavage by capillary action and, as well, imparts to the paint the required strength. After the application of consolidant, pressure is applied by means of weights or the suction table/box to produce contact and adhesion.

**Repair and Restoration of Support and Borders**

During the process of restoration, two different strategies are followed. In the case of *Thangkas* belonging to the National Museum’s collections, the borders are repaired and restored, retaining the original, as far as possible ([Figure 2](#)). In cases where Thangkas are living and used in monasteries or some other religious institutions, these are sometimes replaced by new cloth, if these are too damaged to be acceptable to the devotees or their custodians.

The repair, in both instances, is done with needle and thread in order to retain the flexibility of the *Thangkas*. If the cloth of the border is too fragile and brittle to be stitched, starch paste is used as adhesive for the repair.

![Figure 2: Repair of original borders of a Thangka so as to reuse them.](image)
**Lining**

If the original painting support is too weak or torn that it is likely to be damaged further during handling and storage, a lining of another cloth is provided at the back for support. The lining material (cloth or adhesive) is chosen such that the *Thangka*’s change in flexibility and physical appearance are minimum. Care is also taken that the inscription at the back of the painting, which is so important, does not get obscured by the lining fabric.

Lining of the painting and of the borders, if required, is done separately. Borders are lined by stitching with a needle and suitable thread, while the painting is lined by the use of an adhesive. Starch or carboxy methylcellulose (CMC) paste is generally used. Calaton CA (soluble nylon developed by Imperial Chemical Company of the USA) was also tried in the past with a transparent chiffon cloth, in an effort to make the lining non-aqueous. This however led to a significant loss of flexibility, and so was discontinued. One *Thangka*, lined with Calaton CA about 30 years ago, was examined by the author recently and it was found that, while its colours were in a very good condition, the adhesion between the lining cloth and the painting support had failed in some areas (Figure 3). Lining, at present, is avoided, as far as possible.

(3) **Restoration (Re-integration)**

For *Thangkas* in the National Museum’s collection, ethical protocols, such as minimum intervention, visible retouching, and reversibility, are followed, whenever possible, while in living *Thangkas*, these concepts may not always be applicable to the same extent since other factors affect the ethical approach. Damage to a *Thangka*’s iconic figures may render them unfit for veneration, so in the case of living *Thangkas*, all paint losses should be completely restored to its original format. It is therefore important that the conservator-restorer has complete knowledge of the iconography of the *Thangka* in question. In case of any doubt, help is sought of some scholar or monk, or it is left for the owner to get it inpainted. Decisions in such cases are not to be imposed by strictly following the usual ethics of conservation in isolation of context, but rather are agreed between the affected parties. Such conservation may be termed as *Negotiative Conservation*.

**Mounting**

After the conservation of a *Thangka*’s individual parts, they are re-assembled, following the documentation carried out earlier, by stitching with needle and thread, except in those cases which are too brittle to be stitched. These are fixed with an adhesive such as starch paste.

Even after conservation, *Thangkas* are vulnerable to damage because of the weight of the lower wooden stave while on display in hanging condition, and because of rolling while in storage. To support the weight of the wooden stave, particularly the heavier ones, two cotton ribbons are provided at the back of the *Thangka* by stitching their upper ends to the top rod and their lower ends to the rod at the bottom (Figure 4). The ribbons are exactly of the length of the *Thangka*, so that the weight of the rod is now taken by the ribbons and not by the painting or the borders. These ribbons are likely to cause problem
when the *Thangka* is to be rolled for storage, which can be solved by using detachable ribbons by using something like velcro strips.

**Figure 3:** Failure of adhesion in an old lining carried out many years ago with Calaton CA

**Figure 4:** Cotton ribbon support at the back.

**Figure 5:** (Top) Mounting the Thangka on an inconspicuous stretcher. (Right) Diagram showing the intended visual appearance of the Thangka suspended using a stretcher.
One of the *Thangkas*, received for conservation in our laboratory, was mounted on a wooden stretcher (exactly of the size of *Thangka*) after conservation, by stitching cotton cloth strips on all the edges (Figure 5). It was stretched in such a way that the stretcher was not visible and both upper and lower staves were protruding just beyond the stretcher. This was then hung from the stretcher bar, but gave the impression that it were hanging with string on a nail. By this arrangement it was found that the Thangka was free from strain. This, however, needs to be discussed with all concerned as regards to its ethical considerations.

**Conclusion**

*Thangkas* are complex in both iconography and technical construction. While undertaking their conservation at the National Museum, New Delhi, in addition to the ethics of conservation and long-term stability of the material used, other aspects, such as social, religious and sentimental expectations from them, are valued. Conservation is, therefore, somewhat flexible in its approach to accommodate all the issues relevant to the *Thangkas*.

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