

The Conservation Of Tang-kas

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1. Introduction

Tang-Kas are an expression of the Buddhist faith. They had their origin in India, inspired by traditions that were both magical and religious and they developed through Nepal on the one hand and Kasmir on the other to reach maturity in Tibet, a country which, to date, had no cultural traditions of its own. The appreciation of literature and the arts was an accompaniment of Buddhism which found its way to Tibet from the adjacent Indian and Chinese civilizations. The tang-kas is a pictorial hanging, the literal meaning of the word being something that is rolled up but the older name of "Ras-bris" signifies a drawing on cotton.

The subjects of the tang-ka were taken almost always from the Indian "Pata", fabrics that were painted with images and symbols of divinities: Buddha and Bodhisattava. The tang-ka was used to acquire merit, to hang on family altars or in the temples or to be carried by the itinerant lama to promote meditation or as an illustration of his sermons.

The painter of the tang-ka, found by Buddhist ritual (Trippitaka) had to follow well-defined rules and could not allow himself any variations by which he might be recognized. In carrying out this, his act of faith, he must

remain anonymous.

It is extremely difficult, therefore, to assign a date to such art forms where neither inscriptions nor the insignia of one of the great masters is present. Only exceptionally, when such exist, can a postquem date be established. Otherwise, it is almost impossible to place them historically.

The earliest pictorial records to be found in Tibet, apart from isolated prehistoric occurrences, seem to be in the VIII C.A.D. and these are a manifestation of mediaeval Buddhist art. They related to the Pala kings who reigned in Northern India between 750 and 1150 A.D. Pictures that were used to illustrate tang-kas appeared only in the X century but it should be stated that dating with any degree of certainty is not possible prior to the XVIIIc.

The subject matter had to follow fixed patterns that were continuously repeated, some of the favourite topics being as follows:

- i The Buddha and the stories of his life, surrounded by divinities, Bodhisattava and lamas.
- ii Groups of divinities (Tschog Shing), depicting the cosmic tree rising from the waters through the earth to the heavens and

having the various divinities arrayed on its branches.

- iii The wheel of life, a subject that illustrated the Buddhist conception of birth and death.
- iv The Intermediate state (Bar-Dova), a subject illustrating the symbolic visions of the deceased between the moment of death and re-birth.
- v The Mandala or Magic Circle. This took the form of a circle in a square with four openings and it combined in itself, art, magic and psychology. Its symbolism was derived from the Yoga doctrine which teaches that by meditation and concentration the soul can unite itself completely with the divine. The Mandala is also a symbol of spiritual power and he who carries out the painting or meditates upon it acquires divine powers.

During special ceremonies a mandala design might be reproduced on the ground by using coloured powders.

- vi Horoscopes, used by astrologer lamas in foretelling the future.
- vii The Great Masters. These represented the Dalai and the Tashi lamas and their predecessors.

Technique of Execution

While the technique of tang-ka construction was fairly simple, it resulted in an article that proved to be sufficiently resistant and suitable for its purposes even though apparently fragile and impermanent.

The support was usually a cotton fabric. The earlier canvasses were thick and rather irregular but with the passage of time the

textiles became thinner and more even. There are rare cases of painting on silk or leather.

To prepare the ground for painting the cloth was stretched on a frame and while kept taut by a string treated through the borders it was treated on both sides with several ground layers composed of white charges and a binding medium like vegetal gums or starch glue but for religious reasons never animal glue. When quite dry the surfaces were polished by rubbing with shells or other materials. When finished, the ground was usually so thin as to allow the texture of the weaving to show through slightly.

The design was carried out on the ground either directly by the use of charcoal or it might be transferred by a fine pounce from another drawing and then traced using Indian ink. It is probable that the pounce technique was applied when several similar subjects were required as set themes were always recurring.

As for the paint layer, the pigments were normally of mineral origin but some organic colouring matters were employed. The medium used was probably a vegetal gum. The pictorial layer had the appearance of gouache, as when colours are mixed with white, and in tang-kas the white might be lime which would provide sufficient covering power with a matt texture. Gold was much in demand for the backgrounds, silver more rarely.

As for the composition, this was carried out in flat colour-wash within sensitive outlines that suggested the modelling. These outlines, together with the final touches and the inscriptions, were done either in red or perhaps more often in black. For this, a carbon ink was employed which was made according to a complex formula by burning wicks in oil and grinding and tempering the resultant residue in animal glue. Having

regard to the delicacy of these finishing touches, it is thought that the paint-brushes used must have been very fine and pointed.

There is no sure proof of the presence of a surface-protective layer of varnish but, if used, one may assume that it would be of the same nature as the medium though much diluted.

The execution of the painting started with the central feature which provided the nucleus around which the surrounding composition developed and as the painter was not only an artist but a believer performing an act of faith which he shared with the priest, it appears that the latter was charged with carrying out the most important parts of the work, namely the faces and the inscriptions.

When carried from place to place the tang-kas were rolled up. This was always done, starting at the bottom and rolling towards the top. Any other method would have been sacrilegious.

Tang-kas were normally of rectangular shape though some of the older ones were almost square. The earliest had a border only at top and bottom, but later on, borders framed the picture entirely. They were made of brocade, Chinese or Japanese in origin and were sewn to the picture. On the reverse, the borders were lined with thick linen, fixed either by sewing or adhesive.

The stick at the bottom around which the pictures were always rolled was at first of bamboo with silver or brass ends but later a wooden rod of circular section was employed and it was provided with the same metal terminals. A narrow strip of flat wood was inserted in the upper edge of the tang-ka for hanging purposes and it might be provided with ribbons for fastening when rolled up.

To the upper slip of wood also a thin and precious veil was sometimes fixed to protect the picture especially from the smoke of votive candles.

Though much has been said of the painted tang-kas, other types were not uncommon; some were woven, embroidered, others carried designs in applique work as will be seen from the following list of common types.

- i Printed Tang-kas:- Those in which the artist coloured the subject-matter already printed on the textile. In this case the creative value is seen to belong to he who carved the blocks. Such carvings were executed on large wooden boards preserved in the monasteries. The faithful caused them to be printed on linen or on paper in preparation for colouring by the artist or perhaps so as to be made available for a copyist.
- ii gsert'an:- This category contains both those printed on a background of gold and executed in red pigment or on a red background and figures in gold, the word "gsert'an" signifying gold.
- iii Embroidered Tang-kas and those having decorative textile appliques. The embroidered variety was introduced from China. The applique type represent the oldest examples.
- iv Mandalas;- Described above.
- v Tang-kas of the mGon-Khan.; These are of the greatest artistic value; the predominant colours are red, black and dark blue. In the oldest there were black figures on a red ground while the more recent are red on a black ground. As regards the borders which act as a frame for the tang-ka see

the detailed and precise description in "The Z. C. Huntington Studies in Conservation, 1970, vol. 15, no 3, pp. 190.

3. *Deterioration with Age*

Irrespective of their origin, tang-kas are usually found to be in rather a precarious condition for, although they are by nature relatively resistant, they are sensitive to the many well-defined factors that induce deterioration and to which they are inevitably exposed.

When hanging inside temples, for example, they are continuously in an atmosphere liable to be contaminated with the fumes of burning animal fats and this results in their gradually accumulating a deposit of brownish soot. When carried in the open or suspended outside, they are exposed to the weather and particularly to humidity. Periodic soaking in water has the effect of partially removing the brown staining but runnels are formed and dark haloes are left surrounding the undissolved residues of soot. Such forms of damage which are frequently present in tang-kas are conspicuous from the aesthetic point of view and physically they constitute the weakest areas when it comes to cleaning. As long as the tang-kas are exposed to damp in the unrolled condition, the action is less grave because notwithstanding the potentially unstable system the superficial greasy layer confers partial protection, but, when they suffer contact with water immediately before or after rolling the damage is much greater as the humidity penetrates into the interior, swelling and weakening the ground and paint layers which tend to tear themselves off by sticking to the convolutions of the materials with which they are in contact.

Other factors of a mechanical nature are associated with the repeated action of rolling

and unrolling which, if not carefully carried out, results in a lack of homogeneity causing horizontal and vertical wrinkling with loss of colour. Such folding is also found where the brocades frame the tang-ka. These may have suffered differential shrinkage as compared with the cotton canvas which, of course, has been primed for printing and thus in some measure stabilized.

Such are the types of deterioration usually to be found on tang-kas and they all arise from the causes that have been indicated.

More rarely one comes across damage by fire desiccation, staining, serious distortion, the presence of lacunae or finally complete destruction.

4. *Treatment for Conservation*

With a knowledge of the technique of manufacture, the sensitivity of the final product and the main causes of deterioration, it will be evident that any interference with the paint layer would be likely to involve a difficult and delicate operation. However, as regards the lining of the tang-ka which, when the different strata are considered, is necessary for the described deteriorations, several well-tested methods of procedure regarding treatment are available and have been applied with success.

It we exclude the use of a rigid support which is seldom justified as it detracts from the character of the work and almost always deprives it of its original silk brocade framing, one is driven to employ a method which involves reinforcement of the old canvas and this is both simple and suitable. It is a variation of the method used in the Orient for strengthening paper, silk, cotton, etc. When applied in the case of a tang-ka the result is that the old canvas retains its flexibility after treatment so

that it can still be rolled and unrolled with ease and the borders can be stitched easily. Above all, the attachment is so transparent that one can study the design through it and read important inscriptions that would be buried under any opaque lining.

In accordance with the Japanese technique, paper is used for the lining. The type of paper, its quality and thickness, is selected as being the most suitable attainable for the painting in question. For example, choice may be of Usu-Minogami (thin paper from Mino) and such a paper can be obtained from an importer of Japanese papers in Europe. (1) It bears the number 540. The adhesive is a corn starch paste, more or less diluted according to necessity. The properties of this adhesive are that it does not in any way alter the appearance of the picture, that when applied to the back it does not soak deeply into the textile and so does not get through to the surface of the picture and, finally, that it can easily be removed if necessary, by the application of a little moisture.

Another method of reinforcement that has given good result with tang-ka textiles is to linen with a thin canvas impregnated with polyvinyl acetate emulsion dried and applied warm by the use of a hot iron. If it should seem desirable to avoid the use of the iron lest it should cause mechanical damage to the fragile and delicate paint layer there is an alternative method of removing any persistent wrinkling of the original canvas by a process involving damping taking advantage of the powerful traction of the paper on drying. This procedure is described below.

The starch and paper process is carried out as follows. A very fluid mixture of the

adhesive to which a fungicide has previously been added is applied to the sheet of paper placed upon a flat sheet of Formica using a broad brush having soft short bristles. The quantity of starch left on the paper must be a minimum and it must be very thoroughly spread and any excess eventually removed using the same brush. The size of the sheet of paper is important and it should be some two to three centimetres on each side broader than the old canvas.

After allowing a little time for the adhesive to lose some of its moisture, the sheet, rendered fragile and difficult to handle by the wetting and the weight of the adhesive, is attached to a thin, rigid wooden rod using the brush, and now by raising the stick the paper can be lifted from the Formica sheet like a flag.

During the waiting period the original canvas is slightly but uniformly moistened employing this time a different broad brush having bristles of the same kind. Then with a controlled and dexterous movement the paper is attached to the canvas taking care to avoid creasing it and with another brush this time quite stiff and with long bristles it is delicately tapped all over the surface to ensure that adhesion is perfect even in the smallest irregularities or deformation of the canvas.

As it dries it may look a bit strange because the paper that is free at the edges will have twisted considerably. At this stage the back has to be rehumidified and only the free border edges are treated with fresh adhesive so that they are in a condition to stick down the tang-ka face up on a smooth Formica or Masonite sheet. If, the latter, it

1. OSKAR Vangerow KG, D-8 Munchen, Postfach 83.

should have been previously prepared by impregnation with shellac and thoroughly dried. In this system, as the paper and the textile dry, the picture comes under tension which is just enough to eliminate the undulations and deformities.

According to the Japanese technique the object is left under tension for many months in order to ensure that the flattening is permanent. In the application of the process as described here for tang-kas, notwithstanding the reduction in the time of tension, the results are equally satisfactory.

When the support has been put into good shape, the next consideration must be that of aesthetic presentation and this comprises cleaning, reintegration and remounting.

Cleaning involves direct action on the materials that constitute the artistic composition, namely, the paint layer. An understanding of the technique of execution and of any alterations that have been made to the work is a basic essential in devising a means of treatment which, otherwise, could so easily be hazardous. Where, as in the case, the binding medium is very sensitive to water and where at the same time the use of aqueous media are essential for treatment, the delicacy of the operation will be apparent. There is this, also, that pigments are characterized by a lack of cohesion and any action that involves rubbing, even when dry, is likely to be fraught with danger. This being said, one must proceed with the greatest caution, particularly in dealing with a tang-ka that has been exposed to some form of disaster.

The principal alterations, as said, not speaking of rare burns, are brown stains,

dark haloes due to water, grease of hands on the external part of the roll and loss of colour. Its features have already been discussed. The treatment that is recommended for conservation is here described in detail, it being understood that it may require modification in proportion as the cases presented for restoration are less catastrophic and conform more to normal examples of deterioration.

The procedure adopted for clearing up staining and eliminating the various manifestations of damage consists in the use of a basic mixture containing hydrogen peroxide of appropriate strength diluted as required. In some cases the addition of alcohol may be desirable as this tends to counteract the action of water. The cleaning solution is applied to the tang-ka through a very thin sheet of Japanese tissue that is held against the picture layer. It is applied by brush, very delicately, in such a manner that the brush, itself, does not disturb the paint layer and, indeed, the use of a fine spray for application may sometimes be preferable.

Besides preventing contact between painting and brush, the Japanese tissue is able to absorb the material that has been dissolved by the cleansing solution. The hydrogen peroxide clears the brown staining from the fibres of the canvas while the complete humidification of the surface gets rid of the 'water marks' or haloes.

Despite all precautions, the greatest risk exists in the operation of removing the tissue which must always be drawn back from the painting slowly, diagonally, from a corner and almost parallel to the surface of the tang-ka.

This first cleaning operation may suffice, or it may be necessary to repeat the operation.

using fresh tissue, but in any case one has to guard against the temptation to apply

local treatment lest this results in the formation of fresh haloes: the whole picture should, preferably, be dealt with at one time or within well delimited zones.

After the cleaning, a slight fixing of the colour is recommended as by spraying with a polyvinyl alcohol solution in ethyl alcohol, and this gives a measure of protection and restores a certain strength to the paint layer. But reintegration is always a matter of aesthetics. It seems reasonable to suggest, however, that where the formal continuity of the work is interrupted, say by the loss of colour or design, perhaps as a result of creasing, and a rash of white spots result that tend to destroy the pictorial record, touching-in by watercolour may be justified, not, indeed, with the object of concealing the damage, but only so that the spots are lightly veiled. By this means the subject matter of the tang-ka can be made to regain something of its original clarity.

At the conclusion of this series of operations the surface must be protected by a final fixing. The choice of fixative may be decided by experience taking into account the particular features of the case. The use of a synthetic resin is favoured, such as polyvinyl alcohol, (Vinaviliol etc.) and such is generally applied in an ethyl alcohol solution of about 3 per cent strength using a spray.

The original brocades that framed the tang-ka which have been previously dry cleaned are now restored around the picture in their correct positions and fixed by stitching and in the interests of future conservation the reconditioned tang-ka may be accommoda-

ted in a specially lined box such as is recommended for Japanese kakemons.

Application of the Method to a Nepalese Tang-ka.

This work was carried out in the laboratory of the Instituto Centrale del Restauro in Rome at the instance of the International Centre for the Conservation and Restoration of Cultural Property, by the UNESCO scholar Upendra Nath Sapkota (Nepalese), following the suggestion of Miss Giselle Hyvert, UNESCO expert, with the assistance of Miss Giovanna S. Martino representing the International Centre for Conservation; the analyses have been carried out by Dr. Mari-sa Tabasso Laurenzivat, Chemist at the Laboratory of the Instituto Centrale del Restauro, July 1972-March 1973.

Appendix

Laboratory Report

Ref. No. 61/72 Tang-ka representing "Bhairaba" by Upendra Nath Sapkota

Description and Preliminary Study

This tang-ka depicts Bhairaba, the central figure, painted in blue, dancing on a lotus flower. A Buddhist god on each of the upper corners on lotus flowers and on the lower register is a river (blue) and a snake of half-human body (particolour).

Red flames of fire flicker all around the central figure, clothed in a tiger skin with long green draperies to his left and right and he holds a "Bajra" in his right hand. Above the head are five human skulls and over-

the central skull the head of an animal (dog ?) over which flies a bird (Garuda ?).

Dimensions : Tang-ka 58.5 x 42.0 cms
Thread counts on tang-ka
Warp 17/cm : West 19/ cm.

Condition : As received, very dirty and worn. Creasy, dusty and deteriorated with much loss of pigment. The design was hardly

visible and the textile was badly creased.

The frame, a single textile, was removed and samples of the colour taken from the tang-ka for investigation.

Analysis of Paint Layer:

Three samples were taken from the paint layer as indicated below and these were examined microscopically and by microchemical analysis.

Colour	Site	Composition
Blue	From the centre of the main figure "Bhairaba"	Artificial Ultramarine
Green	From the drapery at the left side	Malachite
Red	From the base of the tang-ka on the left side	Vermillion

The Cleaning Operations

1. Mechanical.

After removing the frame, the tang-ka was cleared of the superficial dust, soot and cob-webs both back and front by using a very soft flat brush, resistant lumps of grease being removed with the aid of a spatula and lightly moistened cotton wool.

2. Chemical

There were many resistant greasy spots on the tang-ka and it was necessary to find a solvent that could be used safely in the presence of the watercolour medium. After many trials, the following mixture was selected as being the most satisfactory:

Hydrogen peroxide (12 vol) 1 part
Alcohol 3 "

Acetone 3 "
n-Butylamine 3 "
Water 1 " by volume.

The tang-ka was stretched flat on a smooth table (Formica) and retained in position by adhesive cloth along the edges. Then Jap tissue was spread over the painted surface according to the standard procedure and the cleaning solution applied through this to the painted surface with a 10 cm soft flat brush. Dirt was quickly absorbed by the tissue which was removed after 40 seconds. After this the tang-ka was exposed in the open air for four days to become quite dry before applying a similar cycle of cleaning and after two further days exposure most of the dirt had gone.

Reinforcement

Since the old textile was very delicate

and difficult to handle it became apparent that it should be given some form of support at the back. For this purpose Jap tissue was pasted to the back using a starch adhesive. To do this 400 grams of starch were dispersed in about half a litre of boiling water and while this was cooling two sheets of tissue were cut so as to be some 5 to 10 cms larger than the tang-ka on all sides. One of the sheets was laid on Formica and wet with water using a flat brush and avoiding folds and wrinkles. The starch was spread uniformly over the damp paper.

The tang-ka was laid face down on another sheet of Formica, the starched tissue was then applied to the back and after pressing down all over by tapping with a hard bristle brush it was left to dry for a day or two and then the second sheet of tissue was applied over the first in exactly the same manner. The reinforcement papers were now trimmed so as to leave not more than 5 cm protruding around the tang-ka. After applying glue to these protruding edges and, after damping

the back of the tang-ka uniformly with water, the tang-ka was laid face upwards, and it was possible to cause the edges of the paper to adhere to the Formica. As the moisture dried out the tension ensured that undulations.

Retouching.-

So much paint was missing from the tang-ka and so many light spots were present from where it had become detached that retouching was necessary over these spots so that the figures and general design could be seen. This retouching was done in watercolour and when dry the surface was given a thin spray of fixative. The textile was removed from the Formica and the paper edges cut away in preparation for remounting.

Remounting:-

There was no problem here as the framing textile had responded well to dry cleaning and it was just a question of stitching the tang-ka into its correct position in the frame.