

# Conservation of wall paintings of Ram Mandir, Battisputali

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## Introduction:

Ram Mandir is located at Battisputali Ward No. 9 of Kathmandu Municipality. It was built about 125 years ago during Rana period. The theme of the painting is about different Hindu Gods and Goddess. Before discussing the conservation procedure of the wall paintings of Ram Mandir at Battisputali, it would be better to have a general understanding of the types of paintings found in Nepal. On the basis of the technique, paintings can be classified as:-

- 1) Murals
- 2) Miniatures
- 3) Easel paintings

1) **Murals:-** The composition of murals are as follows: - (a) The carrier (b) Ground (c) Pigments (d) Technique. The murals may be Fresco and Tempera on the basis of their production technique. Technically, the Fresco paintings are drawn over the wet lime plastered walls while the Tempera paintings are drawn upon the dry ground with egg shell and pigments. Actually the murals are part of the

monuments.

## 2) Miniatures and Easel paintings:-

Miniature paintings are done on paper while Easel paintings are done on clothes. In Nepal, murals are found on the walls of the monuments. Hence they are rightly called as wall paintings. The technique of the wall painting can be discussed under the following headings:-

a. **The Carrier:-** It is defined as the brick wall on which the paintings have been done.

b. **The Ground:-** In the wall paintings, the ground is prepared by plastering the brick wall by a mixture of mud plaster containing about 10 to 12% of combined water and organic matter such as vegetable fibres, paddy-husk, grasses and other fibrous materials of organic origin and rock-grit or sand. While preparing ground for wall paintings, following ingredients should be mixed to have a proper grip of colors: Silica to the extent of about 60%, Iron and Alumina 27%, Lime and Manganese 2 to 3%. Just over the ground a very fine lime wash of Kaolin or

Gypsum is applied which provides a firm grip of the pigments into the body of the ground in wet condition. Two coats of plasters are applied on the carrier-the first coat is of coarse texture with a considerable amount of fibrous vegetable materials, rock-grit or sand. The uneven surface is made with the application of this coarser coat. The thickness of this coat ranges from 2 to 3 cm. Above this coarser coat, a thin coat consisting of very fine layer of plaster of mud and ferruginous earth and other ingredients are applied. The upper surface is made smooth by the application of thin layer of lime-wash. The ground thus made has three distinct layer:- 1) the pigments 2) fine plaster 3) coarse plaster with two distinct line of junction which is confirmed by the microscopic examination of the painted stucco. The thickness of the painted layer is about 0.1 mm.

**c. Pigments:-** Different pigments are used in wall paintings viz:- yellow, red, blue, black, green along with the mixtures of these in various shades. Lamp black is used for black color while the others are of mineral origin. The white color is obtained from Kaolin, Lime, Gypsum while green color is extracted from Gluconite. Apart from colors animal glues are utilized for adhesion. In the early days, artists used to prepare colors of their requirements from different objects. For example:-

#### **White Colors:-**

**From lime-stone:-** After burning the lime stone in the fire, it is cleaned and is kept in a mud container and then water is added. After addition of water, huge amount of heat is generated and sometimes it may catch fire. Hence while adding water care must be taken. This process is known as slacking of lime. This slacked and cleaned lime is dried in the sun. Then it is powdered and mixed with Saresh (animal glues).

**From plaster of paris:-** When plaster of paris

is mixed with large amount of water and kept in a mud container it does not coagulate. When the water dries up, the plaster of paris becomes shining. When the powder of this plaster of paris is mixed with animal glues (Saresh), it is ready for use as white color.

**From Zinc oxide:-** When Zinc is heated in the fire, white oxide is formed. These oxides are collected, powdered and mixed with animal glues to be used as white color.

**From bones:-** To prepare white color from bones, small pieces of bones of different animals are collected and burnt in the strong fire. These burnt bones are powdered and mixed with glues.

**Black Colors:-** To prepare black color, a mud container is filled with linseed oil and a rope of cotton clothes is deeped in it and is burnt. To collect the smoke another mud container already polished with mustard oil is overturned on it. When appreciable amount of smoke has been collected, then it is taken out and mixed with water and ferrous sulphate to be used as black color.

**Red color from iron oxide:-** Iron oxide is also known as Indian red. It is powdered and mixed with glues.

**Yellow color from Sandal-wood:-** Sandal-wood is mixed with Alum and is cooked. The dense liquid is mixed with glue.

#### **Blue Color:-**

**From Azurite:-** It is a copper ore. It is powdered and mixed with glue.

**From copper sulfate:-** The solution of copper sulfate is greenish blue. When ammonia is added in

it, it becomes dark blue. When salt is added it becomes more dark blue. When this solution is heated, ammonia is evaporated and then if lime is added to it, a compound of copper, ammonia and lime is formed which is dark blue in colour.

**Verdigris green:-** Pieces of copper foil is mixed with lemon juice, salt and copper sulfate. This color is partially soluble in water. Hence alcohol is added to turn it into solution.

**d. Technique:-** Almost in all of the wall paintings in Nepal, the walls are made of bricks and local clay mortar. Over this carrier, a coarse mud plaster of local clay, pieces of paddy-husk, cow-dung has been found to be applied. The thickness of this coarse plaster layer varies from 2 to 3 cm. Over this plaster, a fine plaster of special clay called Pango Matto in Nepali languages has been found to be used. The thickness of this fine plaster is about 1-2 cm. Over this fine plaster in case of the wall paintings of Ghat Satal, Panauti, Kavre, a white coating of lime has been applied.

The painting on the surface of wall is done in two ways. In one method, the painting is done on the wet lime-plastered surface. This type of wall painting is known as Fresco painting because it is done while the surface is wet. In Fresco painting the paint layer gets more penetration inside the plaster layer when the painted surface gets dry. Actually, there is no real Fresco in Nepal. In another type, the painting is done on the dry surface and is known as Tempera painting. In Nepal, only Tempera type of wall painting has been found so far.

**Conservation Procedure:- A case study of the wall paintings of Ram Mandir, Battisputali**

Before attempting conservation of these valuable cultural properties, a proper documentation

including photographic as well as graph should be prepared. After that causes of deterioration thoroughly studied. During survey of some of the wall paintings it has been found that one of the major causes of deterioration of wall paintings in Nepal is the water seepage from the roof because in most of the historical palaces, temples and Buddhist monasteries, roof-coverings have been done by using mud and tiles. In due course, plant growth in the soil and displacement or missing of tiles causes leakage in the roof and due to water seepage from these areas, wall paintings have been found to be deteriorated. Besides this, there are other problems like deposition of dust, dirt, soot and smoke, cobwebs, insect nest, incrustation, water stain, bulging of plaster layer, missing of plaster layer, growth of lichen and fungi, flaking of Cultural Heritage.

About two years ago, a group of conservators from the central conservation Laboratory started conservation of wall paintings of Ram Mandir temple at Battisputali Ward No. 9 of Kathmandu Municipality. It took about five months to complete the work. The problems in the wall paintings of Ram Mandir can be summarized as follows:-

- 1) Cracks in the wall plaster
- 2) Loss of plaster up to some depth
- 3) Loss of plaster only at surfaces
- 4) Fading and missing of colors
- 5) Accumulation of dust, dirt and smoke
- 6) Bulging of plaster layer
- 7) Water stains.

After photographic documentation, the conservation of wall paintings was carried out in six steps:-

- Step 1:- Dry cleaning with soft camel hair brush was carried out.
- Step 2:- Using 20% solution of Fevicol (polyvenyl

acetate emulsion), the bulged plaster was refixed carefully.

Step 3:- Solvent cleaning using different organic solvents like ethanol, 20% butylamine, dimethylformamide, thinner, 2% ammonia, mechanical cleaning with a special type of scalpel was carried out wherever it was thought to be necessary.

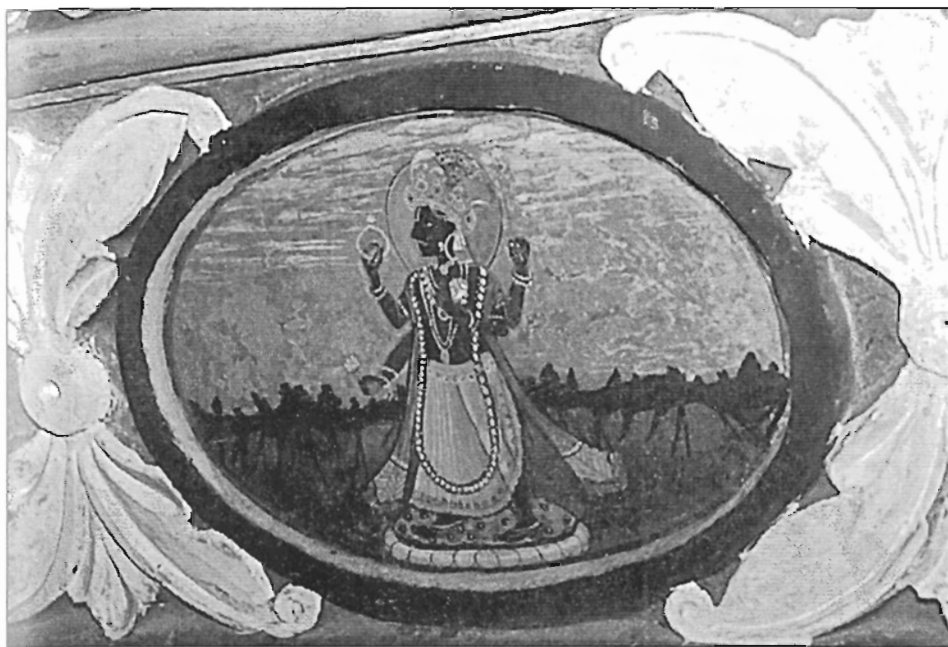
Step 4:- Missing plaster layer, wide cracks were filled by using plaster of paris along with PVA emulsion solution.

Step 5:- Re-integration was carried out wherever it was thought to be necessary. For this water color of standard company was employed.

Step 6:- A final preservative coating using 3% solution of PVA in sulfur-free toluene was applied.

**Reference:**

- 1) Conservation of wall paintings- Achievements and problems-Editor Agrawal O.P.-1994
- 2) Conservation and Museum Techniques-Singh A.P.-Agam Kala Prakashan-Delhi-1987



Before Conservation



Before Conservation

*Photo by Mr. M. K. Dharma*



त्रिपुरेश्वर महादेव मन्दिर प्रांगणको अग्नि मूर्ति

फोटो: पुरातत्त्व विभाग