

Preparation techniques of pigments for traditional mural paintings of Kerala

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Received 24.06.2008; revised 05.05.2010

In Kerala, traditionally the mural painting is done in five colours - red, yellow, green, black and white. Colours are prepared from vegetables and mineral pigments. Red is derived from red laterite, yellow is derived from yellow laterite, white from lime, and black from soot of oil-lamps. Leaves of *Neelamari* or *Neelachedi* plant are squeezed and the extract is used after drying up to be mixed with *Eravikkara* for obtaining the green pigment. Wooden utensils are used for mixing the colours and the binding media used is derived from tender coconut water and extracts from the *neem* tree (*Azadirachta indica*). The wall preparation for the mural is arduous and time consuming process. The line drawing is made initially on the prepared wall and subsequently the five colours are applied. The entire process of a mural painting involves meticulous balancing of various components. The perfection and the finer aspects of the work depend on the preparation of pigments. An understanding of the traditional knowledge developed by its early practitioners enhances the life of the mural paintings.

Keywords: Traditional murals, Paintings, Kerala

IPC Int. Cl.⁸: C09B61/00, B27, D06P, G10D, D01H13/30

Mural is derived from the Latin word *murus*, which means *wall*. The paintings carried out on the walls are known as mural paintings. It is done on a specially prepared plastered surface. In olden days, royal palaces, houses of noblemen and the temples were all decorated with mural paintings. The earliest paintings in India had been found in primitive caves and rock shelters such as Bhimbetka (Madhya Pradesh) and Ajantha & Ellora caves (Maharashtra). A study of the evolution of mural paintings in India shows its development from Ajanta to Kerala¹⁻¹⁰. The mural tradition of Ajanta, spanning a whole millennium lasting up to the 8th century, occupies the walls of 27 caves. There are similarities between the styles of Kerala and the murals of Sittanavasam, Badami, Lepakshi, Tanjavur and Vijayanagar. Mural paintings of Kerala are known for the succulence of its colours and the vibrancy of its active compositions (Figs 1-4). The tradition of painting on walls began in Kerala with the pre-historic rock paintings found in the Anjanad valley of Idukki district. Archaeologists presume that these paintings belong to different periods from upper Paleolithic period to early historic period. Rock engravings dating to the Mesolithic period have also been discovered in two regions, at

Edakkal in Wayanad district and at Perimkadavila in Thiruvananthapuram district of Kerala.

The earliest of the Kerala murals were located by the side of a rock and a shrine at Thirunandikkara way back in 8th century, which is now in the Kanyakumari district of Tamil Nadu. Ancient temples, churches and palaces in Kerala display an abounding tradition of mural mostly dating back between the 9th to 12th centuries AD when this form of art enjoyed Royal patronage. Black and white mural paintings are also seen in Cheerumpakavu temple of Muzhappilangad in Kannur district. The tradition and practice of Kalamezhuthu, which is the pioneer form of *Dravida* art, has very much influenced the growth of mural paintings of Kerala like Kalamezhuthu five natural colours are also used in murals. The temple architecture of Kerala warranted elaborate decoration in the form of mural painting and wood carving. The stages of mural paintings of Kerala are connected with that of architecture, especially the regional temple constructions, the beginning of which is considered to be from the 9th century onwards¹¹. In the brahminical hegemony, the temple and other associated arts had flourished. But this situation did not last long because of the changes occur then which

resulted in the downfall of feudalism. This has a concomitant effect and the temples became weak which affected the murals too, especially in the 20th century. The traditional four fold *Varna* system has produced so many mixed groups. The Indian caste system is characterized by traditional occupation and it functioned in a closed system. It is found that the mural painting flourished in temple settings through the traditional *gurukula* pattern. Attempt has been made to detail the indigenous preparation techniques of pigments for the traditional mural paintings of Kerala.

Methodology

Interview method is used to collect the primary information about the nature and practice of mural paintings from those who are experts in the art of murals. The Institute of Mural painting, Guruvayur was visited in order to observe the different stages of sketches drawn by the teachers and students there. Certain temples have also been visited to identify the different themes and types of murals. Secondary data has been collected from published books, journals and documentaries on murals of eminent persons. There are a few rare books which trace the origin of Indian *Chithrakala*, covering its importance and technical strategies used. The methods of mural painting of Kerala are described in *Chithrasoothram* of Vishnudharmottara of the sixth century; *Tantrasamuchaya* the 15th century text authored by Narayanan and also in *Silparatna* the 16th century text written by Sreekumaran. In Chapter 43 of the *Vishnudharmottara*, there is an elaborate description of the importance of various mural paintings, its techniques, its themes and the duties of an artist. In *Silparatna*, the chapter on *Chithralakshanam* deals with tradition of *Chithrakala*, wall preparations, its specialties, importance, techniques of color preparations, colour combinations, themes for presentation, brush making, etc. The regional murals have been studied and described¹².

Preparation of pigments

The preparation of wall and colour as well, for the mural painting is of utmost importance. The colour used in traditional mural paintings of Kerala is generally obtained from three different sources, mineral, vegetal and chemical (Fig. 5). All colours cannot be used in murals, among them only such mineral colours that are lime resistant are suitable for

mural painting. Five are the basic colours (*Panchavarana*-yellow, red, green, white and black) of which white is the wall itself and all other pigments are prepared from stones and leaves; the wall preparation is an elaborate process and on the specially prepared wall, the picture is drawn first in line and then coloured, the iconography of most of which are based on the *Dhyanaslokas*. Colour is applied in a sequence such as yellow, red, green, black. and must be clearly demarcated by black lines.

Preparation of wall

The preparation of wall for traditional murals of Kerala is an elaborate process and it is done in three stages. The brick wall is plastered with the mixture of lime and clean sand in the ratio 1:2. This mixture is ground well to a paste form. Traditionally it is advised that this mixture is to be kept for one week and at the time of plastering, juice of plant, *Oonjalvalli* (*Chunnambu valli-Cissus glauca* Roxb) is added. The juice of *Oonjalvalli* is added to the lime-sand mixture to make it a paste form. This increases the viscosity of the liquid. Instead of *Oonjalvalli*, ink-nut (*Kadukka-Terminalia chebula* Retz) water or jaggery water are also recommended. After cooling, it is used to dilute the lime while applying on the walls. The first plastering is the *rough* one and the plastered wall is allowed to get dry for one day and thereafter, the surface is strengthened by repeating the plastering process so that the thickness is about ½" to 1". The second coating is done with the mixture of lime and sand in the ratio 1:2, but along with this mixture, cotton (*Gossypium herbaceum*) is also added. The ratio of lime- sand mixture and cotton is 1 kg and 100gm, respectively. Cotton fibers impart gleaming whiteness to the surface and give better texture to the base. This mixture is thoroughly ground manually on a grinding stone (*Ammi*) to make it as smooth as butter. To this, juice of *Oonjalvalli* is also added. It is applied on the rough coating and this smooth layer is plastered at *pappad* (a kind of thin cake made of black gram, *uzhunnu* flour) *thickness* (about one mm). This layer is also allowed to get dry for one day.

Application of white colour

The third stage is a kind of wash. The third layer of coating is done with the mixture of quick lime and the juice of very tender coconut. This mixture can have the density of cow's milk and is applied on the wall both length-wise and breadth-wise repeatedly for



Fig. 1 Venugopala Krishna



Fig. 2 Ganesh Thodeekkalam temple



Fig. 3 Sreerama Pattabhishekam



Fig. 4 Murals of Thirumittakode



Fig. 5 Natural colours used in murals

about 25-30 times. Application of calcium carbonate dissolved in the *milk* of tender coconuts on a primary lime base is used for attaining a still brighter whiteness and it might be an advanced version derived from the availability of better local resources. The thickness of this coating may be of *Puliyilakkanam* (the thickness of a tamarind leaf). One day is enough for this to get dry. The wall will gradually attain a bright white background which also serves as the white pigments for murals. Now, the wall is ready for drawing. White is used in almost all the phases of Indian painting to soften down the crudeness of the raw colours, for highlights and ornamental details. In the past a flat brush used for the coating of the mixture on wall made by crushing a portion of the bark from *Tondi* (*Sterculia foetida* L.) was generally preferred. But now a days sophisticated brush are available in the market.

Yellow and red

In Indian paintings yellow is represented as yellow ochre and red as red ochre. Yellow ochre contains various hydrate forms of iron oxide. Red ochre contains 95% of ferric oxide. Yellow and red colours are processed exactly as explained in *Silparatna*. Proper yellow and red stones are to be selected. It is washed thoroughly and ground maximum manually on a grinding stone (Traditional manual grinder). It is mixed with water, which is decanted slowly. The remaining part of the pigment is again mixed with water and the process of decantation is done repeatedly to make sure that there is no unwanted residue along with the pigment. Then this solution is kept undisturbed for sufficient time to get it separated as water on the top and pigment at the bottom. Without disturbing the pure residual pigment at the bottom, the water is poured out. The residual pigment

is dried and kept ready for use. Yellow and red stones are separately recessed and the prepared pigment powders are separately stored. The quality of the colour essentially depends on the selection of the stone, accuracy, proper cleaning and decantation. Yellow colour has been universally used in all types of mural from the earliest times.

Green

The raw material for green pigment is extracted from the leaves of Indigo (*Indigofera tinctoria*, *Neela amari* or *Neelachedi*). Its leaves are squeezed and squashed well to get the juice which is dried up for use. This has greenish blue colour. Then this powder is mixed with *Eravikkara* (*Garcinia morella* Desr.). Exudates commercially known as gamboges are obtained when an incision is made on *Eravikkara* bark. Gamboges are a resin containing 15 to 20% gum. Different intensities can be achieved by altering the ratio. For deep green, Indigo plant content should be more than the *Eravikkara* in the mixture and for light green, *Eruvikkara* is added more. Green colour can be prepared by mixing Chinese blue (*Kattaneelam*) with *Eravikkara* instead of Indigo plant. As a base copper sulphate wash is given first wherever green is expected and to adjust the tone yellow wash is also done.

Black

Black was considered by the ancient Indian artists as one of the basic and principal colours for a painting and it is the only non-mineral colour which is effectively used in mural painting. In Indian paintings, black outline and patches of black or dark tone are used to indicate hair, eyes, outline of figures, objects, etc. For black pigment, cotton wicks immersed in *ginegelly* (*Sesamum indicum* L.) oil is burnt and the smoke of the flame is collected on the inside surface of an earthen pot kept upside down over the flame. The lamp black (carbon) deposited on the surface is scratched out slowly and kept for use. The colours are thus prepared by adding appropriate quantity of water and *neem* (*Azadirachta indica*) glue before the painting is done. It is a clear, bright, amber coloured material that blackens with age. Neem glue is obtained from *neem* bark by making a cut on the stem which is left unused for a week. Glue gets secreted from the stem.

Preparation of brush

Iyyampullu or *Kuntalipullu* (Arrow grass or Elephant grass, *Aristada setaces* Retz.) is used for

making fine brushes for painting. These grow abundantly on the riverbanks. Small bundles of the grass is softened by dipping for sometime in milk and water. The small bunch is dropped on the floor to fall on its base, so that the base of the pinched out bunch is at the same level. The healthy and soft ones are selected and the base is cut to the required length and the bundle is tied up with a thread. Then the bunch is inserted into a pointed hollow part of a handle made out of a bamboo (*Bambusa arundinacea*) stick. It is selected to suit the function of a handle of a brush. Then it is tied up tightly. The number of grass ends will decide the size of the brush; different sizes of brush can be made. The tender hair from the ear of calves was also used for making brush previously, but that practice is not popular now.

Painting & colouring

In the traditional method, a pencil called, *Kittalekhini* is prepared by grinding a black stone and mixing it with cow dung. Nowadays, artists use different methods including the commercially available pencils, mostly in yellow colour. Colouring of the characters goes by their virtue or characteristics-as defined in the *Bhagavad Gita*. The spiritual, divine and *dharmic* characters (*Satwika*) are depicted in shades of green. Those influenced towards power & materialistic wealth (*Rajas*) are painted in shades of red to golden yellow. The evil, wicked and mean characters (*Tamas*) are generally painted in white or black. Green and blue colours are to be painted only after applying two or three coatings of copper sulphate solution on the place where they are to be applied. Direct sketching of outline is done in yellow pigment. Yellow wash is done wherever it is needed to get the satisfactory colour. Then the outline sketch alone (done in yellow) is repeated in red. Wherever yellow is to be shaded it is done with red. The shades are dotted, not done by wash method. Wash method always leaves brush strokes which traditional Kerala murals do not appreciate at all. To avoid brush strokes dotted method is used. Whenever red is needed, it is done in the same way. If the figures are in red for which shading is needed it is done with the red pigment in dotted method. All the outlines done in yellow and red are again drawn in black pigment. If the black colour is needed, it is done according to the methods suitable (wash or dot) for getting the required intensity. Most of the painting

and murals are done in India by wash method. After the painting, some incompleteness or rough kind of surfaces may be seen; then dot shades for good finishing can be used. Dot shade gives some kind of beauty to the murals. The spaces where black is anticipated would first get painted in red on which the pigment is used to intensify the black colour. The shading of the white, represented by the blank space, is done in suitable colour according to the compositional colour balance of the picture. Whatever may be the colour, the shading is done from outside inwards by dotting method.

Changing scenario

Modernization has influenced the art and artists to a large extent. In former days traditional paintings were made on walls of temples, palaces and churches. Now, it has been transferred to any surface like paper, canvas, cardboard, plywood, clothes and terracotta can find space for a mural. This kind of innovation is required in order to sustain the interest in the art form. Murals are also done on pots, which are either made of clay or fibre. Even walls of houses, hotels, business centers and workplaces can be filled with mural painting. For exhibition purposes, the mural paintings are carried out in marine plywood boards, canvas, etc. Nowadays, mural artists successfully transformed mural art from the wide spaces of walls to smaller canvases, without compromising on the intricacies of the art form. Today in Kerala, institutions such as Institute of Mural painting, Guruvayur Dewaswam, Thrissur, Aranmula Vasthu Vidyalaya and Sanskrit University, Kaladi practices the traditional methods of mural paintings of Kerala. The Institute of Mural Painting of Guruvayur Temple gives coaching in mural painting in the traditional *gurukula* pattern. Nowadays, the mural artists of Kerala have, however, retained their drawing in the traditional style, although the medium has been shifted to synthetic paints instead of natural colours. This change may be due to the time consuming preparation of pigments and also due to the easy availability of the same colour in the market. Mural paintings have survived centuries only on account of the identification and use of those colours, which does not have any reaction with lime¹³. However, one cannot predict the longevity of those pictures, where synthetic paintings have been used.

Conclusion

Before the advent of many formal scientific experiments and conclusions on the chemical properties of the pigments, the early artists of India associated with murals had attained perfect and deeper understanding about it. The unique feature noted in mural is the technical excellence of its everlasting durability. There has been a gap in the continuity of the murals for some time. However, in the modern era, a number of institutions and artists with dedication have come up and taken it outside the temple premises, so as to make it more relevant and democratic to entertain the needs of the people. The imparting of traditional mural paintings of Kerala has been carried out in *Gurukula* pattern, as in the past.

Acknowledgement

Author is very much indebted to Sri K U Krishnakumar, Principal, Institute of Mural Painting, Guruvayur temple, Thrissur district, whose support and encouragement helped a lot in the preparation of the paper. Author also expresses sincere gratitude to Sri V K Mohankumar, Former Deputy Director (Anthropology), whose valuable suggestions and corrections were also of great worth.

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