

The Scientific Conservation of Wooden Sculptures and Architectural Members at Siva Temple, Peruvanam, Thrissur District

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ARTICLE INFO	ABSTRACT
	Wood is a major form of construction material all around the world, wood is a part
	of our eco-system, easily available in different forms and varieties, and a reliable
	material irrespective of climatic variations. Kerala is rich in terms of tropical
	forests and home gardens and trees are considered an integral part of construction
	activities in Kerala. The Kerala form of temple architecture and traditional house
	construction has placed wood as their major component for the construction of
	roofs and sculptures. The temples in Kerala offer some spectacular and rare
	images carved in Wood. However, the lack of proper maintenance and periodical
	conservation proves to be a major factor in the destruction of major portions of
	the wooden components of art and architecture in the temples of Kerala. This
	paper critically narrates different methods adopted by conservationists in the
	scientific treatment of Wooden Sculptures adored in the Walls of the Siva Temple,
	Peruvanam, Cherpu in Thrissur District.
	Keywords: Wooden Sculptures, Kerala, Peruvanam, Temple, Preservation, Architecture.

Introduction

The Siva temple, Peruvanam is situated at Cherpu, a small village located 12 kilometers South of Thrissur, the District Headquarters. The temple is famous for its art and architectural features and is one of the most outstanding temples in Kerala. As per *Keralolpati*, Peruvanam is one among the thirty-two settlement or villages where Brahmans have originally settled (Veluthat, 1978). The village is also mentioned in *Chandrolsavam*, a literary work composed in the *Manipravala* style in the early 14th Century CE (Veluthat 1978 and Rajan 2020).

There are two main shrines in the temple complex, the *Madattilappan* and *Irattayappan*, dating back to the 11th-12th century CE. The *Madattilappan* shrine has a *tritala vimana*. Both the first and the second *talas* have *suka-nasa* projections in front. *Madathilappan* Temple's sanctum is considered to be the tallest one in South India. The axial plan of the first *tala* consists of a square shrine and a narrow pillared *mukhamandapa* in front. The octagonal *sikhara* has copper roofing. The temple stands on a granite *adisthana* followed by *vedi*, above which is the *bhitti*. The three *talas* of the shrine is beautifully embellished with plenty of wooden sculptures. They are mainly Siva, Kali, *Anantasayana* Vishnu, Devi, Brahma, Ganapathi, Sakthi *Panjakshari* and Ramayana Stories (H Sarkar 1978).



The General View of Siva Temple, Peruvanam, Cherpu, Thrissur District

The *Irattayappan* shrine raised on a circular plan is an *ektala vimana* built on a granite *adisthana*, the moldings of which consists of *upana*, *jagati*, *vritta-kumuda*, *kanatha*, *valabhi* and *kapota*. The *bhitti* is made of laterite blocks, duly plastered and have doors on three sides and the only *ganadhwara* is on the north. The main entrance is from the west, and the image of Parvati is on the eastern side. There is a *namaskara mandapa* in front, built on a square base. Mural paintings exist on the walls of the *Irattayappan* shrine (H Sarkar 1978). The dual *Shivalinga* is the unique feature of the *Irattayappan* Temple which is the reason why its prime deity is also known as *Irattayappan* denoting the duality. One of the most famous festivals which are celebrated in the temple is the Peruvanam *Pooram*.

Deterioration of Wooden Structures - A Felt Need of Preservation

More often than not wooden structures are subjected to decay due to several biological factors such as bacteria, fungi, and insects and non-biological factors such as weathering, wetting, drying, chemical exposure, and atmospheric contaminants (Goodell. Et al. 2003). Lamentably the accelerating deterioration factors were powered by both biological and non-biological factors at the site under concern. The wooden structures were in a rotten state of affairs on account of mycological advancement. Even the presence of termites was found building distinctive tunnels, often referred to as "mud tubes," to reach food sources and protect themselves from open air. Conversely the perturbed climatic parameters due to variable monsoon and summer seasons boosted the derailing of the same.



Wooden Sculpture with a Large Crack during the Treatment

The alarming undulations and fluctuations of non-biological parameters viz. see-sawing relative humidity, atmospheric temperature, rainfall, atmospheric pressure, solar radiation, wind direction, wind speed, precipitation, and cloudiness occurring in contemporaneous multiplied the activity coefficients of the biological constants. Moisture, whether in vapor or liquid form, causes wooden fibers to expand. Conversely, fibers can release water into a dry atmosphere causing media to shrink. Either of the situation resulted in cockling. Since severe cockling may cause aesthetic and structural problems to the monument, extreme care was taken that the cockled areas of intricate carvings are not abraded leading to further disfigurement. The deterioration of the wooden architecture has been accelerated exponentially by the two-fold interplay of both biological and non-biological frameworks along with the synergic effect of dust, dirt, and soot on ceremonial offerings being a live Temple.

Methods Adopted for Scientific Treatment

The wooden preservation of Shiva Temple was implemented by first analyzing the felt need of scientific preservation of the structure. Hence before preservation methodologies being adopted, the structures were meticulously analyzed. The wooden portions of the *namaskaramandapa* of *Irattayappan* shrine appeared black due to the deposition of oily & sooty accretions. This was accompanied by dusty deposits on the bracket figures and *namaskaramandapa*. The wooden portions where made dust-free by dry brushing with soft brushes. In succession, the oily and sooty accretions were removed by mixing organic solvents like Diacetone alcohol, Toluene, Acetone, 2-Ethoxy Ethanol, Morpholine and Triethanol amine in appropriate proportions. Since the organic solvents are best for dissolving carbon containing oil and sooty accretions, the results were found to be excellent.

The main challenge of wooden preservation methodology involves the selection of soft of non-corrosive soft organic solvents which gives the best results for the removal of sooty and oily accretions. These challenges also included confronting the wooden preservation of rotten and deteriorated wooden structures including *namaskaramandpa* and bracket figures. Many portions were associated with minor and major cracks.

An eco-friendly methodological approach was implemented to approach these issues. The step mainly involves preparation of a wood pack for filling of the wooden cracks. Prior to this, neem gum was collected from the locally available markets. The neem gum was boiled in a vessel to make in sticky liquefiable form.



Neem Gum collected from Local Markets

Fine Teakwood Powder

Efforts were made in the collection of fine teak wood powder which camouflages the original texture of the wooden bracket figures and *namaskaramandapa*. The teak wood powder is mixed with the extracted boiled liquefied neem gum. Proper and effective mixing is ensured for efficacy of the final filling extract. Thus the resultant is filled into the grooves or rotten areas of the wooden structures. Extreme care is taken while filling of wooden teak pack to the fissures and cracks that there remains no voids or left unfilled portions questioning the stability of the structures.



Boiling Neem gum to make sticky liquefiable form



Mixing liquefied neem gum and teak wood powder

The filled surfaces are smoothened to the neighboring areas to maintain the uniformity and texture of the filled areas. Once all these preservative measures are implemented the color reintegration of the filled wooden areas is conducted so that such areas exactly camouflages with the original touch and appearance. The filled areas of the resultant wood pack method were found to retain the quality, integrity, character and consistency of the indigenous wooden standards. The so treated areas need to be termite free to curb further attacks. Hence the treated areas were applied with Terminator, a commercially available product which curbs further growths of termites and bores on the wooden surface. The final preservative coating to protect the wood from climatic vagaries was accomplished by the application of wood oil mixed with turpentine oil in the suitable ratios. Once the preservative exercise is adopted out-and-out, the wooden architectural aesthetics was sheltered and safeguarded from biological and non- biological metamorphosis.

Analysis of Results and Discussions

The practices and procedures of scientific conservations on wooden sculptures and architectural members at Siva Temple, Peruvanam was adopted after carefully analyzing its possible impact on the aesthetic value and core strength of the wooden components used for construction. The minimal use of chemical components and optimized use of natural ingredients to resolve the cracks are indeed helpful in raising the strength and further arrests the decay of wooden sculptures and architectural members.



Sculpture Before Filling Up of Cracks



Sculpture After Filling Up of Cracks



Rotten / Deteriorated wooden intricate carvings before preservation



After Preservation



Before Preservation



After Preservation



Before Preservation



After Preservation



Before Crack Filling and Color Integration



Jeemootavahana Before Crack Filling and Color Integration



After Crack Filling and Color Integration



Jeemootavahana After Crack Filling and Color Integration



Balakootam and Intricate Carvings of *Namaskaramandapa* before Crack Filling and Color Integration



Balakootam and Intricate Carvings of Namaskaramandapa after Crack Filling and Color Integration

The scientific conservation methods adopted at Siva Temple, Peruvanam was in accordance with the existing principles of chemical conservation. Minimal intervention was adopted during the execution of works. The structural integrity and aesthetic originality of the sculptures and architectural members were maintained and conserved for the posterity.

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