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Kunhimangalam and Its Bronze Legacy: Metallurgical Knowledge, Practice, and Preservation

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Abstract:
Kunhimangalam is a very famous bronze heritage village in Kannur district of Kerala. It is also famous for the bell metal and bronze manufacturing technique under the Vishwakarma community using the ancient lost wax technique. Besides its fame in metallurgy, Kunhimangalam is also famous for its rich social life involving Theyyam, Kalari traditions, folk performances, sacred groves and temple-oriented practices. The village's history is also framed through its association with peasant uprisings, social reform movements, and local political mobilization. This article discusses the characteristics of Kunhimangalam bronze heritage, its religious and social interactions and local practices. It also discusses the contemporary challenges faced by the traditional industries such as lack of new generation into the field, economic issues and institutional ignorance. The article argues that all of this traditional knowledge needs to be preserved through education, policy making and cultural recognition.

Keywords; Bronze Heritage, Bell- Metal, Craftsmanship, Lost-wax

1. Introduction

Kunhimangalam is a very popular bronze heritage village located in the Kannur district in the Indian state of Kerala, approximately thirty-five kilometers from the district headquarters. This area, located near Payyanur, is a region that can claim many unique features historically, culturally and artistically. The village is known for its traditional bell metal and bronze craftsmanship, yet its significance extends far beyond this single traditional occupation identity. Archaeological and cultural evidence says that the village has been occupied from the Megalithic period onwards, with remains such as thoppikkallu, or umbrella stones, and rock-cut caves suggesting the presence of a vibrant and human settlement between three hundred BCE and the middle of the first century CE. The place name "Kunhimangalam" is derived from the words Kunhi, meaning small, and Mangalam, meaning prosperity.

Historically, Kunhimangalam was under the reign of Ezhimala kingdom and later came under the sovereignty of the Kolathiri Rajas of Kannur. The village is also identified as one amongst the thirty-two original Tulu Brahmin villages mentioned in the Keralolpathi. For ages, Kunhimangalam village fought against all modernity and preserved its traditional occupations, artistic traditions and cultural institutions.

This tradition is particularly evident in their bronze and bell metal casting, both of which have remained a key icon to the village's occupational and cultural identity.

Kunhimangalam is also a village that holds a special place in the history of India's freedom struggle and social reform movements. The leaders like Vishnu Bharatheeyan and K.A. Keraleeyan were actively participated in freedom struggle movements in Payyanur area. During the Khilafat Movement, Vishnu Bharatheeyan served as the Secretary of the Kunhimangalam Khilafat Committee, demonstrating the village's participation in wider anti-colonial political currents. Along with this, the village has witnessed the temple entry movement and many agrarian struggles, attracting the involvement of national figures such as A.K. Gopalan, E.M.S. Namboodiripad, and Jayaprakash Narayanan. All this proves that Kunhimangalam was not only a culturally rich land but also a land of anti-colonial struggles.

2. Cultural and Spiritual Landscape

Kunhimangalam is frequently described as a "Land of Theyyam," a characterization that reflects the density and vitality of its ritual traditions. The village contains numerous temples and sacred groves, or kavu, and its religious landscape includes shrines associated with different communities and devotional practices. Among the most important are the Thrippanikkara Shiva Temple and the Sri Veera Chamundeswari Temple. The village is also recognized as a prominent bastion of the Kalari tradition in Kerala. Although many ancient forms of this martial art have disappeared, Kunhimangalam continues to sustain enduring lineages such as the Muthuvadath and Araambath Kalaris. Each Kalari has a temple space where the devotees worship guardian deities and patron goddesses. In this way, the physical and the spiritual life are closely intertwined. Kunhimangalam is also famous for its performance culture, apart from martial traditions. Theyyam is the most important ritual form of the village, characterized by elaborate costumes, sacred performance and a material ethic rooted in sustainability. Performers traditionally make their headgear and other ritual objects from natural materials found in their environment such as coconut leaves, wood and organic pigments. This practice demonstrates not only ritual creativity but also a craft tradition based on the environment. The village's cultural life is also enhanced by Alamikkali, a festive tradition of the local Muslim community, which displays a rare and meaningful expression of communal harmony. Other important performance traditions are Poorakkali, a rhythmic and ceremonial dance performed during the Pooram festival and Kolkkali, a vigorous stick-play performance requiring coordination, rhythm and collective discipline. Together these traditions make Kunhimangalam an important centre for the conservation of North Malabar's folk heritage.

3. Review of Literature

Kunhimangalam's metallurgical and cultural heritage is documented in a combination of institutional, ethnographic and technical literature. The Kunhimangalam Grama Panchayath Samagra Vikasana Report (1996-1997) provides the basic civic and socio-historical framework and officially acknowledges the bronze and bell-metal craft as the core of the region's heritage. To elaborate on this, Dr. Sona Bhaskaran's book, Desapperuma, provides an intimate ethnographic account of the community's traditional occupations and customs, while critically assessing present challenges and suggesting solutions to protect the craft. Besides this, the research paper "Craftsmanship and Culture" (2023) by Dr. R. S. Jayadeep provides a specialized technical analysis of the iconic Payyanur Thookkuvilakku (hanging lamp), elucidating the variations in its structure and traditional production processes. These

literatures together link historical identity and artistic techniques, and analyze the need for sustainable interventions to preserve the unique cultural heritage of Kunhimangalam.

4. Objectives of the Study

- To examine Kunhimangalam as a heritage village shaped by the interaction of ritual, history, and artisanal production.
- To document the metallurgical traditions of bronze, bell metal, and Panchaloha casting practiced in the village.
- To assess the contemporary challenges threatening the continuity of traditional craft knowledge.
- To explore possible strategies for heritage preservation and sustainable livelihood support.

5. Methodology

The study adopts a qualitative, descriptive, and historical methodology based on both primary and secondary data. Primary data includes Kerala government development data, while secondary data includes books, reviewed journal articles, and news reports. These sources were analyzed thematically and interpretively to examine Kunhimangalam's craft traditions, ritual practices, and cultural heritage, with attention to continuity, change, and broader socio-cultural context.

6. The Heritage of Metal Craftsmanship

As mentioned above, Kunhimangalam is internationally famous for its expertise in bronze, bell metal and Panchaloha casting. These crafts are performed on the basis of an established textual knowledge and an artistic sense, and continue to reflect a deep relationship between ritual, technique and artistic discipline. Today, less than fifty families are engaged in this traditional occupation. The craftsmanship of the Vishwakarma community and particularly of the specialized braziers and metal smiths is a testimony to a complex corpus of metallurgical knowledge based on technical skill, iconographic accuracy and religious significance.

The Mooshari are said to be expert braziers and coppersmiths who cast and forge copper, brass and bronze. Moosharikovval, another locality in Kunhimangalam is a traditional settlement of the Mooshari community, which continues to live as a cohesive artisanal guild. Local historical tradition traces the lineage of these craftsmen to the Palazhi region of Nileshwar. According to the lore, they were invited by the Chirakkal Raja for their expertise in the intricate metal work and architectural requirements of the Sree Veera Chamundeswari Temple and settled in Kunhimangalam. The story is a microcosm of the historical trend of royal patronage determining the migration and settlement of artisan communities in Malabar.

Kunhimangalam's metalworkers are known far and wide outside North Malabar. They have been approached for coveted religious assignments such as the casting and installation of the idol at the Sree Padmanabhaswamy Temple, Thiruvananthapuram and the Ayyappa idol at the Puthur Temple, Karnataka. They have professional access to the major temple sites of Karnataka and Andhra Pradesh. The wide geographical spread is evidence of the value placed on the craft and the flow of artisanal knowledge through the regional sacred networks.

The tradition is strong because it combines the precision of science with the knowledge acquired of metals. These artisans have produced works of exceptional durability and aesthetic refinement, using high-quality raw materials and adhering strictly to the iconographic rules of the Shilpa Shastras. Their

ability to express complex theological ideas in concrete imagery in bronze and bell-metal makes them one of the most important custodians of the artistic and architectural heritage of South India. Panchaloha casting is the art of making idols and ritual objects from a carefully proportioned alloy of gold, silver, iron, lead and copper. The measures of these works are based on traditional iconographic measures like Thalam, Angulam and Yavam. Earlier, artists of Kunhimangalam were also involved in the polychrome restoration of idols in temples of North Kerala. It was known that their pigment compositions were robust in extreme weather conditions.

Also significant is its role as a centre for the production of Thidambu processional deities, Deepasthambham lamp towers and large culinary vessels such as Uruli and Vattalam which are indispensable in temple feasts and ritual contexts. The Lakshmi Vilakku and the hanging lamps or Thookku Vilakku of the "Kunhimangalam Lamps" have acquired special prestige in artistic quality and spiritual significance. Variations in iconography and function are quite prominent in traditional Indian metal lamps especially in Kerala. For example the Lakshmi Vilakku is designed on the Mahalakshmi Sloka which generally shows the goddess with two elephants but the Aaluvilakku has a specific ritual purpose in temple architecture. India uses around one hundred and twenty types of traditional lamps and the Nilavilakku is the most popular of them, whereas the Kedavilakku at Aneekkara Poomala Temple, Kunhimangalam is regarded as the biggest of its kind in India.

6.1 The Casting Process

The process of casting followed in Kunhimangalam is the lost-wax method which has been in use in metal working from time immemorial. Sculptures, idols, lamps and other ritual objects are first modeled in wax and then transformed into metal by a series of molding, heating and casting. Historically this process developed using pure copper, arsenical copper, tin bronze and gold. The lost-wax process is one of the oldest metallurgical processes known to man, and goes back to the Mesopotamian civilization, around three thousand five hundred BCE. Complex arsenical copper objects have been found in the archaeological site of Nahal Mishmar near the Dead Sea. The oldest gold lost-wax casting is the Onager rein-ring from Queen Pu-Abi's chariot at Ur, dated at about two thousand six hundred BCE. The earliest written documentation of the process comes from Sippar in 1789 BCE. The technique was thus also influenced by Greek culture after the conquest of Alexander the Great in South Asia, as is indicated by gold jewelry from the first century discovered in Taxila. The lost-wax process was widely used over time by Indian artisans for Buddhist iconography, peaking in the Gupta period of the fourth century CE.

Kunhimangalam is said to have an age old craft heritage of about eight hundred years. Traditionally, some of the local population in the village collects wax from forest sources and sells it to the artisans, who mix it with powdered charcoal. The mixture when filtered through cloth is purified and a fine wax for modeling is obtained. Then the whole thing is modeled in wax and put into a clay jacket. The first layer of mud is mixed with cow dung. Once the cow dung and mud mixture has dried, additional layers are added. A second layer called Paru mannu is applied to the mould for strength and the structure is reinforced with iron wires. Then another layer called Maadodu mannu is put on. A small opening is left so that the wax is left at the bottom. Then dry leaves are placed under this opening to heat the mould, to melt the inner wax model and drain it out. All wax is removed, the mould is heated more and a furnace is set up nearby. The metal, usually bell-metal in the case of such objects, is melted in the brazier. The mould, heated, is then handled carefully and the molten metal poured through the same opening through which the wax had escaped. The cavity is filled with the metal and the object is then allowed to cool. How long this takes to cool will depend on the size of the object. Then the outer layers are hammered

off, the mud cleared out and the object is revealed in its final metallic form. Then it is filed and polished and buffed until the natural colour of the metal gleams through.

The artist has to have a close acquaintance with the classical Indian treatises like the Manasara, Sukraniti and the iconographic prescriptions of the Bhavishapurana, Matsyapurana and Agnipurana to excel in this field. Technical excellence in the arts of visual and structural forms is the incorporation of symbolic gestures or Mudras, from the Natyasastra, and the spatial principles of Vastushastra. The textual bases demonstrate the intellectual training that lies behind what may seem like a manual craft.

7. Challenges and Responses

The Kunhimangalam metalworking traditions are a robust socio-economic model that gives importance to the purity of materials, mastery of technique and satisfaction of the consumer over the myopic pursuit of profit. The community has, therefore, largely been able to safeguard its cultural heritage in the face of globalization by commercializing finished products rather than the traditional knowledge that gives rise to them. This has successfully maintained the integrity of the craft and enabled it to reach wider markets. The continuity of this depends on the aesthetic intuition of the individual artisan, which is informed by local ecological and philosophical knowledge. This means that each object is a unique blend of acquired know-how and individual artistic discretion and it maintains the appeal for customers who value authenticity, ritualistic importance and specialised craftsmanship. The craft survives not only as an economically productive activity but as a continuing expression of cultural distinction.

At the same time, the tradition of bell metal from Kunhimangalam is in throes of a serious multi-dimensional crisis. One of the most urgent problems is the increasing generation gap. The community's younger generation does not consider the craft a prestigious or economically secure occupation and, therefore, is hesitant to take on the knowledge of their elders. This has resulted in an increasing dependence on an aging artisan population and a real risk of knowledge loss. To survive, the craft needs greater academic and institutional recognition. The application of these techniques in formal education, social recognition and professional dignity could transform the occupation from a marginal manual trade into a respected artistic vocation.

The problems are made worse by economic pressure. The craft is no longer economically viable, due to rising raw material costs and the demands of a globalized market. What was once obtained from nature is now more costly, and artisans are often confronted with bureaucratic or regulatory barriers that make production more difficult Kunhimangalam products cannot easily be substituted by cheap mass produced products because of its durability, craftsmanship and ritual value. Therefore, institutional support such as affordable access to raw materials, elimination of unnecessary regulatory hurdles, and the creation of conditions under which artisans can continue their work with dignity are the keys to the survival of this industry.

While some organizations such as the Bronze Heritage Trust have offered support through exhibitions and workshops, wider state-level intervention is vital. This intervention could be global promotion of the craft, support for folklore tourism, the creation of local employment centers where livelihoods based on heritage can be integrated into the bigger economy. In this sense, the future of Kunhimangalam is not only the conservation of a set of techniques but also the conservation of a cultural ecology where ritual, labor, artistry and community identity reinforce each other.

8. Conclusion

Kunhimangalam is a unique heritage village where history, ritual, craftsmanship and community life are still closely associated. Its significance lies not only in the survival of traditional bell metal and bronze casting, but in the continuation of a larger cultural milieu that includes Theyyam, Kalari lineages, temple traditions, folk performances and community-based ritual practices. The village exemplifies the preservation of artisanal knowledge through hereditary transmission, local ecological resources and proximity to religious and social institutions. Kunhimangalam is also a case study of the problems of several traditional craft communities in the contemporary period. Serious threats to continuity are the falling off of younger participation, the rising cost of materials, and the limited institutional prestige attached to manual craft. But the resilience of the village also shows us that heritage is not a frozen remnant of the past but an active and dynamic system of culture defined by adaptation, work and collective memory. The future of Kunhimangalam lies in its crafts being perceived not just as products of labor, but as expressions of intellectual, artistic and civilizational value. With education, policy intervention and cultural promotion, the village can remain a living repository of Kerala's heritage and a model for sustainable preservation of indigenous knowledge systems.

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