Vernacular Architecture - A Connection between Kerala and South East Asia

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Summary: *A comparison and contrast of centuries old parallels that exist between the architectural traditions of Kerala and Southeast Asia.*

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What makes the Kerala parotta have a parallel existence as a national food of Malaysia ? How did Parashu Rama, the sage who threw an axe and created Kerala become the main antagonist in a Cambodian classical dance?[1]

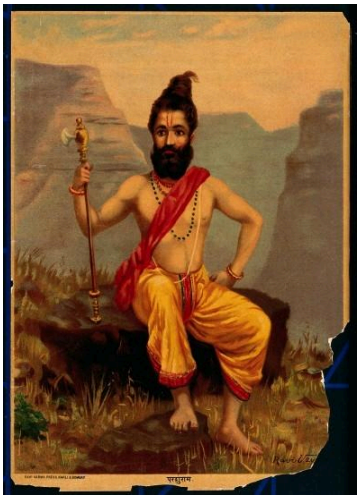


Figure 1 (Top). Ream Eyso. Image: Anders Jiras, 2009

Figure 2 (Bottom). Parashurama by Raja Ravi Varma. Image: Wikimedia commons.

The overlapping myths and cuisines mark a starting point to connection that prevails between the two regions. These extend to the tropical climate, a sedentary lifestyle, the matrilineal system, extensive canal systems and waterways, thriving rice and coconut cultivation, and a vibrant economy connected to maritime trade. The presence of the soaring Western ghats adjoining the coastal strip meant that Kerala was as well connected with the maritime worlds of West and Southeast Asia, as it was with the rest of the South Asian peninsula. Hence, it was not an exaggeration when geographer Charles A. Fisher credited a 'Southeast Asian personality' to Malabar.[2]

Vernacular Architecture

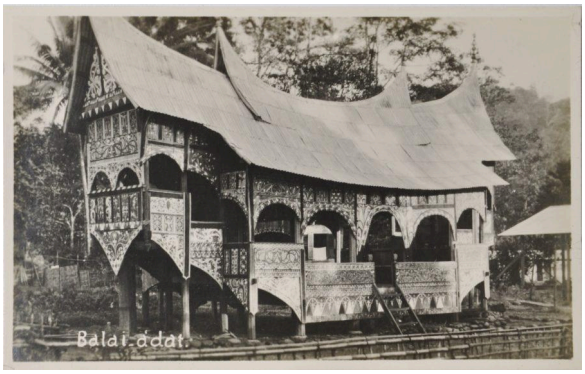
Vernacular architecture (or traditional folk practice in architecture) represents a profound connection between people and their environment. Rooted in tradition and shaped by climate, culture, and available resources, the establishment of a dwelling/ house building culture and its socio-spatial organisation has cultural understandings like kinship as a factor in the arrangement of settlements and houses. The pre-modern vernacular architecture between the Western Coast of India and the West and Southeast Asia shares the conditions of tropical equatorial monsoon climates, paddy farming traditions, and history of traditional maritime networks. Beyond a common wet tropical environment, geography is also a factor when building houses.

For instance, Minangkabau in the highlands of Indonesia is exposed to frequent environmental hazards in the form of floods, fires, and earthquakes. This explains the flexible and light character of the buildings of Indonesia in contrast to the rigid architecture of Kerala.[3]

[1] Candelario, Rosemary. '"Moni Mekhala and Ream Eyso Edited by Prumsodun Ok (Review)."' *Asian Theatre Journal*, 2014.

[2] Fisher, Charles A. *South-East Asia*, 1964.

[3] Widiastuti, Indah. 'Critical Study of Vernacular Settlement-Architecture of Kerala in India and Minangkabau in West Sumatra, Indonesia (of Societies Practicing Matrilineal Kinship)', 2024.



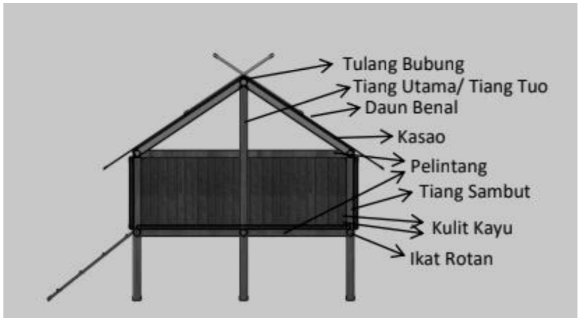


Figure 3 (T). Earthquake resistant Rumah Gadang (house) in Minangkabau. Image: KITLV Digital Collection.

Figure 4 (B) Tiang Tuo cutaway of earthquake resistant house showing the flexibility of poles. Image: Muhammar Khamdevi, 2021.

Tiang Tuo (old pole), a sacred symbol of protection, in Minangkabau, in addition to its ritual significance, also serves as the central post of the building and makes it earthquake-resistant. Its counterpart in Kerala, the *arudham* (annular beams), serves solely a ritual purpose.

The majority of the openings in a typical Kerala courtyard house are concentrated in the interior, especially towards the courtyard. This serves two purposes. First, to facilitate air circulation and take in less radiation. Two, the courtyard in Kerala houses is traditionally reserved for the *deva sthana*, the sacred dwelling of the gods.[4] Besides, courtyards in Hindu and Muslim dwellings showcase variations. The former often has a rainwater tank and only allows moderate sunlight. The latter has windows facing towards the centre built at different heights for privacy.[5] Haveli, wada, rajbari, and deori are other regional variations of the Indian courtyard-house.

Figure 5 (T). Nadumuttam. Image: Favouritehomes, 2024.

Figure 6 (B). Kerala kitchen. Image: Euronews, travels, 2023.

Vastu practices underwent changes in Kerala. Regarding the location of the kitchen, while in the rest of India, the kitchen is built in the south-west or the *agnikon* (fire corner) kitchens in Kerala are built in the north-east corner, i.e., the most

[4] Jameel, Naushaba, and Janmejoy Gupta. 'Lessons Learnt from Vernacular Architecture of Kerala'. *International Journal of Cultural Inheritance & Social Sciences (IJCISS)*, 2020.

[5] Zhang, Donia. *Courtyard Houses around the World: A Cross-Cultural Analysis and Contemporary Relevance.* New Approaches in Contemporary Architecture and Urbanism, 2020.

auspicious part of the house. A practical reason behind this was to maintain a smoke-free interior. Since the main wind current in the region was from the south-west,[6] Bali, in Indonesia, follows a similar hierarchical ordering of the mandalas, with the value descending from the north-east corner to the south-west corner. However, according to architect Indah Widastuti, “Bali looks more Indianite than Kerala due to the former’s patriarchy and intense use of Sanskrit.”[7]

Kerala and most of Southeast Asia fall under the same tropical climate belt. Both share a hot, humid climate with periodic rainfall and are surrounded by dense jungles. As a result, the two regions share similar challenges. Sloping roofs, slanting wall screens, and protruding eaves of varying depths are thus logical solutions to counter heavy rain and harsh sun.

Figure 7. Kerala traditional house. Image: Columbia University

Figure 8. Rumah Gadang, Indonesia, 1910. Image: Wikimedia commons.

While the sloping pyramidal roofs help with the heavy rainfall, the eaves stop glaring sunlight from entering the house. The uneven texture of the exterior walls helps ensure self-shading. The open layout typology with minimum furniture and transitional space between the exterior and interior[8] underlies the sweeping emphasis on transparency and openness that unites both building styles. The abundance of land also allowed the building of houses in the centre of large plots. This served to allow sufficient wind flow, easing the humid climate.

Form and Material

Saddle-shaped roofs are common in both Kerala and Southeast Asia. Scholars consider this roof construction and its wooden structure to be natural progressions from the early bamboo houses. Besides, in Kerala, 50 per cent of the roofs were made from coconut or palm leaves. Beyond its cheapness, this natural material with numerous cavities ensures temperature and sound insulation. However, thatched roofs were banned by royal decree in 1759 and were replaced by Mangalore tiles.[9]

[6] Koduveliparambil, Jacob Joseph. ‘Construction Practices in Traditional Dwellings of Kerala, India’. McGill University, Montreal, 1997.

[7] Widiastuti, 2024.

[8] Widiastuti, Indah. ‘The Vernacular Architecture of Kerala, South India: An Architecture Knowledge on the Crossroad Between Southeast Asia and South Asia’, 2015.

[9] Widiastuti, Indah. ‘The Living Culture and Typo-Morphology of Vernacular Houses in Kerala.’ *International Society for the Study of Vernacular Settlements*, 2013.

Figure 9. Thatched roof house, 1960s. Image: JANAL Archives.

Building materials were selected based on local availability. Before the 19th century, traditional buildings in northern Kerala were built of laterite and stone, which were easily available, whereas the ones in south Kerala were made entirely of wood, especially timber.[10]

Likewise, the pedestal of the pillar was made of wood and in the shape of a cube, a trapezoidal pyramid in north-central Java. The material changed to stone and the shape to just a trapezoidal form in south-central Java.[11]

Figure 10. A house built with laterite. Image: Wikimedia Commons

[10] Rajeev, Sharat Sunder. 'Agraharams: The Origin and Evolution of a Unique Housing Pattern in Kerala', 2024.

[11] Roesmanto, Totok. 'A Study of Traditional Houses of Northern Central Java - A Case Study of Demak and Jepara'. *Journal of Asian Architecture and Building Engineering*, n.d. https://doi.org/10.3130/jaabe.1.2_219.

Wood was also a common element in Southeast Asian mosques. It was used in roof structures, and to make stilts to support the floor. Influenced by local houses, especially in Malaysia, walls were made of timber.

Building materials were also based on the inhabitants' wealth. While *agraharams* (migrant Tamil and Tulu Brahmin community settlements around a temple) in Thiruvananthapuram used an inferior variety of laterite stone called *chekkal*, rich brahmins imported teak from Burma for their houses. Likewise, use of stone walls and tiled roofs was restricted to temples and palaces, while ordinary people lived in houses with mud walls and palm leaves thatched roofs.[12]

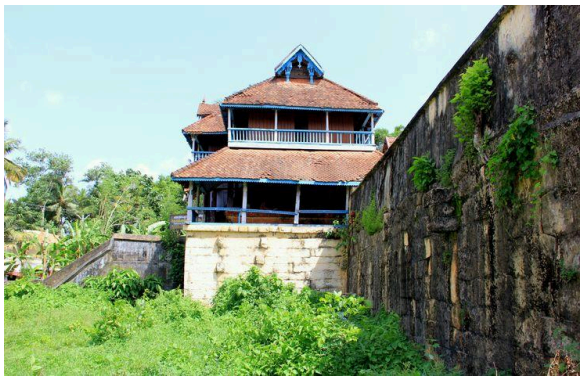


Figure 11. Attingal Koyikkal Palace. Image: Wikimedia Commons

Livelihood Connections

A long coastal line, wet paddy-farming traditions, and reliance on canals meant the households underwent modifications to fit in with the owner's line of work. One of the common structures in residential buildings in Kerala, the *ara* (grain storage) where the bulk of the agricultural produce was stored, was held up as the most auspicious part of the house. Within Kerala, the location of the ara underwent regional variations. While most granaries in

[12] Mehrdad Shokoohy. *Muslim Architecture of South India,* 2013.

Travancore were attached to the kitchen and built underground, they were placed outside the main house in north Kerala.[13]

The granary house in Kerala shares a spatial-structural resemblance to the Bontoc houses in the Philippines and houses in the Sunda area of Indonesia.[14] Both are built as raised structures. While the space below the granary was also used as storage (*nilavara*) in Kerala, the Bontoc people lived beneath the granary.

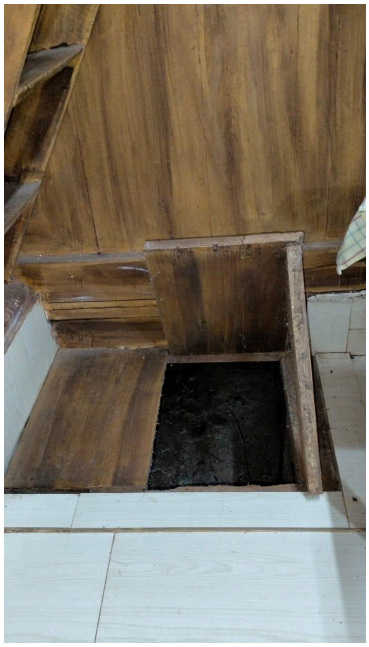


Figure 12. Underground nilavara, Chirakadavu, Kottayam. Image: Janal Archives, 2024.

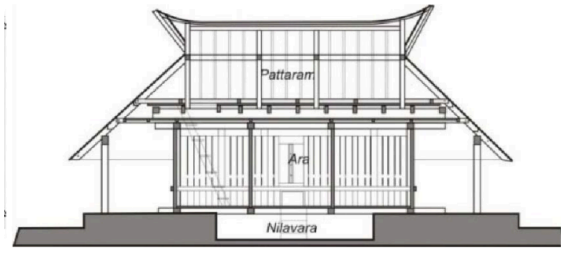


Figure 13. Ara. Image: Indah Widiastuti, 2013.

[13] Rajeev. Agraharams.
[14] Widiastuti, 2015.

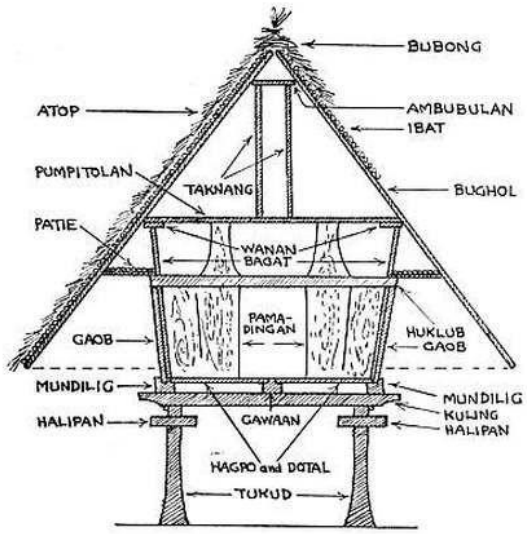


Figure 14. Bontoc house. Image: Indah Widiastuti, 2013

Stone walls were restricted to temples and palaces. However, Muslim merchants in Kozhikode were allowed to build stone walls around their houses to protect their goods.[15]

Architectural Techniques

Experts deem Kerala to be a "real conservatory of the ancient carpentry of southern Asia,"[16] so much so that the architecture treatise is called *Thachu Sasthram,* or the carpenter's science. For instance, when it comes to roofing, Kerala is the only remaining place in South Asia to have the stacking of beams roofing technique. This method used in prehistoric terraces, involves reserving a space on the roof to let the smoke out.

[15] Mehrdad Shokoohy. *Muslim Architecture*.
[16] Dumarçay, Jacques. *Construction Techniques in South and Southeast Asia*, 2018, 26.

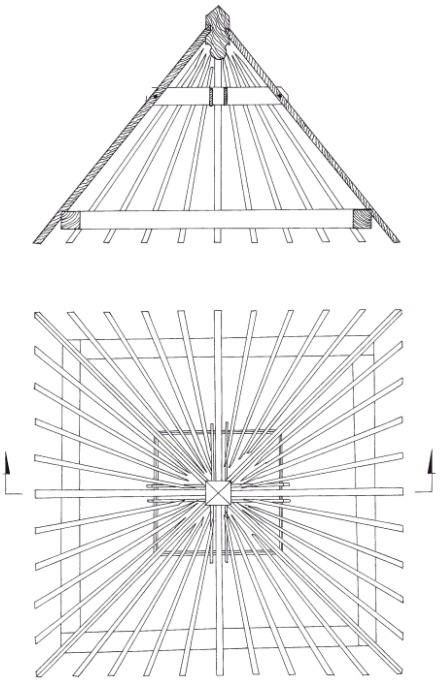


Figure 15. Radiating frame of Kerala. Image: Jacques Dumarcay, 2018

Not all people could afford a four-sided sloping roof due to a lack of money or materials. People overcame this limitation by setting up false gables over a radiating or bending frame.

One of the disadvantages of using bending frames is that the interior appears cluttered. Yet, this technique is widely used in Kerala. Builders overcome the limitation by introducing horizontal framing that prevents rafters from bending and allows for a large space in the interior.

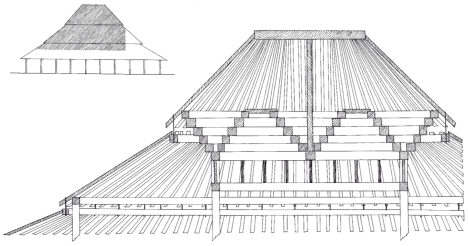


Figure 16. Radiating frame of Pendopo, Java. Image: Jacques Dumarcay, 2018

Taking in regional variations, the radiating framework is visible in the buildings of Java, Bali, and Lombok. It is characteristically visible in the Javenese, Pendopo. There is another variation that is still used for small sanctuaries in Kerala but is hard to find elsewhere in India. This roofing structure involves a hip roof on one side and a gable on the other, supported by screeds. To the east of the subcontinent, this technique is popular in Cambodia.

Sacred Architecture

a. Buddhist Temples

The possibility of Buddhism entering Kerala through the west coast from Sri Lanka cannot be ruled out. Similarities between the Buddha images of Anuradhapura style and a 7–8th CE image of Buddha found at Marudurkulangarai, near Thiruvananthapuram are a testament to this fact.

The preexisting circular shrines of Kerala also seemed to have undergone modification upon the arrival of Buddhist missionaries/Ilavas from Sri Lanka, as the vatadage (Buddhist circular shrines) is identical to the Kerala circular shrines with rows of pillars surrounding the garbhagriha in the centre. The geographical proximity and political influences between Kerala and Sri Lanka, especially the migration of the Ilavar or Tiyar, make the above assumptions highly probable.[17]

[17] Sarkar, H. *An Architectural Survey of Temples of Kerala,* 1978.

Figure 17.(T) Sree Mahadeva Temple, Airanikkulam. Image: kshetradanam.org

Figure 18.(L) A model of the Thuparama Vatadage in the Museum of Anuradhapura, showing what the original structure may have looked like. Image: Wikimedia Commons

Stella Kramscrich, however, traces a few other influences to the circular shrines from within Kerala. Ullathas (a caste group) practice a marital tradition where the bride-to-be chooses her husband while shut in a large round building made of leaves. The conical huts of indigenous groups like Malapantarams are another example.[18]

Besides, circular temples in Kerala stand out in terms of the height of the wall. While, according to Kramscrich, the elevation of temples outside Malabar "is as a rule not more than double the height of the walls,"[19] in Kerala, the sloped roofs cover four times the height of the walls of the temples. To the viewer's eyes, the multi-roofs give a sense of lightness to the overall structure.

b. Islamic Styles

Transcending influences in temple architecture, parallels run between the mosque architecture of Malabar and the Malays. The tropical climate and the pre-Islamic traditions are prerequisites for the connection.

In principle, the mosques of Kerala have a wooden upper storey with sloping roofs on stone foundations. Built as three-tiered structures, the ground floor is reserved for praying, and the upper floors function as madrasas, administrative offices, or store rooms. Besides, the wooden roof and the colonnades surrounding the prayer hall found in Southeast Asian mosques are defining characteristics of Malabar mosques. The prayer hall is preceded by an antechamber in both regions.[20]

The oldest mosque in Indonesia, Agung Demak, shares the above similarities with mosques in Kochi and Kozhikode. In addition, the wooden colonnades serve as the lower tier of the roof of the building. Mehrdad Shokoohy finds the "thick masonry walls, three entrances on the eastern wall and a single mihrab in the form of a deep niche, projected outside the qibla wall" to bear resemblances to the

[18] Kramrisch, Stella. *Drāvida and Kerala in the Art of Travancore,* 1953.

[19] Kramrisch, 15.

[20] Mehrdad Shokoohy, 2013.

mosques of Kerala.[21] Besides, the layout of the mosque is very similar to the Cheraman Juma Masjid in Kodungallur, Kerala.

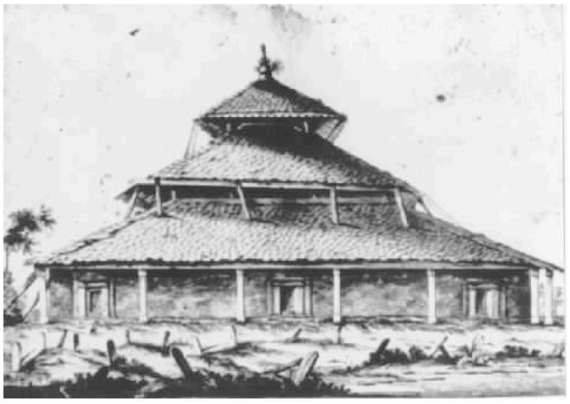


Figure 19. (T) Oldest mosque in Indonesia, Agung Demak. Image: Wikimedia Commons

Figure 20. (B) Langgar Mosque in Malaysia. Mehrdad Shokoohy, 2013.

Similarities among the three-tiered roofs extend to the decorated gable at the end of the top tier and the hipped shape at the lower tiers, as is also evident in the Langgar Mosque in Malaysia. The rectangular floor plan is another overlapping feature between the built structures of the two regions. The three-tiered roof structure is common in Kerala, Indonesia, and Malaysia. However, in the last two countries, it is frequently used in domestic architecture. In the interior, the roof-like wooden canopy used as the speaker's platform and the floral patterns on the minbar share a resemblance with the ones in Malabar. The wooden minbars of Kozhikode and Kochi are specimens of craftsmanship and differ from the stone and wooden minbars of North India, North Africa, and the Middle East.

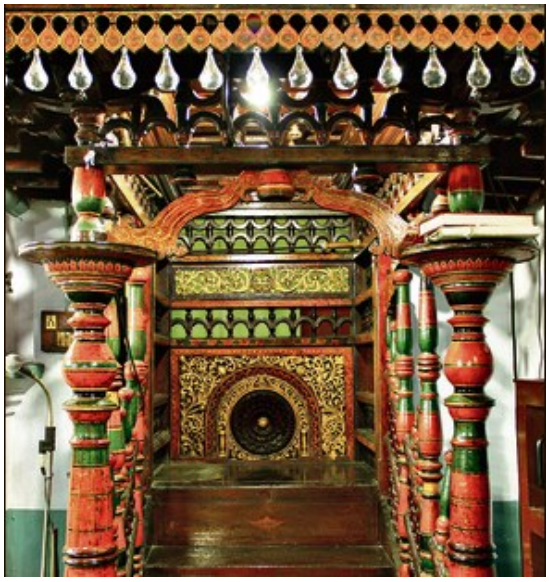


Figure 21. Teak minbar in Cheraman Juma Masjid in Kodungallur, Kerala. Image: Hindustan Times, 2022.

The pre-Islamic influences and the local adaptations of styles gift myriads of variants. The tiered roofs and the corridors around the mosques can be traced to Hindu shrines, while the concept of doors with semi-circular arches and antechamber in front of the prayer hall were contributions of early Arab settlers.

However, built traditions in both Kerala and Southeast Asia collectively differ from North Indian and Middle Eastern Islamic traditions. The mosques are devoid of arches, domes, minarets, and geometric patterns that mark the visual identity of Indo-Islamic architecture in north India.

[21] Mehrdad Shokoohy, 2013.

Islamic influences also reflect in the houses in Indonesia. For instance, the omission of the main bedroom, which symbolised the abode of the rice goddess, and the fact that only a close gap in the form of a corridor separated individual houses reveal the existence of a close-knit community.[22]

Socio-political Impacts

Architecture, like all other elements of culture, was not immune to political, economic, and religious changes. In the 12th CE, with the invasion of the Cholas in Kerala and Sumatra, the latter lost its power to neighbouring ports. However, Kerala retained its power thanks to busy international trade. Architect Indah Widastuti points out that it was the stable socio-economic situation that helped Kerala architecture achieve more technical and professional advancements than Minangkabau.[23]

In the 16th century, another political event, the fall of the Vijayanagar empire, became a catalyst for a new building style in Kerala. The conquest of Vijayanagar by the northern powers made the weaker kingdoms further down south vulnerable to aggression. This caused a wave of Brahmin migration to Kerala. These colonies, called *agraharams,* have rows of houses built linearly with shared walls and long connected verandas/corridors (*puramthinna*). The row houses, though common elsewhere in India, are an anomaly in Kerala. The single-detached houses with open spaces on all four sides were the norm in Kerala.

Figure 22. Long connected verandas of the agraharams. Image: IncredibleIndiaphotogallery

Later, during the 19th and 20th centuries, upper-class Hindus started importing Burmese teak to build their houses. However, the more conservative bunch restricted themselves to traditional bamboo for construction. Bamboo was preferred for its availability and religious significance. Besides, the imported teak was considered impure for building houses since it was transported across oceans.[24] In general, houses were segregated caste-wise. The different names for the houses ranged from *cheri*, *chala*, *pura* or *kudi*, *variyam* or *pisharam*, *vidu*, *illam*, *mana,* to *kottaram*.[25]

While two- and three-storied houses are abundant in north Kerala, they were restricted to members of the royal family or those honoured by royalty in Travancore. Besides, it required royal sanction to use rosewood to finish woodwork in houses since all rosewood trees in Travancore were owned by the royal family.[26] Similar restrictions were laid out in Java. Gonjo (a decorative element on top of the main pillar) was used only in the houses of aristocrats. While towards the north of central Java, gonjo is a common feature.[27]

[22] Roesmanto, Totok. 'A Study of Traditional Houses of Northern Central Java - A Case Study of Demak and Jepara'. *Journal of Asian Architecture and Building Engineering*, n.d..
[23] Widiastuti. "Architecture of Kerala in India and Minangkabau in West Sumatra, Indonesia.

[24] Rajeev. Agraharams, 2024.
[25] Logan, William. *Malabar Manual, 2010*.
[26] Hockings, Paul. *Dimensions of Social Life,* 1987.
[27] Roesmanto, Totok. A Study of Traditional Houses of Northern Central Java.

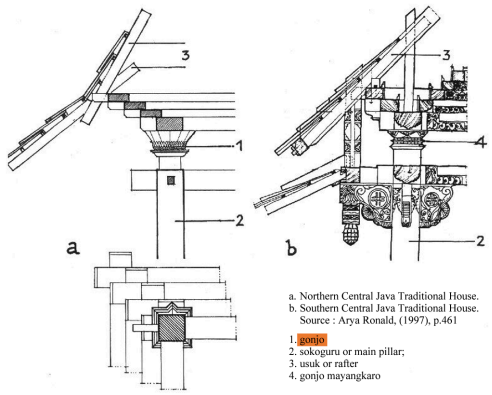


Figure 23. Gonjo. Image: Roesmanto, Totok

Colonial rule introduced new elements and styles. The traditional square and octagonal column shafts in Kerala mosques were replaced with slim, round ones or with fluted columns (as seen in Tadruspalli in Kozhikode).[28] The decorative elements in the mihrab were borrowed from the niches of the colonial churches.

The shared Dutch colonial past of Kerala and Indonesia explains the resemblance between the design of Bolgatty Palace (1774), a traditional *pathya pura* (grainary) in Piravom, and a hall in THS de Bandoeng Indonesia (1920).

Later, with the British too, a highly localised architectural style emerged called Travancore-Victorian architecture. While the projecting gables (*mukhappu*) were retained, the tiled angle brackets above the windows were a new addition.

Figure 24. Tiled sunshades over the windows, British Residency, Kollam. Image: Sahapedia

While staircases were built inside the native bungalows, exterior wooden staircases were built in the British bungalows. For example, Ananthavilasam Palace, Thiruvananthapuram. [29]

Figure 25. Exterior staircases in the Ananthavilasam Palace, Thiruvananthapuram.. Image: Department of Archaeology, Kerala.

Conclusion

Like all art, architecture also expresses the builder's identity. The architecture of Kerala seamlessly reflects its open and cosmopolitan ways of living. In addition, the architecture of Kerala reflects a combination of Indic and Southeast Asian characteristics when examined from: 1) evidence of general convergence and divergence of the building typology; 2) evidence of shared social-spatial organisation of the habitations that specifically brings up the importance of women and matrilineal structures; and 3) discussions on the shared claims of pre-Hindu characters and maritime culture. These in turn lead to the limits of distinguishing between Southeast Asia and its paradigm of Indianization, the colonial assumptions of ethnic nationalities, and the development of knowledge about

[28] Mehrdad Shokoohy, 2013.

[29] Jemeemah Hisham, Amiya. 'Bungalows of Travancore: A Study of the Architectural Typology', June 2019.

vernacular architecture in Kerala and Southeast Asia.

The twenty-first century offers new opportunities and challenges. In the realm of globalisation, India has thrived. On the flip side, rampant homogenisation threatens indigenous cultural identities. However, Southeast Asia lies on the other side of this conversation. The sweeping popularity of Eastern pop culture, like anime, manga, K-pop, K-drama, etc., over global audiences and tourists flocking to the East is a striking testimony to the demand for indigenous styles.

Neither do we have to museumize architecture nor forgo it completely. Traditional methods and styles have continued to adapt to serve changing demands, ensuring the evolution of thousand-year-old customs.

Figure 26. (L) Bolgatty Palace (1774), (C) a traditional pathaya pura (grainary) in Piravom and (R) a hall in THS de Bandoeng Indonesia (1920). Image: Indah Widiastuti, 2013.

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