An Evaluation of Spatial Organization of the Church Architecture of Kerala during the Sixteenth to Seventeenth Centuries

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Abstract The churches of Kerala of the sixteenth to seventeenth centuries exhibits an architectural character which is different from that of the indigenous Church Architecture of Kerala. Preliminary studies show that the spatial organization of these churches also varied from that of the indigenous churches of Kerala. Did these variations in spatial organization arise of any change in functional requirements of churches? How did the indigenous Architectural character adapt to these changes or did it give way to a new style? The objective of this study is to understand the spatial organization of the indigenous Church Architecture of Kerala and to evaluate the changes in spatial organization during the sixteenth to seventeenth centuries. This study is primarily based on field survey and documentation, evaluation is done by relying on the Rapoport's theory. It is concluded that the church architecture of this period is a fusion of the Western and Eastern ecclesiastical traditions in terms of spatial organization and planning.

Keywords Indigenous architecture · Spatial organization

Introduction

According to traditional belief, apostle St. Thomas had brought Christianity into Kerala in the first century AD.

The culture and society of Kerala had also provided an enabling environment for the growth of Christianity. These Christians came to be known as Thomas Christians and were treated all along on a footing of equality with the Hindus and assigned a very important place in the economic and social life of the land [1]. This Christian community, by the beginning of the sixteenth century became a major force in the cultural and commercial scene in Kerala.

Ecclesiastical Traditions of Thomas Christians

Until 1500 AD, the Thomas Christian community of Kerala grew under the ecclesiastical guidance of Bishops from Syria, and Persia of the Eastern Orthodox Church. The Thomas Christians therefore were also known as Syrian Christians. They had maintained proper relationship with the Church of Persia and also had inherited the Syrian Liturgy from them [2].

Introduction of Western Ecclesiastical Traditions

The Portuguese and the missionaries who reached the Kerala coast in the 16th century brought the Kerala church forcefully under the Western ecclesiastical administration, overthrowing its connections with the East Syrian church. This historical event which occurred at the synod held at Udayamperoor in 1599 AD brought the Syrian Christian community under the Roman Pontiff. The Syrian Christian community of Kerala continued under the ecclesiastical administration of the Roman Pontiff for more than five decades and Western ideas flowed into the Kerala church during this period.

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Traditional Church Architecture of Kerala

The Church is a place for the gathering of the community for participating in religious services. The disposition of spaces in a Church can be along a longitudinal axis as can be seen in Basilican type of churches or it can also be along a centralized axis. In Kerala, the traditional Church had followed a layout plan with spatial disposition along the longitudinal axis. In plan, it is a long rectangular hall for the congregation, with a Chancel or Sanctum or Altar area, known as the Madbaha (refer Fig. 1). The word ‘Madbaha’ was derived from the Syrian word ‘Dabaha’ which means sacrifice. The nave of the church was called the Hykala. It came from Hykalo, the Syrian word meaning ‘temple’.

The Church Architecture of Kerala had developed based on indigenous architectural traditions of the land which in turn had evolved from climatic considerations, social needs and culture of the society [3]. The ideologies of Eastern ecclesiastical traditions also influenced the development of Church Architecture in Kerala, because until the sixteenth century the Kerala church had been under the ecclesiastical administration of the East Syrian church [4].

Fig. 1 Typical indigenous church of Kerala-Plan, Section and view

Characteristics of Indigenous Church Architecture of Kerala

Orientation

The Orientation of the traditional Kerala Church is always in the East–West axis with the Madbaha on the East, and the main entry to the Church on the West. This was so, irrespective of the orientation of the site, the road or river access (refer Fig. 2).

- Focus towards the altar

Once the main door is crossed the focus is always toward the Altar.

- Constricted Madbaha

The Madbaha part of the indigenous Church is always shorter in width than that of the Hykala.

- Higher roof for the Madbaha

The roof of the Madbaha was always higher than that of the Hykala.

Fig. 2 Characteristics of indigenous Church Architecture of Kerala

- Windows/Doors

Madbaha did not have windows. There were three doors to the Hykala. The main door is accessed from the west. The two side doors are one each on the north and south side.

- Additional roof above the Madbaha

The Madbaha had double roof. The lower one is a highly decorated vaulted roof above the altar. This vaulted roof is covered by a raised hipped or pitched roof, which is seen from outside.

- Arch opening between the Madbaha and Hykala

Madbaha and Hykala are separated by an arched opening.

Emergence of a New Church Architecture in Kerala in 1500 AD

Kerala had more than one hundred churches and a well-developed indigenous Church Architecture at the time of arrival of the Portuguese. The Portuguese and the missionaries who reached Kerala in the sixteenth century brought in Western ideas and ideologies of Church Architecture [5]. They forcefully imposed Roman Catholicism and Latin liturgy in church of Kerala. Many new churches were built and the existing churches were remodeled in the sixteenth to seventeenth centuries.

The new churches built during the sixteenth to seventeenth centuries exhibit an architectural character, which is different from the indigenous character of churches in Kerala. These churches possess an imposing front facade, ample light for the interior and a monumental character.

Spatial Organization of Churches of Kerala of the sixteenth to seventeenth Centuries

The spatial organization of the churches of sixteenth to seventeenth centuries also varied from that of the indigenous church. This was because of the additional space requirements that arose from the changes in liturgy and ideologies of the Western Church. The indigenous churches had to incorporate the new spatial requirements. Thus the new church demanded spaces such as,

- (a) Baptismal room
- (b) Sacristy
- (c) Priest room
- (d) Confession room
- (e) Space for choir
- (f) Belfry/Bell tower

In addition to these, elements like Pulpit, Baptismal font, Altar Backdrop and Huge Church bells formed part of new Church requirements. In the preliminary studies, it was observed that the spatial organization of Church Architecture of Kerala of the sixteenth to seventeenth centuries shows variations which lies between two extremities. On one end we find the spatial organization of the Catholic Church based on the Western ecclesiastical traditions and at the other, the Orthodox Church based on the Eastern ecclesiastical traditions. All the churches that existed in the sixteenth to seventeenth centuries in Kerala find its place in between these two extremities (refer Fig. 3). Depending on the variations in spatial organization initiated by Western influence, the churches of the sixteenth to seventeenth centuries in Kerala can be grouped as following.

(A) The indigenous churches with their interiors enriched with embellishments from the West but with little or no variation in spatial organization.

(B) The indigenous churches enriched by the West not only in the interior embellishments but also in spatial planning.

Fig. 3 A Schematic representation of architectural character of churches in Kerala of the sixteenth to seventeenth centuries

(C) The new churches built for the Latin Catholic community in the sixteenth century in Kerala, with a spatial planning that satisfies their liturgical requirements.

Sketch A represents the church Architecture introduced by Westerners in 1500 AD and Sketch B represent the indigenous church Architecture of Kerala. The figure shows the variations in architectural character due to the merging of indigenous and Western architectural characteristics in the various churches.

Preliminary observations in the field revealed that, most of the churches of this period do not exist now in its original form. In some cases, the original structure is partially or totally demolished and a new building is constructed in its place. Only a few churches remain, where the Church was conserved without major modifications. A list of these churches was made and ten churches were identified from each group to make a comparative study on the spatial organization. A category wise division of these churches into three groups is shown in Table 1. A comparison of the spatial organization of Church buildings is possible by analyzing the church plans of each group. Spatial layout of a typical example from each group is shown in Fig. 4. It

was found that the spatial organization of Churches within each of these groups is comparable to one another.

The churches of Group-A exhibit a close resemblance to the indigenous church of Kerala in terms of spatial planning. The churches in Group-B show similarity in spatial planning with that of the plan of Group-A churches, but new spaces are added to satisfy the newly developed spatial requirements. The churches of Group-C do not show any resemblance to the indigenous church in terms of spatial organization. However, Rapoport [6], suggest a more rational method for comparison of built environments, on the basis of spatial organization. This method helps to understand the variations in space organization in a more systematic way.

Rapoport's Method

Human mind basically works by trying to impose meaning on the world he sees. As one move into an officer's cabin, with heavy curtains, chandeliers and carpeted floor, the furniture layout and spatial quality explicitly explains to

Table 1 Category wise division of churches of sixteenth to seventeenth centuries into three groups

Group A		Group B		Group C	
Name of the Church	Date of original establishment	Name of the Church	Date of original establishment	Name of the Church	Date of original establishment
1. St. Mary's Orthodox Church-Chenganoor	1175 AD	1. St. Mary's Forane Church-Arakuzha	999 AD	1. St. Francis Xavier Church-Fortkochi	1516 AD
2. Mar Sapor-Afroth Jacobite Church-Akaparambu	825 AD	2. St. Mary's Forane Church-Champakulam	427 AD	2. Our Lady of Life-Mattancherry	1538 AD
3. St. Thomas Ororthodox Church-Kadambanad	325 AD	3. St. Mary's Church-Kudavechoor	1463 AD	3. St. Lawrence Church-Edakochi	1504 AD
4. All Saints Church-Udayam Peroor	510 AD	4. St. Mary's Knanaya Catholic Church-Kaduthuruthy	1001 AD	4. St. Thomas Orthodox Church-North Parur	1538 AD
5. St. George Jacobite Church-Kadamattom	950 AD	5. Mar Sleetba Forane Church-Pazhayangadi-Alleppey	1450 AD	5. St. Peter and St. Paul-Elanji	1522 AD
6. Holy Cross Church -Cherpungal	1111 AD	6. St. George Jacobite Church-Karingachira	722 AD	6. St. Marys Orthodox Church-Kottayam	1579 AD
7. St. Mary's Church-Bharanaganam	1100 AD	7. St. Mary's Catholic Church-Kottayam	890 AD	7. Our Lady of Hope-Vypeen	1606 AD
8. St. Mary's Cheriya pally-Changanasserry	1117 AD	8. St. Mary's Catholic Church-Kaduthuruthy	1001 AD	8. Holy Cross Church-Chendamangalam	1577 AD
9. St. Dominics Church-Kanjirapally	1450 AD	9. Marthamariam Church-Nadamel	1175 AD	9. St. Andrews Church-Arthungal	1581 AD
10. St. George Church-Angamali	450 AD	10. ST. Mary's Church-Muttom	1023 AD	10. St. Hormis Church-Angamali	1585 AD

Source Based on data from Secondary sources and preliminary survey

Fig. 4 Spatial layout of churches of the sixteenth to seventeenth centuries-typical example from each group. *Source* Primary survey and documentation done by the investigator and team

him the status and position of the officer. Dusky and crowded office rooms stacked with file cabinets suggests a different meaning to the spectator. Similarly even an empty courtroom gives cues on the relative position and status of the various officers of the justice system.

Built forms of a region represent the culture of the region of that period. Social, political, economic or

religious influence on a region at any period in history is also reflected in the built environment of that period. According to Rapoport, space organization is central in understanding, analyzing and comparing the built environment. Space organization is primarily the organization of the fixed feature elements [6, 7], which helps to analyze the meaning of the built environment based on fixed

elements, semi-fixed elements and non-fixed elements, present in the environment.

- Fixed elements

Fixed feature elements are those elements of the built environment that are basically fixed. The way in which these elements are organized or the spatial organization of these elements communicates meaning. This is true especially for traditional settings. Fixed elements also represent the cultural state at the time of construction of the environment, as they are relatively static [6].

- Semi-fixed elements

Semi-fixed elements range from the arrangement and type of furniture, curtains, furnishings etc. These elements become more important while analyzing the environmental meaning of a familiar context where the semi-fixed elements tend to communicate more than the fixed elements. They are less static than the fixed elements.

- Non-fixed elements

Non-fixed elements are related to the human occupants or inhabitants of settings, their body positions and postures, hand and arm gestures, facial expression, head, nodding, eye contact, speech rate, volume and pauses. Non-verbal communication studies are mainly based on non-fixed elements.

Identification of Variables

Meaning in traditional settings is mainly based on fixed feature elements [8]. Churches of the sixteenth century in Kerala, being a traditional setting, fixed and semi-fixed feature elements are more expressive than non-fixed

elements in communicating meaning. Therefore non-fixed elements are eliminated from the present study. The fixed and semi-fixed elements are identified based on secondary data and preliminary surveys. The fixed feature elements can be classified into indigenous fixed feature elements and imported fixed feature elements. The imported fixed feature elements are those elements that were imported from the West in the sixteenth century. Similarly semi fixed elements can also identified and grouped into indigenous semi fixed elements and imported semi fixed elements (refer Table 2).

The churches that existed during the sixteenth to seventeenth centuries were classified based on the year of construction. Those churches constructed prior to and after the advent of Portuguese in 1500 AD were classified into separate groups. The presence or absence of indigenous or imported, fixed and semi-fixed elements was identified for churches in each group. A comparative study on the spatial organization between the two groups helped to identify the changes brought out in the sixteenth to seventeenth centuries. A few of the inferences are discussed here.

More than hundred churches that existed at the time of the advent of Portuguese were enriched in church interiors with embellishments from the West. Except for the addition of the Western façade no changes in plan or built form were made in churches such as St. Dominic's church, Kanjirapally and Holy cross church, Cherpungal (refer Fig. 5).

Certain churches such as the St. Mary's Forane Church, Champakulam and St. Mary's Catholic Church, Kanjoor were enriched not only in the interior embellishments but also in spatial planning. Baptismal room, Priest's room, Sacristy and space for choir were added to the church plan. The conversion of the whole of Syrian Christians to follow

Table 2 Classification of variables, into indigenous elements and imported elements

Indigenous fixed elements	Indigenous semi-fixed elements	Imported fixed elements	Imported semi fixed elements
1. East–West orientation altar on the east	1. Hanging oil lamp in the middle of hykala hall	1. Sacristy	1. Baptismal font
2. Raised level of Madbaha floor	2. Veil separating madbaha from hykala	2. Priest room	2. Pulpit
3. Constricted width of Madbaha		3. Baptismal room	
4. Mukhamandapam			
5. Balustrades separating Hykala from Kestroma	3. Deepastambham	4. Façade	3. Decorated altar backdrop or rathal
6. Arch opening separating Madbaha and Hykala	4. Dwajastambham	5. Rear balcony for choir	4. Ramalhete/altar flower decorations
7. Vaulted ceiling of Madbaha	5. Open air granite cross over granite base	6. Belfry integral with façade	5. Open air granite cross over laterite base
8. Higher roof for Madbaha from outside		7. Windows to altar area	

Source Derived from secondary sources, as well as Primary data based on field survey

Fig. 5 Views of Holy Cross Church, Cherpungal and St. Mary's Forane Church, Champakulam

Fig. 6 Baptismal fonts of St. Mary's Church, Kanjoor and Our lady of Life-Mattancherry

Latin liturgy necessitated the addition of functional spaces in churches. The church interiors were enriched by Baptismal fonts, Altar Backdrop, Pulpits, Wooden Statues, Frescos and Paintings. Further, the church layout was enriched with Belfry, Open air Granite cross, Cemetery and cemetery churches.

While all the churches established prior to 16th century are oriented in the East–West axis with the altar positioned in the East, the churches established after the advent of the Europeans, do not strictly follow this. The influence of the West on the church Architecture of Kerala is confirmed from this result.

All the churches of the sixteenth and seventeenth centuries have an imposing front façade which is undoubtedly an imported element supplied to all the churches. A well-proportioned façade became the integral part of Kerala churches after the arrival of the Portuguese.

Sculptured granite Baptismal fonts carved out of a single granite and carvings in granite are more profuse and beautiful in the Baptismal fonts of Group A churches compared to the Group B Churches. The pedestal of Baptismal font of St. Mary's Church, Kanjoor, (Group A) have carvings of lion heads which carry the font on their head. The Baptismal font of St. Mary's Jacobite church,

Nadamel, Thripunithura has the date 722 AD inscribed on it, this proves that, Baptismal fonts existed in churches of Kerala long before the arrival of Europeans. In Group B churches, Baptismal fonts of such materials other than granite like laterite is also seen, which is then finished, plastered and painted. The Baptismal font of 'Our lady of Life-Mattancherry' Church is a lotus flower as such replicated in color and form (refer Fig. 6).

Conclusion

Churches that existed in the sixteenth century in Kerala were subjected to renovation by the Portuguese and missionaries. The new space requirements that arose due to the change in liturgy, was incorporated into the indigenous church plan without making any drastic changes in that plan. The new churches that were built during this period were of two types. Churches that resembled the indigenous plan and the churches that varied from the indigenous churches in terms of spatial layout. Churches in both these types incorporated the indigenous characters as well as the architectural characters imported from the west.

The missionaries tried to transfer their ideas into the built form with the help of the local artisans and craftsmen, who were well versed in the indigenous techniques and construction practices. The result was the architectural expression of ideas imported from the West reflected on a foreground developed based on the architectural traditions of the East.

It can be concluded that the influx of Western ideologies has tried to enhance the Church Architecture of Kerala in the sixteenth century. Nevertheless enrichments made in terms of spatial organization and architectural character did not overthrow its indigenous character, developed based on Eastern ecclesiastical traditions.

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