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EVOLUTION OF ARCHITECTURE



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P R E L U D E



The Evolution of Architecture is a much-discussed classic issue.

At rudimentary levels we have by now a fair idea about how architecture has been evolving as a social technology and a cultural art over the epochs that we traversed.

Maybe the time has arrived we delve somewhat deeper into the nuances of the process and product of architecture, at a more scholarly level, to fathom the trends the discipline is taking, the course it charts on its own, and also to discern the need for steering it towards a sustainable future.

In this issue of the ABACUS, apparently diverse articles finally converge on that intention of following the course of evolution of Architecture, its passage from the past into the contemporary times, the multifarious aspects of civilization it touches and affects on its journey, and the underlying need to point at a rational course for a meaningful tomorrow.

The spectrum of articles coined in this number is quite elaborate and probe the diverse influences of Architecture on fields as different as culture, religion, tradition, technology, history, theories and heritage. Specific sample cases and general scenario -both are dealt with in the articles contributed by experts and scholars.

Trust this issue would throw some special and revealing light on the evolution of architecture.

(Dr. Manjari Chakraborty)



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EDITORIAL

"Architecture is that great living creative spirit which from generation to generation, from age to age, proceeds, persists, creates, according to the nature of man, and his circumstances as they change. That is really architecture." ...Frank Lloyd Wright

What is Evolution of Architecture? Why is it important to understand the meaning of 'Evolution' in context to Architecture? What is the magic for survival of the age old art and architecture? What makes historic architecture awe-inspiring? Who creates them? What is the purpose of creating them? What spatial qualities and organisational principles have rendered the historic monuments timeless? Can these qualities be deciphered and reinstated in contemporary times?

These questions become immensely pertinent in the context of History of Architecture. Architectural History is a function of time and space, where time is cyclic and dynamic in nature. Materials, construction techniques, style and 'isms' are conditioned by the context. Architectural History can serve a better understanding and a critical consciousness as to what architecture should be today and tomorrow. One could expect a better understanding of the built environment of the past to critically inform our present day and future views and beliefs.

An integrating theory of architecture cannot be developed without a historical base, and the history of architecture cannot be pertinent without a theoretical base; there is an evident relationship between theory as a whole and historical analysis. The history of architecture points out the qualitative poles of the existing works, cultural testimonies of the past, signs of evolution, and the criticism examines and evaluates to what extent a certain proposal satisfies some specific value criteria. Right through history of architecture, the attempt to create something awe-inspiring resulted in a diversity of architectural forms.

With these perceptions, it was decided to focus the current issue of ABACUS on history of architecture. The theme resolved was 'Evolution of Architecture'. Five sub themes were agreed upon - Architectural History and Regionalism, Technological Developments, Interpretation of History in Modern Architecture, Evolution of Theory of Architecture and Study and Conservation of Built Heritage. I was fortunate to have contributions from veteran researchers as well as naive young ones who were quite eager to publish their post-graduate and doctoral work. Interestingly, we also received a paper based on undergraduate work. Thus, it can be concluded that the future of research on architectural history is bright, as there are many young innovative minds at work.

It is my proud privilege to thank all the authors on behalf of the boards of editors from the Department of Architecture, BIT Mesra, Ranchi. I am grateful to the reviewers for timely revisions. My gratitude also goes to the companies who have provided the advertisements. It was a learning experience to edit the words of authors and forgive me for any unintended errors.

As issue editor for ABACUS, I am privileged to present this issue on 'Evolution of Architecture' with hope that the readers would be thoroughly benefitted.

Ritu Agrawal

Editor, ABACUS MO/12

READING ARCHITECTURE : HISTORIOGRAPHY OF 18TH CENTURY PESHWA CITY AND ARCHITECTURE

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ABSTRACT

Reading Architecture can be done in two ways first by reading what has been written about it and second reading architecture itself as its own text. This paper is a reading of the history of 18th Century Peshwa City and Architecture and a subsequent outline of a methodology of reading the Architecture itself.

The writing of Architectural History of the Indian subcontinent has been limited to the confines of formal, arthistorical analysis (Juneja, 2001). These writings have also been limited to grand narratives of the centre marginalizing the histories of the regions.

The fact that 18th century architecture of the 'Marathas' needed to be studied was first stated by Herman Goetz in 1946 CE. His essay prompted a doctoral dissertation by M.S. Mate in 1959 CE. The late 1990's and the early years of the 21st century have seen more work on Maratha Architecture (Sohoni, 1998). However, as will be shown most of this work is art historical in nature depending on formal analysis. The paper makes a case for re-reading the history of 18th century Architecture of the Maharashtra region by using evidences and methods that go beyond the buildings.

Key words : Maharashtra, Historiography of Architecture, 18th century

1. INTRODUCTION

The 18th century in Indian history has been a subject of much research. Till recently, it was seen by historians as a century of chaos and anarchy with no architectural significance. Recent scholarship however has questioned this (Alavi, 2002) and stressed on the continuities and assertion of regional identities in the 18th century. Such a change in outlook prompts a change in the way we look at history of 18th century of Architecture as well.

This change in the scholarship on 18th century India forms the intellectual context for a survey of 18th century Architecture of Maharashtra. Another strong influence comes from the way the discipline of Architectural history has changed in the last couple of decades. From a discipline which leaned towards an art – historical analysis, history of architecture has become a part of the broader field of cultural studies.¹

Taking into consideration these two factors namely the change in the understanding of the historical context and changes in the discipline of Architectural History, this paper attempts a reading of the history of 18th century Peshwa city and Architecture

2. THE BEGINNINGS

Herman Goetz (1898 – 1976 CE), great pioneer of the museums in India, was the first art historian to write about Art of Maharashtra, which he called as 'The Art of the Marathas' (Goetz, 1946). In the opening pages of his essay with the same title, Goetz outlined certain principles which even today can serve as an entry point into the critique of the 'Art of the Marathas'. Firstly, he rejects the notion of Maratha Art being the 'sunset of Indian greatness'. Secondly, he rejects aesthetic judgment based on Victorian notions of Art and thirdly he accepts 'eclecticism' as being inseparable from evolution of art. Having established these, Goetz goes on to perform a taxonomical analysis of 'Maratha Art' dividing the Maratha

CULTURE AND URBAN MORPHOLOGY: TRANSFORMATION WITH DEVELOPMENT IN INDIAN CITIES

RUKMINI MUKHERJEE



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ABSTRACT

Culture is an intangible part of the human life that manifests itself in all spheres of living. Culture is captured in a tangible form in the built environment that is the result of socio-cultural affiliation and economic affordability of man. The interaction between cultural ethos and quality of life are responsible for moulding the idea of functional spaces. This relationship is extended from the smallest conceivable living space to the macro scale of an urban area and is reflected physically in the morphology. In retrospect, the urban form liable to change over time and use is responsible for moulding the quality and ideas of life and social values. The environment that shelters its inhabitants provides an associational meaning and ultimately affects the culture of the people. The relation between culture and urban morphology is a closed system, akin to a control and feedback mechanism, where slight change in one of them changes the nature of the other and vice versa.

1. INTRODUCTION

Every Indian city has reached out for globalization and development in the global context. Rapid information interchange has exposed the inherent culture of the Indian settlements to an unprecedented scale of conflicting ideas and social values, hence affecting the culture of the urban areas either consciously or unconsciously. The spatial distribution of areas and their volumetric configuration has been changing accordingly. The old *havelis* (private mansions usually with a courtyard or enclosed space) of Northern India, where seclusion and privacy were the important considerations along with climatic comfort, and the community housing of Kolkata till the last century, with some private spaces shared for common activities of people can be compared. The layered spaces with a central courtyard, however small, had been provided to include large families and their ways of life, where interactions between households could take place from one layer to another visually. This system has morphed along with the character of family units with time. The large houses now have fragmented ownerships and multiple tenants, and their uses have rendered these spaces with a different kind of privacy. The layers which were previously areas for interaction are now functional as partitions between private areas and different families. The new developments encouraging the culture of nuclear-family sizes and privacy within the homes have many areas which are shared spaces, but not really culture-inclusive. The culture of working families suggests a need for privacy and segregation from the rest of the inhabitants during the comparatively small time that is spent at home. Most of the social activities take place outside and away from the residential areas. The provision of fine-dining facilities and multi-functional shopping areas has in turn brought about a change in the culture of the people. Some of these developments have been partially or fully successful in providing for the social needs of the people, whereas most of them are built only to sell the square feet, leading to discomfort of its people.

2. METHODOLOGY

The paper discusses about the interaction between culture and the urban built character through various comparative scenarios of different cultural groups and their effects on the morphology of their urban area over time. This paper intends to establish a relation between changing culture and

CONTENT ANALYSIS OF SAMARANGANA SUTRADHARA

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1. INTRODUCTION

The architecture of our nation has its roots in the distant past around 2500 B.C. [Sharma, 2005, p 14]. The existence of the architectural tradition of our nation is evident mainly through two phenomena. The first is the built examples of architectural excellence and presence of architectural literature in the form of treatises in Sanskrit and regional languages. These are primarily known as the *Vastushastras*, the science of architecture. These treatises are in the form of manuscripts out of which many have translated. A few of the commonly known texts are *Vishvakarma Vastushastra*, *Aparajita Praccha*, *Manasara*, *Rajavallabha*, *Mayamatam*, *Samarangana Sutradhara* etc. In this category many Sanskrit architectural texts with English translation are available today. In the present context *vastu* brings myriad of reactions to people in general. The popular meaning of *vastu* as interpreted by the society is something mystical, superstitious or ritualistic, whereas in true sense, *vastu* is Sanskrit equivalent of architecture.

For the purpose of clarification, regarding the misconception of the word *vastu* 'Content Analysis' of *Samarangana Sutradhara*, one of the popular ancient Indian architectural treatises is done and their results are analyzed. The treatise referred here is in two volumes with a total of 83 chapters and 6637 verses. This treatise is translated from Sanskrit to English and Hindi by various authors. Major contributors are Dr. D.N. Shukla and Pt. Sudarshan Kumar Sharma. The content analysis of *Samarangana Sutradhara* is based on these translations.

2. CONTENT ANALYSIS

The Merriam-Webster online dictionary defines content analysis as the 'analysis of the manifest and latent content of a body of communicated material (as a book or film) through a classification, tabulation, and evaluation of its key symbols and themes in order to ascertain its meaning and probable effect'. Content Analysis is a research technique for systematically examining descriptive data. It is a technique in which the researchers who apply such techniques can design it into a qualitative, a quantitative, or a combination of both qualitative and quantitative data analysis methodology [Ginger Lin 2002].

As per the Colorado State University guide on Content Analysis [1993], Content Analysis has most often been thought of in terms of conceptual analysis. In conceptual analysis, a concept is chosen for examination, and the analysis involves quantifying and tallying its presence; also known as thematic analysis. The steps for conducting conceptual Analysis are:

- Decide the level of analysis.
- Decide how many concepts to code for.
- Decide whether to code for existence or frequency of a concept.
- Decide on how you will distinguish among concepts.
- Develop rules for coding your texts.
- Decide what to do with "irrelevant" information.
- Code the texts.
- Analyze your results.

DWELLING ARCHITECTURE AS AN EXPRESSION OF CULTURE ESTABLISHING CONTINUUM IN THE PLACE OF MIGRATION – THE CASE OF NATTUKKOTTAI CHETTIARS OF CHETTINADU IN THE URBAN CONTEXT OF CHENNAI

DR. RANEE VEDAMUTHU, KUMUDHAVALLI SASIDHAR

1. PREMISE

Communities on migration to an urban context recreate tangible structures and intangible customs and beliefs invested with meanings, of their traditional context to establish an ethnic identity. According to Amos Rapoport although a wide variety of means are used to establish and maintain identity, dwellings and other built environments play an important role. K.S. Nair in discussing the concept of ethnicity and ethnic group states that a group of immigrants who simulate their native culture in the urban area may be said to constitute an ethnic group and acquire ethnic identity. Supporting it, Roxanna Waterson in analyzing Indonesian settlements argues that migration is no drain or negative impact on the traditional cultures. The migrants often maintain very strong ties with place of origin, while experiencing a heightened sense of ethnic identity in the strange urban context. Trace of this ethnicity expressed through material structures such as architecture form, evidence of cultural continuum between the migrated urban context and traditional context. This search for cultural continuum expressed through architecture, is discussed with the case of Nattukkottai Chettiars of Chettinadu (Fig: 1.0.a), Tamilnadu, South India, who for purposes of trade migrated to Chennai (Fig: 1.0.a).



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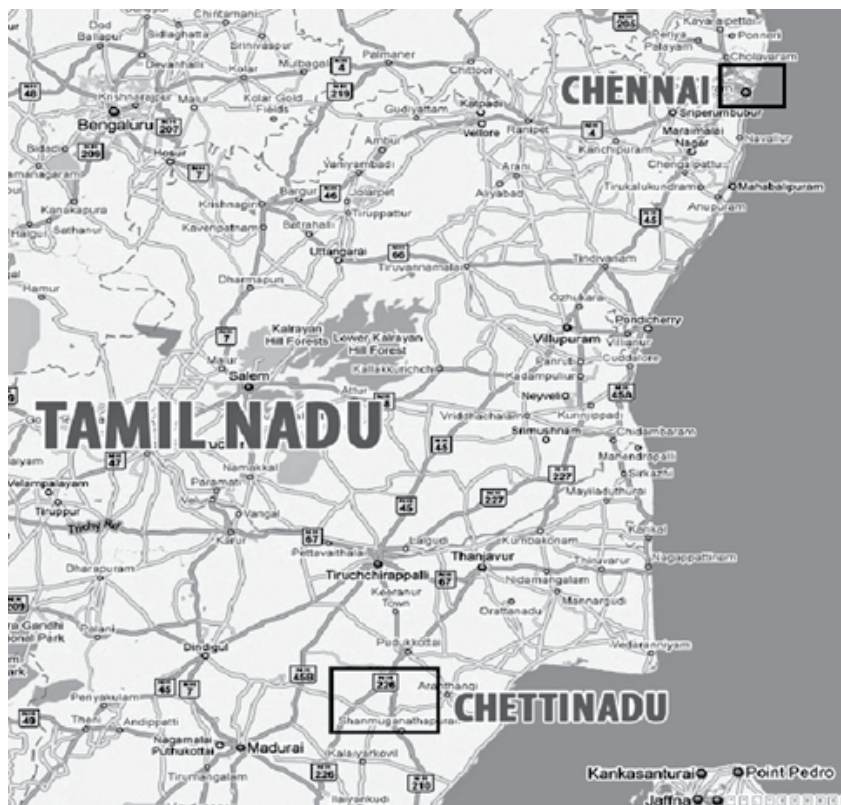


Fig. 1.0. a. Tamilnadu map showing Chettinadu and Chennai (Source : Google Map)

DEVELOPMENT AND TRANSFORMATION OF BUDDHIST ARCHITECTURE IN CENTRAL INDIA: CASE OF SANCHI

ANKITA SRIVASTAVA, ANUBHAV SHRIVASTAVA, DR. KRISHNA KUMAR DHOTE

ABSTRACT

The history of Indian architecture is as old as civilization. Unlike its western counterpart the Indian architecture is in multiple layers built in different periods of civilization. The various styles of different period which, were the outcome of multiple socio-cultural & religious beliefs, political power and locale still exists. As centuries progressed, there were many transformations in the architectural styles, elements and their detailings in a building or a group of monuments itself into a new concept and all these styles co-existed. Undoubtedly Buddhist architecture emerges as one of the major school and has its roots deeply implanted in Indian soil since 255 BC when the Mauryan emperor Ashoka established Buddhism as the state religion of his large empire. Unfortunately the post independence development in India did not seek lessons from the legacy it inherited and blindly followed the west in urge to become 'modern'.

The present paper is an attempt to review the chronological architectural development of Buddhist architecture in the region of Central India with the help of Sanchi to evolve a transformation pattern that emerged due to change in material and construction techniques, built mass to establish the fact that the practice of religion demanded a different space which was influenced by the building art of that period (i.e 3rd BC to 11th AD). Due consideration will be given to understand the underlying ideologies and philosophy of Buddhist architectural development & its transformation.

Key words : Buddhist Architecture, chronological architectural development, transformation pattern

1. INTRODUCTION

The great Indian peninsula has been recognised as “**land of the Buddha**” by hundreds and millions around the world. The term Buddhism comes from the Sanskrit word “*buddh*” which means the awakening from darkness of ignorance into light of teaching. In India, Buddhism flourished between the 5th and 12th centuries BC and practiced in China, Japan, Tibet and all almost all other parts of Asia even today. The religion has contributed during the years of rise, spread, and decline, through change over from semi-pastoral tribal life to the first absolute monarchies and then to feudalism. The reflection of the same can be observed in the art, architectural and cultural development. This paper is an attempt to review the chronological architectural development of Buddhist architecture with the case study of Great Sanchi Stupa (derived from *prakrit* word “*thupa*” which suggests low circular mounds of earth surrounded by ring of big boulders).

1.1 Aim of the paper:

The aim of the paper is to review the chronological architectural development of Buddhist architecture in the region of Central India with the help of Sanchi to evolve a transformation pattern that emerged due to change in material and construction techniques, built mass to establish the fact that, the practice of religion demanded a different space which was influenced by the building art of that period (3rd BC to 11th AD).

1.2 Methodology

In order to understand the main ideology and philosophy of religion, its impact on architecture during the various centuries on Sanchi, chronological evolution was studied. Buddhist Architecture has its influence in almost every part of south Asia. Even in India, the regional influences are significant. However, the present study focuses on central India, in which the Stupa of Sanchi stands as a testimony to the rich architectural influences of major dynasties of that period. Different architectural styles were identified on the basis of form, material & building



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THE HAVELIS OF RAMGARH, SHEKHAWATI, RAJASTHAN: "A STUDY ON THERMAL RESPONSE OF BUILT HERITAGE"

DR. ABIR BANDYOPADHYAY, NEHA AWASTHI

ABSTRACT

Shekhawati; located in deserts of Rajasthan faces harsh hot-dry climate throughout the year. Havelis of merchants, which were built during 1850's in Shekhawati, are still being used as residences. These havelis were built at a time, when there was no mechanical means of comfort available; and still the buildings were optimised to provide considerable comfort level. This paper attempts to examine the thermal conditions within some of these havelis and indicates how the study of these havelis can help a present day architect.

1. INTRODUCTION

Sikar, Churu and Jhunjhunu are the three districts which comprises the Shekhawati region of Rajasthan (Fig. 1). Within these districts there are several villages which possess *havelis* (mansions), which are world famous for fresco paintings. Ramgarh is located in Sikar district of Shekhawati. Also known as *Ramgarh Sethan*, it was a settlement of merchants who were from Marwar region of Rajasthan. These merchants built their *havelis* in early 1850's; when no mechanical means of comfortable was available. The *havelis* must have been designed to buffer the climate extremes and provide a comfort environment to live.

For understanding the thermal response of these *havelis*, it is imperative to know the climate of Ramgarh, the social, economical and cultural aspects of the people, the spaces within a *haveli*, the orientation of *havelis*, the thermal behaviour of spaces, the study of sciagraphy, the proportions used and the overall comfort-discomfort period analyses.



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Fig 1. Sikar district map (source: Google images)

COMPARING TECHNIQUES, BIOCLIMATIC FEATURES AND INDOOR THERMAL CONDITIONS INSIDE HERITAGE AND MODERN BUILDINGS IN KOLKATA.

MARGOT PELLEGRINO



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ABSTRACT

This article aims at studying the link between characteristics and typologies of some private residential buildings in Kolkata and the corresponding internal thermal conditions. Field study results (n= 11 buildings monitored and studied) show how some elements, such as thickness of walls, ceilings height, presence of shading elements, characteristics of the context, have been progressively reduced over time. Such a reduction has had important and negative consequences on buildings vulnerability to outdoor temperatures. The findings reinforce the reflections on the need to build houses respecting higher qualitative standards.

1.0 INTRODUCTION

Until the first half of the 20th century, architecture of urban private houses in Kolkata never forgot the lessons coming from tradition [Taylor, 2006]. Houses were first built in brick, with lime-brick, dust mortar and later on with cement-sand mortar, but thickness of the walls, shading systems (verandahs, porches), courtyard and the insulation of the roof were the shared guidelines for a climate-responsive architecture. Colonial houses followed that model: various styles (neo classicism, neo baroque, revival, modernism, liberty) certainly influenced decoration and spatial organization, but the basic principles continued to be applied.

What happened to the building sector in Kolkata during recent decades is a well-known story, shared also by the majority of the megalopolis in the world. Economic pressure, development rate, industrialized-cement based technology, growing prices of free land; but also other traumatic events (famine, political partitions, struggles) have led to the creation of a dense and qualitatively poor architecture, where the attention to the environment has been frequently forgotten. Even if some high quality neighborhoods were built, especially in the 1960's and the 1970's, the standards unstoppably started to fall down [Racine, 1990]: traditional techniques were abandoned, without being replaced by innovative and modern solutions. Recent private houses mostly share the same typology with thin walls, lack of shading systems, lack of insulation, especially on the roof: they are almost totally dependent on air conditioning.

The lack of attention to environmental and climatic conditions can be particularly unadvisable in a climatic context such as the one in Kolkata. The city has a typical tropical, warm and humid climate. Average outdoor high temperatures (March – November) are higher than 30°C, with a high percentage of relative humidity. The study of solar irradiation on typical building surfaces in Kolkata shows that in summer the East and West walls are very vulnerable to solar heating [Pellegrino et al., 2012]. Fortunately, the wind pattern in Kolkata is helpful to bio-climatic comfort. The summer months (March to September) benefit from an almost permanent breeze, always coming from the South. Therefore, traditional architecture has typically the largest facade facing the South, to let in as much breeze as possible.

This article aims at studying the link between characteristics and typologies of some private residential buildings in Kolkata and the corresponding internal

UNIVERSALITY BEATS PARTICULARITY: SAMENESS AND PLACEMAKING BEYOND GEOGRAPHY AND TIME IN TWENTIETH CENTURY ARCHITECTURE.

PIERLUIGI SERRAINO

1. INTRODUCTION

The research objective of this paper argues for a critical look at the correlation and causation of the use of photography in the construction of multiple -and often competing- narratives in architectural history. The findings show that striking similarities of design idiom and photographic representation circulated in countries with various degrees of industrialization worldwide. Such homogeneity of built environments in places radically dissimilar from each other in culture, location, construction know-how, and social structure bears witness to the extensive globalization already taking place since World War II.

2. PROBLEM STATEMENT

Since the 1930, the intercourse between architecture and photography is as strong as it has ever been. As a surrogate of the real world experience, photography broadcasts the existence of architecture over the globe. It exports taste, aesthetic, currency, and design standards to the most remote corners of the planet with cultural and geographical contexts vastly different from each other. However, it does so in a rather peculiar way. Such way exerts decisive consequences on the qualitative appraisal of the object it represents and its relevance in the constellation of mutual influences between architects and buildings. It is through photographs that readers assimilate and internalize three-dimensional content, position works as part of a lineage, and eventually endorse a specific architectural heritage. Buildings of radically diverse size, type, and in totally different locations can easily appear in the same double spread of a book severed from their immediate surroundings and reduced to similar sizes, with value judgment appended to them often on the basis of their formal merits only by comparison to others. Besides generating visual records, architectural photography performs a set of distinct operations. It turns ordinary landscapes into extraordinary events. It portrays reality as it should be as opposed to as it is in its disorderly state. It is the great visual equalizer of the industrial age and beyond. It scoops out detail out of the whole. Even when the picture depicts the overall building, that representation severs the artifact from the continuum of the built environment. Together, these conditions are generative of a visual code that locks perception to aura to canon formation in the institutional fabrication of architectural narratives for posterity.

2.1 Image Buildings in Books: Between Legitimacy and Creative License

Leafing through the pages of any history book regardless of the respective analytical perspectives of their authors (from the legendary *Space, Time and Architecture* by Sigfried Giedion to the latest *The Future of Architecture Since 1889* by Jean-Louis Cohen), photographs are included for their graphic punch and their fitness to a publication layout within the textual narrative. And yet each architectural statement frequently retains remarkable substantive- when not incompatible- differences of design intent and circumstances in its own place of construction when seen next to its editorial neighbor.



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ECLECTICISM IN FONTAINHAS, THE HERITAGE CORE WITHIN PANJIM, GOA

RANGAN CHATTERJEE

ABSTRACT

Economic exchanges and activity dominance have been the major forces in the development of town centres throughout history. Since the onset of industrialization, capital investments of many kinds have focussed on the potential urban centres reflecting the diversification of the economy; leading to changes in the social, economic & architectural layers of the urban fabric.

Fontainhas, located within the core of the city Panjim, has been a prime Latin quarter since the Portuguese colonization dated eighteenth century. This old canton, which was once a beautiful neighbourhood with buildings related to human scale, eclectic architectural styles and was receptive to tropical climate, has lost its pristine glory and is now on the brink of getting converted to a jungle of concrete. Over the years, intensity of urban problems of Fontainhas has multiplied due to haphazard and ad-hoc planning - not only had the old buildings decayed but sooner they became derisory for the changing needs; individual buildings and the whole pattern have proven inadequate and incapable of change. With a history of heterogeneous population and a unique cultural heritage synthesized over centuries, the sub -systems of Fontainhas may be called in question today.

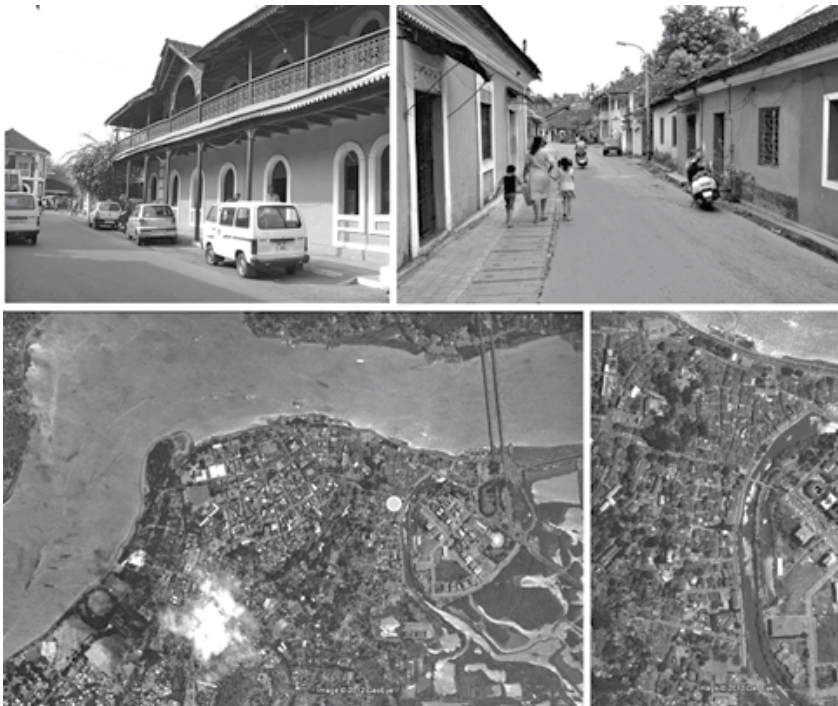
Due to lack of public awareness, pressure of urbanization and rapid commercialization, this immensely imageable and potential neighbourhood is gradually losing its character. This paper attempts to analyze and delineate the current transition model for the Latin Quarter.

Key words: Eclecticism, diversification of economy, urban fabric, Latin Quarter, heritage, neighbourhood, transition model



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1.0 INTRODUCTION

Eclecticism is a cognitive psychology characterized precisely of no specific architectural styles but portraying a homogeneous imagery with layers of

AN ANALYTICAL FORMAT FOR IDENTIFICATION AND TRANSLATION OF TRADITIONAL PRINCIPLES FOR DESIGNING CONTEMPORARY CHATUSHALA RESIDENTIAL HOUSES OF KERALA

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1.0 INTRODUCTION

Till 20th century, layout design of residences of Kerala depended entirely on the canonical *Vastu* principles (Menon, 1983). This knowledge system is a combination of mathematical rules (proportions, dimensions etc.) and syntactical systems (adjacency, orientation etc.). A preliminary study of the layouts of contemporary houses of Kerala, which are published during the past five years, show that, it is a common practice amongst the architects of the region to incorporate the traditional principles in their design. It is presumed that adherence to the traditional principles is mainly to satisfy their clients. However, it should also be noted that, the translation of traditional principles depends on an architect's own interpretation and understanding of those. Generally, the architects take the basic traditional rules as a given format and generate their own design to suit contemporary standards and building bye laws. Alternatively they get their design ratified by *Vastu-pundits* who are conversant with those rules. These methods (especially in the later case) often end up in a compromise formula, mainly due to a disconnect that exists between traditional principles and contemporary architectural training and practices.

To arrive at more authentic design solutions, there is a need to establish explicit and systematic links between the generative principles of traditional forms with the present day considerations and design attributes.

The research reported in this paper formulates a methodology to identify the attributes that are characteristic of layouts of contemporary '*Chatushala*' houses of Kerala. Here, the name *Chatushala* represents a contemporary house that follows the fundamental principle of traditional *Chatushala* - a combination of four blocks built around a central space. This particular house type was selected for detailed study since it encompasses most of the rules related to residential design. In this study, attributes that refer to the spatial organization, principles of layout and space definition, were considered.

This research was carried out in two stages. In the first stage, based on available research publications, a detailed study of the traditional principles was carried out (Section 2.1) followed by a study of residential layouts of traditional *Chatushalas* (Section 2.2). In the second phase of research (Section 3), a sample of twenty two contemporary *Chatushala* type layouts were studied (from published cases supported with actual case studies). Objective was to understand the changes, if any, in the residential layout, to fit present-day requirements. Section 3.3 deals with types of 'changes' - 1) by addition or omission of spaces and 2) in the ways spaces are defined by present day architects. To identify the degree of changes in the character of space, a method was devised, to describe the spaces in terms of measurable attributes of 'space establishing elements' and finally, to evolve a scaling method (Section 4.2). This helps not only in understanding the pattern of change or continuity, but also in assessing the degree of change in a particular type of space. This analysis

ORISSAN TEMPLE ARCHITECTURE AND VASTU PURUSHA MANDALA FOR EVOLUTION PROCESS

PARTHA SARATHI MISHRA

ABSTRACT

This paper focuses on the study of the Orissan Hindu Temple in a different way. There has been a lot of research into Orissan Hindu Temple Architecture. But the dimensional study with respect to shape and geometry in a modern way are unexplored. A shape and geometrical analysis of Orissan Hindu Temple architecture through dimensional analysis has been carried out to know the evolution process of Orissan temple architecture. Again this paper presents the inter-relationship between typical Orissan temple elements and their changing scenario with respect to different phases that the Orissan temple is known for like formative phase, transitional phase, mature phase and phase of decadence. The stages of temple construction and its techniques that have been adopted in temple construction from 6th century to 16th century has been studied not only through different literature but also through a comparative dimensional study of these temple elements considering different aspects and their relevance in modern day Hindu temple construction. Finally the paper aims to present an evolution process of the Orissan temple architecture through dimensional study of temples taken from different time periods from Orissan Temple and their comparison with each other for the calculation of the temples.

Key words : Orissan temple architecture, Garbhagriha, Jagamohana, Natyamandapa, Bhogamandapa and Slenderness ratio.



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1.0 INTRODUCTION

In this present investigation, an attempt has been made to understand the architectural characteristics of the Orissan Temple Architectural elements through shape and geometry study. To understand these temples architectural character has been done to deduce the original form through visual investigation, because all the temples are not present in their original form. Hindu philosophy views the cosmos to be homogeneous and self-similar in nature. According to ancient architectural tradition, Hindu temples are symbols of models of cosmos and their forms represent cosmos symbolically.

The Orissan Temple is a synthesis of archetypes consciously combined and skillfully made into structures of abstract geometry and precise numbers. It is an impressive mixture which solves architectural problems using concepts from the typically Hindu religious vision of Planetary Order. There are a number of symbolisms combined in the Orissan temple. The temple is a noticeable sign of a mystery, an access point designed to solve life's problems. In the superstructure of the Orissan Temple, perhaps its most characteristic feature, the identification of the temple with the mountain is specific and the superstructure itself is known as a 'mountain peak' or 'crest'. The curved contours of a temple's superstructures and its tiered arrangements suggest the visual effect of a mountain peak (Deheja, 1979). The architecture of the Orissan Temple symbolically represents the search for *moksha* (ultimate spiritual liberation, the realization of singleness) by setting out to dissolve the boundaries between man and the divine. For this purpose, certain ideas are associated with the very forms and materials of the building. Paramount is the identification of the divinity with the form of the temple (Karmisch, 1977).

The main aim of this paper is to analyze previous hypothesis and extract the theme and concept of temple shape and geometry to understand its evolution process.

UNFINISHED AND INCOMPLETE BUILDINGS OF THE PAST– TREASURES OF EVOLUTIONARY EXPERIMENTATIONS.

MUKTA LATKAR-TALWALKAR.

“Everything has its beauty but not everyone sees it.” - Confucius (551 BC - 479 BC)

ABSTRACT:

Analysis of the precedents always forms a main part of any methodology to study the past events, development and evolution. Architectural analysis of a building stresses a good importance to study the monuments already built and take important lessons and guidance from them. Study of the past always gives a great insight into the various aspects of design and material advances, technological and structural innovations, social and cultural habits, customs and rituals leading to spatial configurations and much more.

However, analysis of the buildings of the past also interestingly reveals a lot many buildings which are major architectural achievements of the time but still incomplete or unfinished in their execution. Some of the buildings would have certainly become landmark constructions had they been finished the way they were conceived to be constructed.

It is strongly felt that even a study of these incomplete and unfinished buildings reveal a lot about the architectural understanding of the building. Many a times the unfinishedness of the building seems to have a lot to express about various other contemporary situations than architecture alone. The reasons why these buildings have remained unfinished and incomplete divulge a lot many aspects important to the architectural evolution but which are not directly architecturally, structurally or constructionally relevant.

The paper mainly tries to analyse the various aspects that the unfinished and incomplete buildings help understand. A study of the same help to uncover various perspectives and notions which would otherwise not have got noticed or seemed unimportant. The paper lists many of the unfinished monuments trying to trace the circumstances leading to their state, which also adds valuable insights into the holistic developmental analysis.

1.0 INTRODUCTION

Rarely would a creator not want to finish what he started with but at times various circumstances lead to the incomplete status of the creation. Many unforeseen rationales act as major hindrances in the completion of the project. Incomplete or unfinished buildings thus help us realize the many circumstantial conditions and contemporary situations. The unfinished buildings thus unfailingly succeed in giving various clues to its formation and problems towards its execution.

2.0 WHY STRUCTURES REMAIN INCOMPLETE?

There could be many reasons for the construction work being halted and being incomplete. Some of them could be that works are generally stopped when the creator or the political patron ceases to exist. Not unless his progeny is interested to complete what he started, work remains abandoned.

Works are left incomplete due to changed financial support scenario.

Locational or structural problem or aspects not considered in the stages of planning lead to desertation of the work initiated. Many a times, as examples reveal, the material or mediums of construction shows faults and work has to be halted due to the material failure.

Dramatic shifts in administrative controls and political scenarios play a decisive role. Though the dynasty ruling remains the same the choice of the new kings are not in



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ARCHITECTURAL DESIGN AND SEMANTICS: AN EXPERIMENT IN JUXTAPOSITIONING

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ABSTRACT

The role of an architect today has metamorphosed from that of a 'master builder' to a 'master leader', co-ordinating between multiple teams and consultants with varied specializations, entailing that architects today need to be integrators of a gamut of diverse skills.

Over time, architecture itself has transitioned through countless manifestations. It is now time for exploration of 'meaning' in architecture. The capacity to investigate, extract and apply 'meaning' in architectural design is also a skill that needs to be added to the repertoire of skills of an architect in today's times. The major challenge in architecture education lies in developing this diversified set of skills in students.

This paper deals with the authors' experimentation in juxtapositioning Guilford's Structure of Intellect with architectural design in order to identify the creative abilities that contribute to the skill set essential to architectural design and subsequently formulate basic design tasks that would enhance these contributing abilities.

The authors hypothesize that architecture education typically focuses on developing the concrete type of intelligence resulting in negligence towards abstract intelligence. In this paper, the authors explore the enhancement of abstract intelligence by honing the creative abilities within the purview of figural and semantic content.

Key words : *Architectural Semantics, Architectural Design, Basic Design, Guilford's Structure of Intellect, Creative Abilities.*

1.0 INTRODUCTION

As the society progresses and evolves, it witnesses a concurrent transformation in the roles of the people constituting it. Today, the paradoxical trends of uber-connectedness through various technical media on one hand and micro specialization in each field on the other entail that people have to extend themselves beyond their core competencies and embrace knowledge offered by specialists from their own field as well as neighbouring fields. Professional domains, with their boundaries fast blurring and merging with bordering domains, are becoming increasingly complex; which means it is becoming essential for professionals today to acquire skills other than those required by their core profession to be successful in their new roles.

The profession of architecture is no stranger to this progression. The role of an architect in present times has metamorphosed from that of a 'master builder' to a 'master leader', co-ordinating between multiple teams and consultants with varied specializations. This means that the skill set of an architect has to go beyond that of a designer to envelop that of a manager. One can infer that today architects need to be integrators of a gamut of diverse skills. Salama (1995) mentions that one of the very early studies regarding the changing role of the architect was done in the beginning of the 20th century by Clipson Sturgis (1914) who stated: "It (architecture) is a diversity of gifts. Architects who emphasize one of these capabilities are incompletely equipped, and render imperfect service as architects."

The role or definition of architecture itself has undergone a transformation over time. Salama (1995) states that several studies by noted researchers such as Doxiades (1963), Bolman (1981) and Gutman (1988) have pointed to the radical changes in the profession and, by extrapolation, architecture. Architecture has transitioned through countless manifestations from being

SHAKTIPEETHAS THE SACRED LANDSCAPES..... AN EFFORT TO SAFEGUARD OUR CULTURAL HERITAGE

HARVEEN BHANDARI



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1.0 INTRODUCTION

Shaktism, along with *Shaivism* (worship of God Shiva and Vishnu) and *Vaisnavism*, is one of the three primary schools of Hinduism. Shaktism focuses worship upon *Shakti (Devi)* – the Hindu Divine Mother – as the absolute, ultimate Godhead, the “one without a second”, with all other forms to be merely her diverse manifestations. Shakti is supreme *Tridevi* (conjoined forms of Lakshmi, Parvati and Saraswati) and Shaktas (followers of Shaktism) focus all worship on this dynamic feminine aspect and Shiva, the masculine aspect of divinity, is considered solely transcendent. The *Shaktipeethas* are places of worship consecrated to the goddess Sati being variously described in different religious texts as 18, 51, 52 or 108 in number. They are scattered over Pakistan, India, Sri Lanka to Bangladesh and are classified on the basis of body parts of the Goddess.

1.1 Legend associated with Shaktipeethas

A fascinating legend gives insight into mythology that clearly affirms the similarity among all temples as places where different organs/parts of Sati's body and ornaments fell became holy places of the goddess, Shaktipeethas. In *Satyayuga*, Sati an ardent devotee of Shiva, married Shiva against her father Daksha's wishes. To take revenge, Daksha insulted Shiva and Sati, being unable to bear her husband's insult, immolated herself in fire. Shiva immersed in grief, picked up the remains of Sati's body, and started the dance of destruction through the Universe. To stop the devastating penance, Vishnu used his *Sudarshan Chakra* to cut Sati's body in several pieces. Wherever her body parts fell, a temple was erected to commemorate different manifestations of goddess and became famous Hindu pilgrimage “*ShaktiPeetha*”. For countless centuries, these sites have been believed to have miraculous healing powers for a woman's body part similar to Shakti's body. Some ShaktiPeethas are referred as *Siddha-Peethas* because they are highly effective for the acquisition of spiritual powers and some are very powerful *Mahashaktipeethas*.

2.0 SHAKTIPEETHAS-PILGRIMAGE CIRCUIT OF HIMACHAL PRADESH

Himachal Pradesh tops the list of states in India with maximum number of sacred groves i.e. 5000, referred as “Abode of Gods” (*Devabhoomi*). The splendid height of the Himalayan ranges and its great scenic beauty with aura of spiritual calmness seems the natural home of the Gods. Five of the famous Shaktipeethas are located in the Himachal Pradesh (Table 2.0.b) and they form a popular pilgrimage circuit (Table 2.0.a). Every year lakhs of pilgrims visit these temples during *Navaratri*, the biggest Shakta festival. These Shaktipeethas are identified with Sati/Shakti's body part, the place where the body part fell and the name as which Shakti is worshipped.

ARCHITECTURAL TRENDS IN COLONIAL HERITAGE OF BIHAR: A RESOURCE TO BE CONSERVED

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ABSTRACT

The colonial history of Bihar spans a period of nearly three hundred and fifty years. During their stay, along with other fields as education, health, economics etc., the colonizers made contribution to the state in terms of architecture as well. Since they had initially come for business, they mostly stayed in rented structures. But as they settled with time, building work for their own use started. The Architectural style of the establishment of different European countries in Bihar varied depicting their standing in the business market. It varied from Utilitarian, Renaissance, Classical Revival, Neoclassical to Gothic. After achieving the right to Diwani¹, the British ousted the other European companies to become the sole power in the region. They saw themselves as the successors to the Mughals and sought to present themselves in that way. They used architecture as a symbol of power, superior religion or a superior way of life. It was believed that the greatness of a civilization was expressed in its architecture. Various alternatives were tried to make such statements, for which they majorly drew inspirations by looking back home. Alterations in the Neoclassical appeared as a divergence between the architects. Sometimes it followed the Palladian models or it ranged to pure Greek revival. Definite Imperial style never emerged but the invention, energy and adaptability from that point on was formidable.

1.0 INTRODUCTION

The region of Bihar has been important from time immemorial. Patliputra was the capital of the great Mauryan Empire, which has been identified to be about the site of Patna (Capital of Bihar). Bihar continued to be the seat of the greatest dynasties till the twelfth century when it dipped for its low times. But it regained its powers in the early sixteenth century under the Afghan rulers, who, at a time rose higher to gain the powers at the imperial capital Delhi. When the Mughals rose again, the Afghans were made to be contained in the region of Bihar. Later, during the rule of Akbar the great, Bihar was made one of the *Subah*² of his empire.

It was during the Mughal rule, in the 15th century that many European communities had started coming to India for establishing trade. The Portuguese were the first on the scene. In about 1600, several other European nations began to play a part in the game. East India Companies were formed in Amsterdam, London and Copenhagen and the Portuguese monopoly of the spice trade was broken by force. In the beginning of the 1660's the Dutch conquered many of the Portuguese possessions and founded new colonies themselves. Some decades later the Dutch, British and French were all fighting for the control of the South-East Asia.

The British came to Bihar in the early seventeenth century³ along with the English East India Company for trading. Almost simultaneously with the British other European trading companies like the Dutch, French, Danes, Portuguese and Armenians, etc. also came to Bihar. Bihar at that time was rich, from the point of view of trade in salt petre, opium, silk etc. It was a centre of trade, commerce, education and administration. The richness of the region made the powers fight amongst themselves for the control of the region. In the race that followed, the British ousted the other companies. By winning the Battle of Buxar and the Battle of Plassey, they gained administrative role and ruled over Bihar and the rest of the country, till India gained its independence in 1947.

Since Colonial Bihar included Bihar and Jharkhand of today, the word '*Bihar*' in this paper includes both of them.

CONSERVATION AND DEVELOPMENT OF BUILT HERITAGE OF SHIMLA

DR. PUSHPLATA, ASHWANI KUMAR

ABSTRACT

Built environment of a settlement developed over a period of time becomes an important part of its cultural heritage. Managing development of built heritage is a challenging task, particularly in context of settlements which are under tremendous pressure for growth and have unique character, such as hill towns of North India. Shimla is one such city which has a large number of heritage buildings having colonial architectural character and an overall character of settlement typical of a hill station. However, due to tremendous growth in permanent as well as tourist population over last five decades, not only the size of city has grown, the character of built environment has changed drastically with building of dense, mid rise buildings with modern materials. Strategies for future development and conservation of its built heritage need to be based on the understanding of various components of its heritage and their issues so as to retain its architectural and aesthetic significance.

This paper discusses unique heritage of Shimla and issues related to development and conservation. An attempt is made to understand impacts of building regulations on built heritage and strategies are suggested for future development and conservation of heritage of Shimla.

1.0 INTRODUCTION

Managing development of a settlement while conserving its built heritage, though necessary to retain its uniqueness and socio-cultural-aesthetic significance, is a challenging task. Built heritage of a settlement being the expression of culture, social, political and economical set up of society during the period when it was developed. This not only has socio-cultural significance, in many cases its aesthetic appeal and uniqueness is a source of attraction for tourists, contributing significantly to its economy. Hill stations established during British rule on preferred locations in India to act as summer retreat/resorts and protect the British from harsh sun of plain regions were developed on picturesque settings, are some such settlements which, have undergone significant change and are under tremendous pressure for further development. Amongst some 80 hill stations established during the nineteenth century like Shimla, Mussourie, Nainital, Darjiling, Shillong, Ooty, Kodaikanal, Mount Abu (King A.D, 1976), Shimla was the most important and largest of all. Being unique and one of the best example of colonial hill architecture, an important tourist centre and a fast growing town, conservation of its built heritage while ensuring development to take care of its present and future needs that is compatible to its heritage character is of prime importance.

2.0 SHIMLA, THE STUDY CONTEXT

The hill town of Shimla- the capital of Himachal Pradesh and the former summer capital of India during British period, is one of the best and unique example of colonial hill architecture and townscape in India. Located at an elevation of 2130 m above mean sea level on a ridge, it is the largest hill town of India. Initially developed in 1819 as a centre for leisure, education and health due to its salubrious climate and scenic beauty, it was made the Summer Capital of Indian Government in 1864 (Barr P., Desmond R., 1978), after which the town grew rapidly and a large number of residential, administrative and educational buildings were built. With bungalows for Europeans and institutional buildings located on higher altitudes near the ridge and residential cum commercial areas for the native Indian population located on slopes below at a distance, and the Mall road that was meant exclusively for the



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THE ARCHITECTURAL EXPRESSION OF A CULTURAL SYMBIOSIS- KALLOORKAD ST.MARY'S FORANE CHURCH - A CASE STUDY

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ABSTRACT

A new phase of Church architecture was ushered, when the Europeans established their colony in India. At the time of arrival of the Europeans, Kerala had a well-developed church architecture which had attained maturity over a period of 1500 years. This indigenous architecture developed based on climatic conditions, locally available materials and technology, was congenial to the culture and traditions of the land and had to adapt to the changes brought in by the Europeans in the 16th century. The result was the emergence of a unique character for the churches of this period; a new architectural style which was an eclectic mix of the Eastern and Western traditions. The objective of this study is to understand the transformations in indigenous church architecture of Kerala owing to European intervention of the 16th century taking St. Mary's Forane Church Kalluorkad, as a case study.

Key words: *Indigenous architecture, Ecclesiastical traditions.*

1.0 INTRODUCTION

Architecture is indeed the manifestation of culture and exhibits the cross cultural linkages if any, in the region. According to Menachery (2002)¹, there is no art or architecture, no socio-cultural formation of any significance anywhere in the world-relating to a nation, a region, a religion or racial or linguistic group that is fully local or indigenous. This is especially relevant in the case of Church Architecture of Kerala in the 16th and 17th centuries. The churches that were built during this period exhibit a unique character which is a fusion of Western and Eastern ecclesiastical traditions.

The Church of Kerala had its origin in the first century itself and is as old as the universal Church. This Church had its ecclesiastical lineage with East Syrian Church and developed gaining inspiration from Eastern ecclesiastical traditions. The 1500 year old Church of Malabar and its indigenous practices were looked upon as Nestorian (improper) by the Catholic missionaries who reached there in the 16th century (Mar Aprem 2001)². Their commitment to Catholic faith led to many reformations in the Church of Malabar. This paper is an attempt to analyze the impact of reformations on Church Architecture of Kerala taking the case of Kalluorkad St.Mary's Forane Church.

2.0 HISTORICAL BACKGROUND

Sixteenth century was a period of great colonial expansion and European exploration of the world pioneered by Portugal, reached the Kerala coast in the 16th century. 150 years of Portuguese presence in the Kerala coast brought in many transformations in all facets of Kerala society and in the life and culture of its people (Menachery 2002)³.

The 16th century was also a period of revival for the Catholic Church all over the world. The Portuguese, who had come to Kerala for trade in the 16th century, took up the task of the revival of the churches in Kerala with a missionary zeal (Thomas 1985)⁴. In fact, this responsibility was vested upon them via 'Padroado' by Pope Nicholas V in 1454 AD. 'Padroado' empowered the King of Portugal and his successors with the right over the Churches in their newly discovered lands (Thomas 1985)⁵ and thus, the Portuguese reached Kerala, with a commitment to Catholic faith and with a responsibility for Church administration.

The Church of Kerala, which followed the traditions, liturgy and worship practices

THE STUNNING MEGALITH OF ROLA (CHANO)

SUBHASHIS DAS



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At first glance Rola megaliths appear to be a diminutive and insignificant arrangement of stones but a closer look changes all that. Rola is different than the conventional megalithic burials of the Oraons, Mundas or the Hos that one is accustomed to see across tribal villages of Jharkhand. The affinity of this monument with the ones of the adivasis is only that of the sepulchral slabs that lie here as burial covers on the ground. The few standing stones in this megalithic complex are in stark contrast to any known megalith.

In a nutshell megaliths are various stone architectural forms erected by the tribals as burials or of memorials of their dead (1) since Neolithic times. Jharkhand discloses a tradition of continued megalithism with many tribes still erecting them after death across the state since hoary antiquity (2). But not all megaliths have revealed burials and many have been found to be non-sepulchral too (3). Research has revealed that many megaliths were built with astronomical proclivity and were also used as observatories of the solar bodies and functioned as calendars for the primitive populace (4).

THE ARCHITECTURE

Rola apart from housing a few burial slabs comprises a few curious shaped stones of which two are small stone triangles of comparative sizes with their vertexes pointing towards opposite horizons. The perpendicular of the smaller triangle is about 18 inches and it tilts to an approximate angle of 50 deg. The comparatively larger triangle placed opposite at a gap of a few inches has its tip broken and faces the opposite landscape.

To the North stands a solitary stone about 29 inches tall which resembles a male phallus with glans and is exquisitely shaped. At the South, opposite the two small triangles is a narrow recumbent stone with cupules carved on it (Pl 1.0). Cupules are believed to be symbols of the Mother Goddesses; the prime deity of the now defunct fertility cult prevalent during the megalithic era (5).

A tall pointed tip menhir with a height of 46 inches stands inclined at a tentative angle of 50 degrees.

It is difficult suddenly to understand the purpose of this enigmatic megalith with all these strangely shaped stones...although a hunch prompts you to believe that these stone certainly served a different purpose and that the ancients were up to something here...but what ?

THE MATHEMATICS

That the ancient megalith makers were no stupid people but on the contrary were quite an intelligent lot can be very well understood from the Rola megalith, as meticulous observation confirms this assumption. Their understanding of mathematics maybe was basic but they were quite sophisticated as per primitive standards. The positioning of the stones reveals much of this understanding as one discovers that the dimension from the left flank of the recumbent stone to the middle of the two triangles is 84 inches and from

SCHOOL OF MANAGEMENT SCIENCES, LUCKNOW

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SITE PLAN



- Project** - School of Management Sciences, Lucknow (UP)
- Area** - 6,90,000.00 Sqft
- Cost of Project** - 100.00 Cr. (₹)
- Design Team** - Prabhat Kumar, Priti Agrawal, Vineet Jain, Rakesh Kr. Bhardwaj

The SMS, Lucknow, an architectural marvel is situated 19 Kilometer stone of Lucknow-Sultanpur Highway (NH 56). The SMS, Lucknow has come up with a sprawling lush-green Campus spreading over an area of over 16 acres.

The design of spaces is in Neoclassical style, a combination of modern and classical style. It can be described by the simplicity of the geometrical forms and elegant lines, uncluttered appearance, free

standing columns, massive buildings, building's facade consisting of flat and long rows of columns. Simplicity and massive size is emphasized in the said project. The best of firm's design principles, adherence to detail and space utilization, are implemented in the project.

SPA Design Consultants Pvt. Ltd., headed by Ar. Prabhat Kumar, is an Architectural Firm with over 15 Years of experience, with office in Noida, UP. They have a diverse portfolio including residential, industrial, educational and commercial projects.

architect. engineers. landscape & interior designers

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