STUDYING THE ARCHITECTURAL PAST FOR A BETTER FUTURE

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Ar. Kavitha Kamath, B.Arch, MTP, have been teaching for the past 5 years, various subjects ranging from History, Sociology, Acoustics and Architectural Design for 2nd, 3rd and 4th year. She have worked in various projects ranging from Landuse planning and development plan process, Lake rejuvenation and maintenance, and also working on many personal architectural projects as a freelance architect. Presently teaching is her passion and experimenting various techniques and methodologies in teaching making every subject interesting and creating inquisitiveness among students has taken the priority.

Abstract

Analysis of past and learning from it is a basic lesson for life, so study of history is a necessity in any learning process. Studying History of architecture not only reveals the past happenings but teaches us basics of many core subjects of Architecture from material study, building construction, climatology, services etc. This article explains with an example of temples of Karnataka, the purpose and analytic appreciation of History as a literature case study rather than just evolutional progression of mankind.

Key words: *Civilisation; Historical analysis; Monuments:Temple Architecture; Complex design*

1. Introduction

Norman Foster a famous British Architect had once quoted that designing by an Architect for the present has to be done by not only keeping in mind the future, but also with an awareness of the past. Analysing the history through the study of historical Architectural buildings will guide us in this process. Past human behaviour specific to climatic influence and regional local material availability will teach us on the importance of study of History in Architecture.

So What is History:

Yesterday, Yesteryear, past, ancient times…..any thing could be History ….SO WHAT. Why should we know what happened in the past, “let bygones be bygones”? Architecture is an art, and a science of building structures using varied analytic techniques serving utilitarian and aesthetic purpose. Architectural study is a blend of many basic subjects like Physics in terms of calculation of weight and load distribution, acoustics etc. Chemistry in terms of chemical composition of material, Botany in terms of landscape, along with lighting, Town planning, Financial estimation etc. So architectural study is a field which blends in with the system of universal studies, with knowledge of various topics.

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2. History in Architecture

The students of architecture in their core subject of Architectural design, start with literature study, case study and site analysis, the outcomes of which is a process resulting in a unique individual design formulation. In this the literature case study is a historical analysis of a similar proposal executed by architects/designers, analysing their positives and negatives and incorporating the findings in their final design.

2.1. Why learn History

History is thus a study of any event which happened in the past one year, ten years or ten thousand years ago. History of Architecture is by far a completely different genre where we get to know from why a settlement was formed in a particular location, to how it vanished, what caused a complete civilization disappear. How the local materials were efficiently used proof of which can be seen in existing monuments still standing tall withstanding complete climatic effect to withstanding natural disasters. OK "So What" The history thus shows us how what and why, of every era. Each style of every age having a distinct principle and formula representing the particular style of art, architecture and culture.

3. A brief Architectural history:

The horizon of experience and the regional extension of human relations constantly expand from the basic adaptation to the natural environment to the establishment of great civilisation. Before we delve in to the details let's see in brief about what learning we get from each age:

3.1. Pre-historic Cave man: Basic need was food and shelter

The prehistoric cave man was a hunter and food gatherer, shelter from wild animals and climate was by residing in caves. But as it was a short term solution, they kept wandering from place to place. Rock art carvings were prominent in this era. Invention of metals and tools were major game changers.

3.2. River valley Civilisation:

With abundant availability of water, and rich soil man started to settle near rivers, and started growing crops for food. He started to use various tools for farming, protection from wild animals and started new art forms like farming, pottery, poultry farming, brick making for construction of houses etc. colonisation in an area and learning new techniques of self protection was primary goal, belief in super natural power and trust in nature was of high prominence. Priests rose in prominence as concept of God came into picture. Temple started to become buildings of prime concentration.

Civilisations then grew from a few hundred people in one settlement to a few thousands and much more. Inter civilisational rivalry started leading to wars. Competition amongst different group heads like priests, craftsmen, warriors etc started and this led to a ruler being initiated. Till this time there was no significant construction of structures. Here starts the fun of architectural construction phenomenon. War success stories framed with victory towers, rulers showing their power with phenomenal palaces, priests building temples of great grandeur and luxury started.

3.2.1. Indus valley civilisation

Residential quarters and other essential buildings were simple. Indus valley civilisation was one such civilisation which displayed a different character, an advanced civilisation similar to the present day in many ways, uniform sized bricks for construction,

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grid iron pattern for roads, special storage spaces for grains etc. Though this civilisation was much simpler in terms of grandeur, with no massive construction, what is appalling is the presence of 'The great bath', similar to our present-day swimming pool, the technique used to store the water and drain it out is mesmerising. Floor of the tank was made water tight with finely fitted bricks, with gypsum plaster, and a thick layer

laid along the sides and base of the tank as water proofing is enough proof to showcase their intelligence.

Greek architecture exhibited strict formulaic building design with a lot of sophistication in appearance, Roman architecture started using higher level of technology and monumental scale started dominating. Italian renaissance displayed artistic expression of built form. Early Indian architecture displayed a high level of spirituality in the form of temples. The temple architecture of India had a simple basic form which was mathematically multiplied to create complex built forms. Below is a comparative study of some structures which have withstood time.

Table 1 - Astonishing monuments of other civilisations
Source: Author

S. No	Civilisation	Monuments	Specification
1.	Mesopotamia	Ziggurat at ur Around 2100 BCE by king Ur-Nammu	210 by 150 feet, constructed with three levels of terraces, standing originally between 70 and 100 feet high. Mud brick with burnt brick facins
2.	Egyptian	The Great Pyramid, the largest of the three, was built by the pharaoh Khufu 2540BC	height of 146 meters (481 feet) with a base length of more than 230 meters (750 feet) per side. Quarried Core stones
3.	Indus	Great Bath Built around 2600BC	12 meters north-south and 7 meters wide, with a maximum depth of 2.4 meters.
4.	Chinese	The Forbidden city 1420	Measuring 961 meters in length and 753 meters in width,6.6m height
5.	Greek	Parthenon 500 BCE	Measured at the stylobate, the dimensions of the base of the Parthenon are 69.5 by 30.9 metres (228 by 101 ft). The cella was 29.8 meters long by 19.2 meters wide (97.8 × 63.0 ft)
6.	Roman	Arch of Constantine, 312-315 C.E	Approximately 20 meters high, 25 meters wide and 7 meters deep.
7.	Indian	Brihadeswara temple Tanjavur (1004-1010)	The temple complex is a rectangle covering 240.79 metres (790.0 ft) east to west, and 121.92 metres (400.0 ft) north to south.

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From the above table we can see that each civilisation had a distinct character to it and drastic difference in the building typology shows that each era had dreams and aspiration of their own.

Though not much is known of the day to day activities of the people in those times, the presence of these massive structures is proof of high-level precision in construction techniques. Moving forward the civilisations spread and the settlements develop into towns and cities. Industrial Revolution happens which create a new revolution in the architectural development of cities and townships planned. Urbanisation starts and the introduction of concrete and steel creates a revolution in varied construction techniques and buildings of different forms, size, shape and colour which helped them build structure of large span but much lighter compared to the massive structures of Greek and Roman.

4.1. Historical Analysis

From the above brief the question now arises what is the take away from the study of history of architecture, History of architecture teaches us why how and what of building construction, we can learn the following aspects of architectural design parameters. Behavioural approach of the city as a visual experience. Socio-cultural approach which influence the city design, Morphological approach in terms of built and un-built in relation to scale and size from monumental to human scale. Environmental approach of relation of blending nature with the structures with nature as an inspiration. Quantitative analysis in terms of proportion, scale etc Materials: locally available, easily workable, Climatic influence and its design parameters taken into consideration. Qualitative approach in terms of texture, feel, visual impact etc.

4.2. Temples of karnataka : An example

Let's see how we can analyse a historical building like a literature case study with an example:Temples of Karnataka reflect the cultural values of the region, they were also symbol of royalty, source of authority displayed through the ornate complexity in the form of size and scale and ornateness. But based on the region the format has differed. The temples of Karnataka have seen the impact of all design from Bhuddist monstery form to hindu form of Vesara style to Dravidan style. During the Badami Chalukya dynasty reign (535-757 CE) the temple plan was very simple with a Garba Griha (main deity) and a simple pillared porch arranged axially. As the dynasties changed, the form of the temple changed Rashtrakutas (750-973 CE) introduced an antarala(ante space between the main deity and the gathering space or mantapa). Kalyana Chalukyas (973-1198) had intricate ornate exterior with elaborate geometry. The Hoylsalas adopted high plinth with multiple mandapas both open and closed for certain functions, all this enclosed in a prakara (outline wall) with Gopurams (entrance). Multiple shrines were also introduced within this complex. Vijayanagar dynasty (1485-1570 CE) showed elaborate royalty in scale and volume. The complex became massive with many prakaras, many mantapas dedicated for specific function and gigantic gopurams displaying symbol of royalty.

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Figure 1: VIEW OF CHENNAKESAVA TEMPLE AT BELUR

Source: http://www.karnataka.com/wp-content/uploads/2007/07/chennakeshava-temple-belur.jpg

Figure 2: View Of Anantheswara Temple At Udupi

Source:http://3.bp.blogspot.com/LXY7hdzA_yU/UynhszM0eOI/AAAAAAAAKOM/xLiyaNxsThQ/s640/Ananteshwara+Temple+1.JPG

Table 2: A comparative study of temples of Karnataka from the coastal region and central region shows complete contrast. The below table exhibits the difference in their character.
Source: Author

	Central Karnataka	**Coastal Karnataka**
Example	• Hoysala Temples – Halebid, Belur • Vijaya Vittal temple complex at Hampi	• Anantheswra Temple Udupi • Mahalingeswara Temple, Brahmavara
Plan	• Varied forms from star shaped platform to multiple shrine complex • Eka kuta, dwi kuta, tri kuta etc • One main deity with many adjunct deities alongside in the huge complex • Many mandapas in one complex serving different purpose.	• Single base structure • Apsidal or regular plan • Small complex with one main deity and other deities in the same circumambulatory path
Elevation	Complex carving depicting many epics and thematic forms on it, Vimana and gopuram go up to 50-60m, reflecting a monumental scale	Simple elevation with wooden replicas reaching a height of 10-15 m reflecting a human scale, sloped roof as a climate response, cladded with clay tiles to drain our the rain water.
Material	Soap stone temple, lathe turned chlorite schist stone columns, shikaras also made of stone Gopuram made of stone nearly 30m	Laterite stone, single shrined, lattice wooden work, slope timber truss with clay tile or copper tiles.

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Temple complex	Extended up to 3 – 4 prakarams containing several shrines and mandapas inside a walled compound	Temple complex is small, concept of Ratha Beedhi(car street), central vista for the utsava murthy in the chariot to go around during festivals dedicated to serving a few villages around the temple.
Climate	Low to medium rain fall, this is the main reason the construction of huge structures was possible	Heavy rainfall with thunder storms, cause of which construction techniques have remained very simple.
Special character	Easy availability of the local soap stone has been a boon which has been the reason for which the beautiful carvings have been possible.	Thick forest cover in the region has helped timber roofing possible with tile roof, available in the fertile river zone. Need for regular change in tiles, which usually get damaged during the rains is one of the reasons for low rise structures.
Qualitative analysis	Monumental scale and high precision of ornamentation shows the skilled ability and the varied taste of the royal patronage	Human scale and best use of locally available material makes the temple gel along the temple complex with the general public in and around the village / town.

Figure 3: View of Belur Chennakesava Temple Complex

Source:https://live.staticflickr.com/2146/18682220 82_5d76098ad8_b.jpg

Figure 4: View of Ratha Beedhi of Anantheswara Temple, Udupi.

Source:https://images.livemint.com/img/2020/03/16/600x338/Karnataka_Temple_1584338833956.png

5. Conclusion

In the above comparative analysis, we can understand that climate has been a major influential factor for the drastic difference in the style and form of temple, of the Kanara coastal region temples and Central Karnataka temples. Analysis in this format helps understand all aspects of the structures and the same methodology can be applied to every project the student undertakes. Mies Van Der Rohe was inspired by Parthenon which can be seen in his design of Barcelona

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Pavilion. Charles Correa designed the Jawahar Kala Kendra based on the Navagraha (nine planet) concept of Indian astronomy and also the resembling the square grid plan of Jaipur city. He also designed the Vidhan Bhavan Bhopal, taking inspiration from the Sanchi Stupa.Historic structure could be taken as an inspiration by the present-day designers, the world is a very complex place to live in but learning is not so.

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