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Divine Craftsmanship: Understanding the Intersection of Science, Art and Religion in Indian Temple Construction

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ABSTRACT- Basic Every architectural style expresses a fundamental idea that is unique to a certain culture and time period. In this sense, the architecture of Indian Hindu temples represents the values of science, art, architecture, and culture in addition to serving as the home and site of devotion for God. Temple customs and practices have persisted throughout history and into the present, having a significant impact on the social and cultural life of the populace and upholding ancient Indian values. Hindu temple architecture has been significantly influenced by Hinduism and philosophy over the ongoing evolutionary process.

For this reason, historical studies on Indian temple architecture and the ideas used in the construction of holy Hindu temples from ancient times have been highlighted by book collections, films, literary works, and theoretical study. The procedure involves the talents required for the construction of such buildings. These factors have highlighted the art, science, and philosophy that underpinned the construction of Hindu temples, which were the same in antiquity as they were in the past. the persistence of custom and science, which date back to the earliest human experiences.

KEYWORDS- Art and Architecture, Ancient, Cosmology, Dravidian Architecture, Hindu temple, Layout, Sculpture, Temple Architecture, Vastupurushamandala

I. INTRODUCTION

"Architecture is the matrix of civilization"$.....Lethaby

A study of Hindu temple architecture expresses the meaning of architecture and its relation to human experiences has been expressed in several ways in the past. The creative development of man reveals the reality of different types of objects in different eras and civilizations. Thus around the world, different cultures and cultures have made great contributions to the art of building.

Each style of building construction reflects a specific basic principle that represents a particular culture and era. For example, the rigid and pointed building design in Greek architecture demonstrates sophisticated aptitude, while Roman building design, which is also influenced by modern standards, is based on their advanced technology[1]. Similarly, a uniquely enthusiastic French gothic is a symbol of a passionate culture, and the Italian Renaissance reflects the artistic scholarship of its time. In the same way, the characteristic quality of early Indian architecture lies in the expression of spiritual content through its temple architecture.

The word 'temple' comes from the Latin word. By definition, a temple is a structure reserved for religious or spiritual activities, such as prayers sacrifices, or similar rites. Traditionally, the temple is a sacred structure and also represents a god or deity's abode. However, Indian temples are not only places of worship for god but also places of knowledge, art, architecture, and culture. It is known as Mandir.

Temple marked the transition of Hinduism from the Vedic religion of ritual sacrifices to a religion of Bhakti or love and devotion to a god or goddess [4]. The spiritual principles symbolically represented in Hindu temples are given in the ancient Sanskrit treatises on architecture like Brihat Samhita, which belongs to the Gupta period

Indian temples evolved from the Gupta rulers. The Gupta period is called the 'Golden Age of India' or 'Classical Age of India' for the development of architecture in the period of Gupta rulers (4th- 6th centuries AD), They followed Brahmanical religion and ideology.

According to the various architectural texts written in the early medieval times, Hindu temple architecture. The practices and traditions of temples exist not only in history but also have a profound impact on the socio-cultural life of our people and perpetuate traditional Indian values. However, in contrast to Western architecture, the original ancient models drawn from religious thought for the evolution of Indian temple architecture have been strictly adhered and this continued for centuries with the use of basic standards and rigid forms of temples.

A. Aim

There has been a lot of research into Hindu temple architecture, but still many aspects of this subject are unexplored. This study attempts to collect all the existing research that has been undertaken, and potentially contribute to the existing stock of knowledge through an analysis of Hindu Temple architecture.

This study presents the philosophical and practical aspects that govern the construction of a Hindu temple building to understand how it influenced the form of the Hindu temple in its evolutionary process.

The various stages of temple construction and construction techniques that have been employed in temple construction since ancient times have been studied not only through archival research but also through a comparative study of these important aspects and their relevance in modern-day Hindu temple construction.
Finally, the judging aims to present a dimensional study of temples taken from different periods from the northern and the southern styles respectively for the safety evolution of the temples [5].

B. Objectives

Understand the basic concept of Hinduism and its relevance to the design and construction of Hindu temple architecture.
Examine the history of the Hindu temple concept, its architectural styles, and the materials used in their construction, with a particular emphasis on the Nagara, or "north Indian style," and the Dravidian, or "south Indian style."
Identify and synthesize the geometry and structural systems of Hindu temple architecture with examples from the Nagara or ‘north Indian style’ and Dravidian or the ‘south Indian style’ Hindu temples.
Studying the material features, construction techniques, and processes involved in the construction of a Hindu temple [5].

C. Methodology

The paper makes from a variety of sources, including works of literature, archaeological investigations, and theoretical studies of ancient texts and contemporary studies of Indian temple design. The archival study has aided in illuminating Hinduism's core ideas and their influences. Hindu temple architectural style. The principles that have been used from ancient times for the building of the holy Hindu temples are emphasized by referring the Vastushastra, Shipshastra, and other generic manuals on Hindu architecture. With the aid of examples from "north indian style" and "south indian style" temples, this dissertation illustrates the variations in the shape and size of Hindu temples, emphasizing that while the features of Indian temples may vary across regions, they were all founded on a single philosophy of build. The celestial "Vastupurushamandala," which is essential to Hindu cosmology, serves as the foundation for the temple's design concept.The impact of this fundamental notion of divinity on the design of the temple and its internal and external shapes and features are further explained with reference to temples from various historical periods that are built in the "south indian style" and "north indian style." The study of the Hindu temple's layout as well as its architectural features and form The sizes in which they changed during centuries of temple growth serve as the foundation for comprehending the structural basis behind the use of specific conventional building methods in the building of these temples [7]. This dissertation also discusses the technology used in the construction of the Hindu temple, the procedures followed, the labor skills needed, and the strategies used by the architects and their team. When combined, these elements highlight the philosophy, science, and beauty that went into building the hindu temple.

D. Limitations

The scope of this dissertation is mainly the Nagara 'north Indian style' and the Dravidian 'south Indian style' temple architecture, the two major forms of temple architectural motifs that represented the pinnacle of Indian Hindu temple construction. It looks into aspects of their origin and development, the philosophy that created them, and how this philosophy can be interpreted for a better understanding of the structure itself and the time and society that created them.
This study also does not take into account the details of different types, forms, and architectural features developed amongst the 'Nagara' and the 'Dravidian' styles. The study is primarily limited to temple construction in stone and not those built with other materials like wood and brick [3]. Also since this study could not be supplemented with fieldwork in India most of the information is gathered from secondary sources.

II. ORIGIN OF HINDUISM

The word Hindu is the name of the river Indus in Persian and this term was mostly used by the Persians and Greeks for the people who reside around the river Indus and without any religious connotation. Hinduism is the religion and social institution of the great majority of the people of India. Hinduism has no fixed scriptural canon but its doctrines are to be found in certain ancient works, notably the Vedas, the Brahmanas, the Upanishads, and the Bhagavad Gita [3]. The oldest Vedic text ‘Rig Veda’ describes the land of the Indo-Aryans as Sapta Sindhu (the land of the seven rivers in northwestern South Asia, one of them being the Indus).
The divine personalities of Brahma, Vishnu, and Siva represent the three incarnations of the deity in the two Sanskrit epic texts, the Ramayana and the Mahabharata. There are also other gods, demi-gods, supernatural beings, and members of the trinity may even incarnate, as Vishnu became identified with Krishna, one of the driving characters of Mahabharata and the Bhagavadgita.

III. GODS AND CULTS

The early Hindu Aryan society was socially divided into four classes (Varnas) and their rituals involved worshiping the abstract forms of natural forces such as fire, water, and wind, they offered fire offerings and sang the hymns found in the Vedas, but they didn't construct temples. Later, when the rituals became complicated they required priests to perform the rituals and thus a distinct priest class was developed among other classes [3]. The rise of the class system in Hinduism gave birth to various unorthodox groups that developed around the 1st millennium BC. These communities gave rise to Jainism and Buddhism, two new major religions, in opposition to the priests' rites and the caste system. The devotional worship through sculpted images increased during the third and second centuries among various cults and grew and merged into the true form of Hinduism.

IV. THE HINDU TEMPLE

A Hindu temple is a place for worship. It is known as Mandir. Temple marked the transition of Hinduism from the Vedic religion of ritual sacrifices to a religion of Bhakti

or love and devotion to a god or goddess [4]. The spiritual principles symbolically represented in Hindu temples are given in the ancient Sanskrit treatises on architecture like Brihat Samhita, which belongs to the Gupta period.

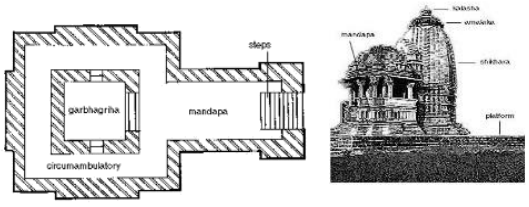
Indian temples evolved from the Gupta rulers. The Gupta period is called the 'Golden Age of India' or 'Classical Age of India' for the development of architecture in the period of Gupta rulers (4th- 6th centuries AD), They followed Brahmanical religion and ideology. According to the various architectural texts written in the early medieval times, Hindu temple architecture can be classified as Nagara / Northern style, Dravid / Southern style, and the mixture of Nagara and Dravid style known as Vesara style by gupta rulers.

V. ELEMENTS OF HINDU TEMPLE

The following are the typical components of style by Gupta rulers.a Hindu temple, as expressed in their original Sanskrit words:

The sanctuary as a whole is known as the Vimana which consists of two parts. The lower section of the Vimana is known as the Garbhagriha (cella or inner chamber), and the upper part is known as the Sikhara.

- 'Sikhara' meaning the tower or the spire. It is the pyramidal or tapering portion of the temple that represents the mythological 'Meru' or the highest mountain peak. The tower's dimensions and form differ depending on the location.
- 'Garbhagriha' meaning the womb chamber. It is the nucleus and the innermost chamber of the temple where the image or idol of the deity is placed [7]. .. The chamber has a doorway on its eastern side and is primarily square. In most temples, the garbhagriha is off-limits to tourists; only priests are permitted to perform rituals and pray there.
- 'Pradakshina patha', which refers to the `corridor carried around the outside of Garbhagriha. The devotees walk around the deity in a clockwise direction as a worship ritual and symbol of respect to the temple god or goddess.



(a) (b)
(source: www.art-and-archaeology.com)

Figure 1: Elevation of a Hindu temple

In the above figures 1(a) and (b) is showing the typical plan and the typical elevation of a Hindu temple illustrating various elements.

- Mandapa' is the pillared hall where devotees gather in front of the garbhagriha. Devotees utilize it to sit, pray, chant, contemplate, and watch the priests carry out the ceremonies. It is also known as 'Natamandira' meaning temple hall of dancing, where in the olden days ritual of music and dance was performed.
- 'Antarala' meaning the vestibule or the intermediate chamber. It connects the temple's pillared hall and main sanctuary.
- "Ardhamandapa" refers to the mandapa's front porch or the temple's main entrance.

  Other crucial components present in Hindu temples include:
- 'Gopurams' means the monumental and ornate tower at the entrance of the temple complex, specially found in south India.
- 'Pitha', the plinth or the platform of the temple [4].
- 'Toranas', the typical gateway of the temple mostly found in north Indian temples and
- The Amalaka is the fluted disc-like stone placed at the apex of the Sikhara.

VI. MATERIAL OF CONSTRUCTION

Various materials were used to build the Indian temples, based on what was available in each location. The range of materials varied from timber to mud, plaster, brick, and stone during all periods and throughout India. The materials play an important role in the overall appearance, construction techniques, and monumental character of these temples [5].

As the earlier structures were fashioned from less durable materials such as timber, brick, and plaster the early examples of Hindu architecture and art have mostly disappeared or are detectable only by the most fragmentary remains [3]. Nonetheless, a few of the murals and relief carvings demonstrate that the older Hindu temples were built using bamboo and wood. Many of the later stone temples were modeled on wood and bamboo architecture is apparent from the carvings, roof forms, and window shapes. The shape of temples is mostly determined by the use of bamboo and wood in the Himalayan valleys, Kerala, and Bengal regions. There are remnants of brick-built temples from centuries before the arrival of Christianity. The brick and mortar temples were constructed in the region where there was easy availability of brick and the availability of suitable stone was limited.

The construction of a temple in stone is the most distinctive expression of Hindu architecture. The highly evolved techniques of excavating and cutting blocks of stone constitute one of the major technical achievements associated with the history of the Hindu temple[2] [6]. The construction in stone dates back to the 2nd and 3rd centuries in the form of rock-cut sanctuaries and later in the form of temples with the use of stones like granite, marble, soapstone, sandstone, and locally available stones. The stones were used with the most intricate and ornate carvings and sculptors throughout India.

VII. EVOLUTION OF ARCHITECTURAL STYLES

The vast geographical, climatic, cultural, racial, historical, and linguistic distinctions between India's northern plains and southern peninsula have contributed to the development of the unique architectural styles of Hindu temples. Hindu temples can be divided into three orders, roughly according to their geographical location: the Nagara, or "northern" style; the Dravidian, or "southern" style; and the Vesara, or

hybrid style, which is found in the Deccan between the other two.

Other notable forms can also be found in outlying regions like Bengal, Kerala, and the Himalayan valleys. The Nagara, or "the northern style," and the Dravidian, or "the southern style," of Hindu temple buildings are the main subjects of this dissertation.

In response, religious forms of art and architecture made of durable materials to preserve the divine spirit in colossal temples emerged during the Gupta era (320–550 AD).

VIII. DEVELOPMENTS IN TEMPLE ARCHITECTURE

A. Nagara or the 'Northern Style'

In the early medieval style, the Nagara style was popular in northern India. This style is associated with the land between the Himalayas and the Vindhyas. Two features of this style are plan and elevation. The whole temple is built on a stone plinth. The plan of the temple is square with several projections. In elevation, the shikhara is inclined toward a convex curve. The essential feature of an inner sanctum is the garbha griha, where the murti or image is placed on the god/goddess. On the exterior Garbh Griha is crowned with shikhara, a mandapa congregation pillered hall in the front of Garbh Griha. Originally in the Nagara style, there were no pillars.

Although a Nagara temple is quadrangular from the base to the stupid as mentioned earlier. Examples of Nagara style are Sun Temple, Konark, and Kandariya Mahadev temple, Khajuraho, MP.

B. Dravidian or 'Southern Style'

Dravidian architecture is based on Agamas. Its architecture is among the oldest in the world. This architecture was first started by the Pallava dynasty, which ruled in the southern part of India. During the time of Pallava rulers Dravidian style developed. In this style, the chief shrine of the temple as in the Nagara style had the chief deity. In this temples were not only places of worship but also centers of learning along with elaborate religious rituals, festivals, and performances of dance or drama on the base of religious themes. Dravidians being fine craftsmen designed temples most elegantly and displayed ornamentation and fine art in temples [4]. The main temple has a geometric-shaped pyramid-like tower, it is known as a vimana. The huge gate for entry is called Gopuram. Small temples are located next to the main temple. Dravidian architecture is divided into 5 styles: Pallavas style, Chola style, Pandya style, Vijaynagar style, Nayaks style. Pallavas worked in Rock-cut architecture. Cholas developed Vimana. Pandyas developed gopuram. Vijayanagara developed mandapas and secondary halls. Nayaks added gopurams in existing temples. The best example of Dravidian-style architecture is the Shore temple of Mamallapuram. and Brihadishsvara temple at Thanjavur in Tamil Nadu.

C. Vesara Style

Vesara style is mainly used in Deccan, parts of North India and Central India, between the Vindhyas and the river Krishna. Vesara is a combination of the Nagara style and Dravidian style and its original characteristics. According to historians, this style was started by the Chalukyans of Badami. This style of temple architecture became popular after of seventh century at the time of Chalukyans. In this style presence of pillars is prominent but Gopurams are absent. The temple ceilings, door frames, and pillars are all finely carved. In vesara style shikhara and Mandap are joined together by the Antarala, so the temples do not have ambulatory passageways around the sanctum. The common feature of the Vesara style of temples was that they had spire-shaped structures on the top called the shikhara. Examples of this style of architecture are Lad Khan temple in Aihole, Karnataka, Hoysaleshvara temple at Halebid, Karnataka, and Chalukyan temple at Pattadakal.

So, from the discussion, we conclude that various rulers came and developed lots of styles of architecture but the philosophy was the same for every style and ruler. There may be types of arts, carves were introduced from the early medieval time and now also development is going on. Various elements were used like pattern harmony so that the temple looks better. The Hindu temple is made up of various branches, philosophy, and ideology.

IX. THE GEOMETRY OF THE HINDU TEMPLE

The previous chapter covered the different styles and structural elements that prevailed in Hindu temples in India [5]. Temple styles differed significantly from region to region. A temple layout, for instance, could be arranged in concentric rings or along a single linear axis. This chapter explains the geometry of Hindu temples concerning the Hindu cosmology and philosophy based on the divine 'Vastupurushamandala' and its application to the temple structure.

Although the elements of Indian temples may differ across regions, the 14real motive was derived from a single philosophy of design. Since ancient times, the same principle has guided the construction of all Hindu temples, no matter how big or tiny. This philosophy has percolated to the remotest parts of India. The Vastushastra and Shipshastra along with other general manuals on Hindu architecture are still referred to for the construction of the sacred Hindu temples.

A. Cosmology and Hindu Temple

The human body, mind, and spirit are considered to be microcosms of the cosmos, and the temple represents the microcosm of the cosmos, according to ancient Hindu texts. The Hindu temple structure presents significant information about the science and cosmology of the period in which they were constructed. It is a symbol of the outer and the inner cosmos where the outer cosmos is expressed in terms of various astronomical connections between the temple structure and the motions of the sun, moon, and planets, while different levels of the superstructure correlate to the levels of awareness and the inner cosmos is depicted in terms of consciousness in the temple's womb.

The temple is a link between the physical world of man and the divine world of God. To connect them, the plan of the cosmos was graphically copied in the foundation of the temples called the Vastupurashamandala. The Hindu architecture, religious or vernacular, in ancient times, was based on the geometry of the Vastupurashamandala.

In the words of Stella Kramrisch, "The temple is the concrete shape (mūrti) of the Essence; as such it is the residence and vesture of God [7]. The body and sheath (kośa) are the masonry. The temple serves as the manifestation's monument." The expansion can be interpreted as either a manifestation held together by a tension between the Bindu and the garbhagrha, with the axis joining the two being the world axis, or as proceeding from the central point of the garbhagrha in all directions of space, reaching to the Bindu above the finial of the temple and beyond."

B. The Plan

The plan of the temples is the replica of the Vastupurashamandala, the grids of the square of 8X8 where the cella is twice the width of the walls of the cella. The Nagara style of temples in the west and central India followed the orthogonal grids of the mandala [4]. For example in the 7th century at the Vishnu Temple Deogarh in Madhya Pradesh, the square grid was modified by extending one time on each side outwards. Additionally, the square grid was altered in the tenth century at the Surya temple in Modhera by expanding twice on each side outward. Later on in the 11th century the Hindu temple plan became complex and reached its final form. This time the square grid was modified by extending thrice on each side outwards, The Khandriya Mahadev Temple at Khajuraho in Madhya Pradesh is the best example of this.

- **Evolution of plans of the temple through vastupurashamandala during different centuries.**

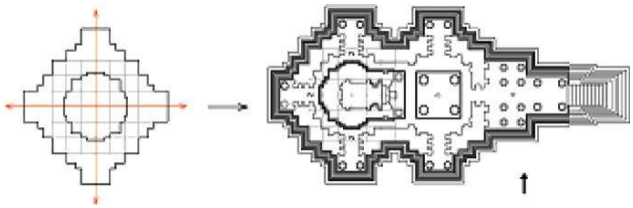


Figure 2 : Plan of Parvati Temple, 6th century [9]

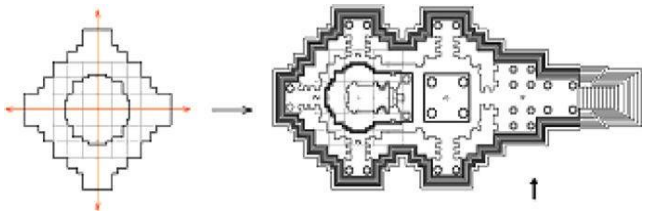


Figure 3: Plan of Vishnu Temple[9]

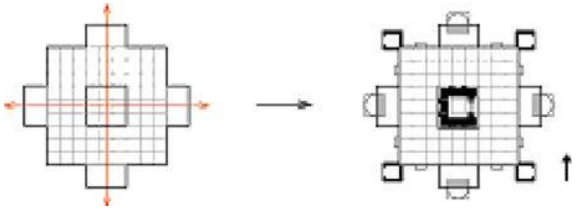


Figure 4: Plan of Kandariya Mahadeo Temple[9]

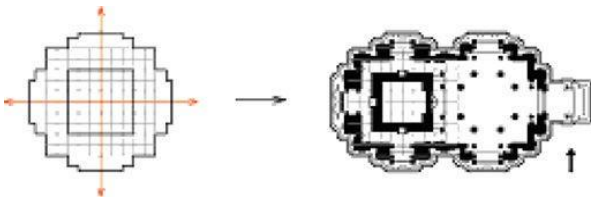


Figure 5: Plan of Kandariya Mahadeo Temple, Khujaraho 11th century[9]

In the above figure 2 is showing the plan of Parvati Temple, 6th century. Figure 3 is showing the plan of Vishnu Temple, Deogarh, M.P, 7th century. Figure 4 is showing the plan of Sun temple Modhera, 10th century and figure 5 is showing the plan of Kandariya Mahadeo Temple, Khujaraho 11th century[9]

The temples in South India in the early 7th to 8th century and later in the 13th century developed the stellate plans meaning the plan of the garbhagriha was in the elaborate star shape. The simple square served as the model for these intricate designs. The square was turned diagonally through a sequence of equal angles after being rotated around its fixed center to accomplish this. As a result, a star was created by the corners created by so many squares overlapping. "By altering the angle at which the diagonal was turned up at each step, the number of points and their proportions could be changed" [2]. The temple's plan typically had 8, 16, 24, and 32 points. The 16 and 32-pointed star plan was achieved by bisecting the angles of an 8-point star. Also, the 24-pointed star plan is achieved by the 6-point star plan. The Chenna Kesava temple, Belur is one of the finest examples of the stellate plan.

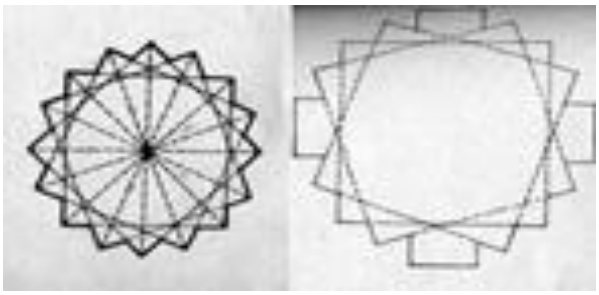


Figure 6: Star-shaped plan

In the above figure 6 is showing the rotation of the square around its center gave rise to star-shaped plans ‘stellate plans’.

C. The Structural System of the Hindu

- Temples

The basic construction technique used in the Hindu temple was the trabeated system or the post and the beam method which was extended by the use of corbelling techniques [7]. This method was originally used for wooden construction in India and was later adopted for stone structures as well.

D. Trabeated System

The stability of the trabeated system is provided by the huge arrangements of vertical elements, such as pillars and pilasters coupled with strong cross beams and lintels. Only horizontal and vertical members are utilized in this system. The use of the spanning system to enclose the interior

spaces was the most typical feature of this system [5]. The openings in the Hindu temple have lintel made of stone or timber Stone slabs are arranged horizontally and extend from one supporting beam or wall to the next to form the roofing system. The arrangement of the internal ceilings in the Hindu temple was deliberately confined to the overlapping of one stone course with another or to the laying of the diagonal and "square stone course to produce designs with rotating and diminishing squares" [2]. Later in the 10th and 11th centuries, the internal ceilings spanned circular stone courses, created intricate designs by being seated one atop the other in receding diameters. In figure 7 (a) (b) (c) (d) (e) (f) The Trabeated System and the internal ceilings of the Hindu temple

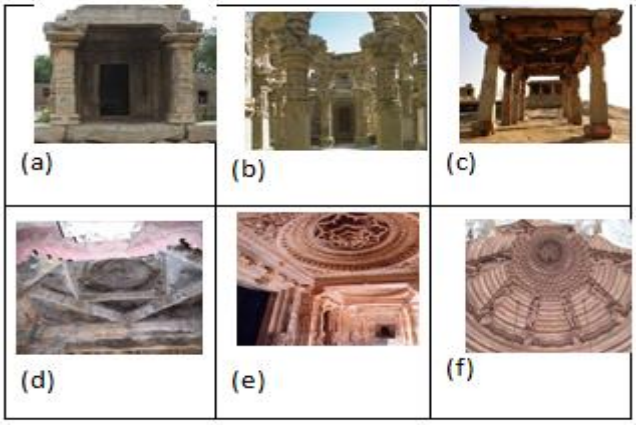


Figure 7: Internal ceilings of the Hindu temple[10]

In the above figure 7(a)(b)(c) is showing the pillars and the beams of the temples and figure 7 (d) (e) (f) is showing the internal ceilings with the rotating and diminishing squares and circles.[10]

E. Corbelling System

The stones or bricks in each horizontal course of the corbelling system are thrust out to bridge the space between the two walls, gradually narrowing it until it can be sealed with a single stone or brick. The corbelling system was used to create the interiors of the temple and the stone shells of the superstructure that rose above the sanctuary [5]. Later in the the 13th century, the use of iron clamps and wedges to hold the stone slabs together allowed the special feature of corbelling in which horizontal stone layers were projected out over large spans and cut into unusual shapes to produce highly decorative ceiling schemes [2].

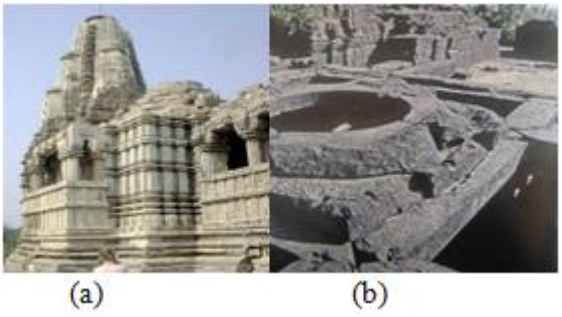


Figure 8: Corbelling System [11]

In the above figure 8 (a) and (b) is showing the Corbelling System, The column-beam-corbel method of construction was the main structural principle governing the construction of every Hindu temple. The principles of equilibrium of forces in action using arches, vaults, and other forms of functional engineering rules never really played a part in the evolution of the Hindu temple. Hindu temple architects' rigid devotion to tradition and precedents, which reflects a certain tenacity in their cultural attitude, rather than their ignorance of these procedures, is what matters [1]. There was no instance of the use of vaults or domes in the Hindu temple architecture, but arched niches were created on the surface of the walls and they rarely carried loads from above.

The Hindu architects remained attached to their traditional techniques and accomplished their task of construction by careful study of the laws of gravity, obtaining strength by the mass supporting mass and stability by the solid resistance of the weights acting vertically, all pressure being transmitted directly downwards [2]. As a result, the use of mortar was pointless because there was almost no inclined pressure to distribute between the courses of masonry. Therefore, the Hindu temple architecture masonry developed as a dry masonry system [3].

F. The Structural Components

The sanctum, also known as the garbhgriha, is located in north Indian temples on an elevated platform known as a pitha. over which is the socle (vedibandha), these have different decorative mouldings, above the vedibandha are the walls of the sanctum (jangha), having prominent offsets and niches, which are further crowned by the cornice or a series of cornices(varandika) [6] and above this is the superstructure (sikhara). On the top of the sikhara is a single piece of stone having grooves called the Yamanaka This is then finished with a finial and pot. The whole temple complex including the mandapas and other shrines is usually raised on a terrace (jagati) which at times has significant height and size. The sanctum has a flat ceiling inside and the superstructure is usually hollow from the inside to lessen the weight [5].

In the South Indian Temples, the sanctum or the garbhagriha rises above the socle (adhisthana), consisting of a series of moldings that differ from the North Indian temples, they don't have the plinth (pitha), above the socle rises the walls (pada) of the sanctum, the walls are divided into series of pilasters, above the walls rises the pyramidal shaped superstructure consisting of stepped stories and each of them is enclosed by there own parapet. The top of the stepped structure supports the solid cupola called a sikhara in the south which in turn is crowned by a pot and finial [5].

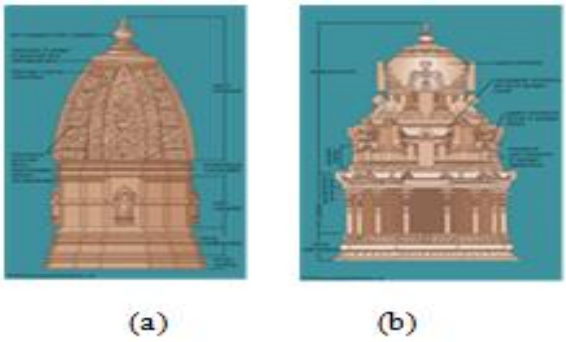


Figure 9: Elements of the north and south Indian temple [12]

In the above figure 9 (a) is showing the different elements of the north Indian temple and 9 (b) is showing the different elements of the South Indian temple.

X. CONCLUSION

The Indian subcontinent has a rich architectural legacy dating back to 2500 BC, with temple architecture playing a significant role in the country's architectural style. These temples are not only the abode of God, but also the cradle of knowledge, art, architecture, and culture. The practices and traditions of these temples influence the social, economic, and traditional values system in India today.

This dissertation explores the foundation of Hindu temples and their development due to their geographical, climatic, cultural, racial, historical, and linguistic differences. The two major styles of Hindu temple architecture are the Nagara or 'northern' style and the Dravidian or'southern' style. The temples of these regions have been classified as the Nagara or 'northern' style and the Dravidian or'southern' style.

The basic philosophy that guided their planning and layout was guided by manuals on architecture. Hinduism has several old scriptures, publications, and manuals that guide Hindus on techniques and structural rules of architecture. The Shilpa Shastras and Vastu Shastras are the basic rules in the field of architecture and sculpture, while the Mayamata and Mansara are the other well-known treatises of South India on architecture and iconography respectively.

The basic construction technique used in early Hindu temples was the trabeated system or the post and beam method, which was extended by the use of corbelling techniques. The column-beam-corbel method became the main structural principle governing the construction of every Hindu temple. Hindu architects remained attached to their traditional techniques and achieved their task of construction by careful study of the laws of gravity mining stability from the solid resistance of the weights operating vertically and strength from the mass supporting the mass, with all pressure being transferred immediately downward.

The construction technology used in the construction of Hindu temples, the processes involved during its construction, the human skills required, and the methods utilized by architects and their team, all contribute to the art, science, and philosophy behind the construction of Hindu temples. The building of Indian temples in the north and south proceeded according to identical pre-construction protocols, with slight differences due to the variability of materials used, climate, availability of human resources, or social structure of a particular period.

A. *Scope for future studies*

The Hindu temples of India have been a subject of study for numerous historians, religious scholars, art historians, photojournalists, archaeologists, architects, and other professionals. There is scope for much study on Hindu temples in different regions of India not just based on the iconography, form, and transformation but more on their building technology [5] and structural analysis. Some studies have been undertaken. For example, it is known that numerous temples have fallen due to different calamities from time to time, yet there are even today examples of temples that haven't fallen either due to earthquakes or cyclones or other natural calamities because these temples were constructed in the form of an interlocking system as per laid out in the ncientmanuals. Therefore this structure tends to vibrate along with the earth's vibrations and will sway but not fall under any circumstances during earthquakes or cyclones.. Thus, there is room for more research into the structural characteristics of Hindu temples. This research could focus on structural analysis such as post and lintel construction, thrust analysis of the sikhara, maximum average stress calculation at the foundation and columns, and safety and stability analysis of structures.

CONFLICTS OF INTEREST

The authors declare that they have no conflicts of interest.

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