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A Morphological Study of the Ancient Buddhist Monasteries of Bengal

* ¹¹ Ph.D. Candidate. **Pushpita Eshika**

Arkansas State University, Heritage Studies Program, Jonesboro, Arkansas, USA ¹

E-mail ¹: peshika9905@gmail.com

Abstract

Vajrayana, or Bengali Buddhism, was a significant derivation from traditional Buddhist schools of ancient India. This Buddhist school was erected in ancient Bengal, adopting the prevailing esoteric tantric practices, and reigned every corner of Bengal from around the 7th to the 13th century. This morphological research focuses on the spatial layout of five Bengal Buddhist monasteries constructed between the 5th and 12th centuries and tries to find the underlying pattern of evolution through the lens of the philosophical development of Buddhism in Bengal. The findings show a significant shift in the morphological character of the Bengal Buddhist monastery after the 8th century ad. The introduction and growth of tantra-oriented Buddhist schools, primarily the Vajrayana school, played a vital role in the spatial evolution and transformation of the Buddhist monasteries of Bengal. This study tries to unveil how religion's intrinsic and extrinsic forces shaped forms and spatial patterns of Buddhist architecture in Ancient Bengal.

Keywords: Morphology; Buddhism; Spatial organization; Ancient; Monastery.

1. Introduction

Buddhism emerged in India in nearly the 6th century BC. By the 5th century, or later, when Buddhism was declining in different parts of India, a new revolutionary Buddhist school formed in the remote, inaccessible marsh of eastern and south-eastern India, known as Bengal, Bengal was the flat deltaic land between two mighty rivers, Ganges and Brahmaputra. The ancient Bengal consisted of present West Bengal, part of Bihar, Jharkhand, and Odisha of India in the western part, and Part of Assam and Tripura of India in the eastern part, with Bangladesh being in the center of the region. Schools based on eastern Indian esoteric yogic practices erected, developed, and reached their zenith in the very heart of Bengal. Unfortunately, little is known about these unique schools of tantric doctrine and their rooted relationship with Bengal.

The doctrine of tantra gave birth to a few schools from at least the 7th to 9th century in the creed of Buddhism. Vajrayana is a mature formation of tantric Buddhism, which, over time, transformed into a more revolutionary school named Shahajayayana until it dissolved in the local socio-cultural forces of Bengal. A significant part of Bangladesh's material culture and intangible cultural heritage is of Buddhist origin and was developed between the 7th to 12th centuries. A substantial shift in architectural pattern is visible during this period in the monastic layouts of Bengal, which needs investigation. From the 7th to the 12th century, Bengal was one of Buddhism's most vital and flourishing centers. Hundreds of monasteries were built on this land, most destroyed by the adverse climate and manmade hazards. The unique morphological character is conspicuous in the few remaining ruins of the Buddhist monasteries, built in the 7th century and afterward in West Bengal and Bangladesh. This monastic development's easternmost boundary was Bangladesh's present Comilla region. Hence, with an emphasis on the excavated monasteries in Bangladesh and West Bengal of India, this study attempts to find the relationship between architectural layout and the religious evolution of Buddhism in Bengal by studying the morphological character of Bengali Buddhist monasteries.

2. Material and Methods:

This historical research adopted the observation method through the study of architectural layout, comparative analysis of plans, elevations, sections, and descriptive analysis of selected monasteries of Bengal from the 7th to 12th century. The monasteries were selected based on the availability of published documentation focusing on the timeline and typology.

2.1. Data Collection:

Secondary resources, including literature, iconography, and cultural material review, helped decode these structures' spatial order and meaning as these monasteries are in ruined condition. Besides, the cartographic study of the area under consideration was also carried out. The initial data was collected from the published drawings and documentation of existing excavated sites. The Department of Archaeology of Bangladesh and the Archive of the Asiatic Society were the primary data sources used in this research.

2.2. Secondary Source Review:

A wide range of literature reviews was required in this research to have a substantial understanding of the topic. Literature based on Indian history, Bengali history, History of Buddhism were reviewed. As the key objective of this study is to identify the morphological characteristics of ancient Buddhist monasteries of Bengal, an extensive study of architecture focusing on the evolution of Indian Buddhist art and architecture and Bengali Buddhist art and architecture was necessary for this research.

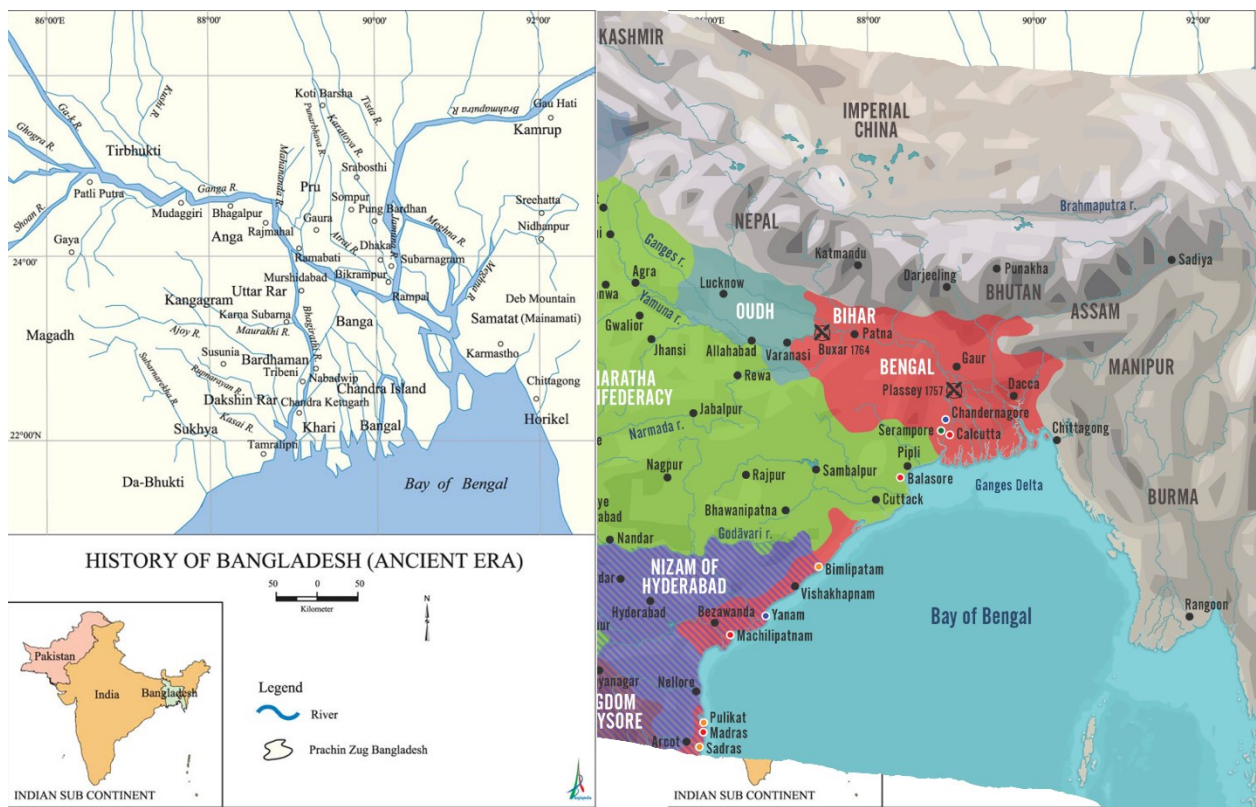
2.3. Data Analysis:

Data collected from the architectural layout study and secondary sources were analyzed, compared, and synchronized to attain the research goal.

3. Background:

Bengal was raised from the bottom of the ocean due to tectonic movements in the Pliocene Age. It became a rich landscape of abundant flora and fauna suitable for human settlement in the Pleistocene era (Mohsin & Ahmed, 2007, p.6). The Ancient Bengal consisted of a large area widening from the Himalayan foothills to the Bay of Bengal from north to south. Bengal's eastern territory often extends beyond the Assam and Tripura hills of Eastern India, touching the Chinese border. In the west, it spreads to the bordering states of the upper Ganges. **Figure-1** shows the location of Bengal in an ancient world map and highlights the states of Bengal.

Figure-1
Location of Ancient Bengal in World, Ancient India, and its States.



Note- The map above is a collage of maps of ancient Bengal. By Netchev, S. (2022) on *World History Encyclopedia*. (<https://www.worldhistory.org/image/16452/robert-clive--the-east-india-company-rule-in-india/>), and *Banglapedia* 2021. (<https://en.banglapedia.org/index.php/History#/media/File:HistoryAncientPeriod.jpg>) in the public domain.

In global geography, its position is in the north of the equator. The tropic of cancer passed over this country. The warm and humid air of the Bay of Bengal meets with the cold and dry air of the Himalayan plateau over here in Bengal and is mixed with the water vapor of the network of cascading rivers that drain a large part of Himalayan streams to the Bay of Bengal, produced the exceptional climatic characteristic of this country that shaped this land's religion, culture, and architecture for thousand years.

According to different historians, the earliest settlement in Bengal was long before the Aryan invasion of India by a civilization of the Austro-Asiatic family of language (Reclus, 1891). With their Neolithic identity, these agrarian people created the bedrock of the Bengali culture (Majumdar, 1943, p.557), a culture of mud and water, magic, and mysticism. Later, the wave of Vedic high culture had to accept transformation by adding local indigenous elements and subtracting some of its own, reflected in this region's literature, art, and architecture. Thus, a hybrid culture inimitably identifying Bengal was produced with a compact religious syncretism over time. Apart from Vedic Brahminism, Jainism, and Buddhism flourished in this land sometime between the 7th century BC and the 3rd century Ad. Buddhism was the religion that ruled this land for a significant time until its final eradication from India. The robust and revolutionary tantric school, Vajrayana and its offspring Shahajayana are two successors of Buddhism from Bengal that ruled this land for at least six hundred years together.

3.1. A Brief Introduction of Tantra:

"Tantra, whether Hindu or Buddhist, has to be regarded as an independent mystic literature, which utilizes relevant philosophical doctrines, but whose origin may not be traced to any system or systems of philosophy" (Dasgupta, 1950, p.1) Tantra, a practice in eastern India from a time unknown, was adapted by Bengali Buddhist society as a method to attain the highest level of consciousness. Tantra is not a philosophy; instead, a technique that was applied on many occasions in Indian history to understand and excel in a philosophical, scientific, or theological canon.

Tantra is a mystical, spiritual practice that aligns body, mind, and universe in the cosmic balance. The instruments of tantra are Mandala (geometric mystical form), Mantra (chants), and Mudra (bodily gestures). Tantra can be portrayed as cultivating the most potent human emotions that unite one's consciousness to transcendent infinity. Tantra is also a worship of ecstasy centered on a vision of cosmic sexuality (Rawson, 1973). The esoteric practices oriented toward sexuality kept tantra camouflaged in the encrypted texts of religions and hidden from ordinary eyes for thousands of years.

Two fundamental beliefs were rooted in the evolution of Buddhist tantric schools.

"Firstly, the human body is the chosen medium through which Truth can be realized. This belief was best expressed in esoteric yoga, which aimed to achieve the mystical union between Spirit and Matter, transmuting the material into the spiritual and mundane into the divine. Through yoga, a person could rise to unite with his divine counterpart and origin and transform his world of transmigration into salvation and his suffering into bliss.

The second concept is duality in non-duality- two contrasting aspects of reality's fundamental nature: the static and the dynamic, the passive and the active; the negative and the positive. The realization of the Oneness of all pairs of opposites means final balance leading towards salvation, the ultimate goal of the practitioner" (Chutiwongs, 1982, pp. 76-77).

Four levels of tantric practice were followed in Vajrayana Buddhism. They are-

a) Kriyatantra, dealing with instructions in rituals and exterior modes of worship. This first grade of Tantra represents the opening of the ascetic's eye of wisdom.

b) Charyatantra consists of ceremonies, religious exercises, and meditation. This practice enhances the capacity for deep thinking and profound meditation.

c) Yogatantra is a more private and profound yoga practice with the instrument of mudra and mandala. At this level, a yogi devotes himself to his patron god, dedicated to guiding him toward the only truth of being.

d) Anuttarayogatantra, in this final stage, the conscious mind of humans will unite with infinity in a transcendental oneness. This is the final stage of a Bodhi hood; one becomes enlightened and becomes Buddha.

The first two are known as 'External Tantras.' The third and the fourth represent, respectively, a higher and the highest types of Tantras, known together as 'Internal Tantras' or 'Esoteric Tantras.' (Chutiwongs 1982, p. 80).

The two essential elements of Tantra are Chakra, the wheel of consciousness, and the Mandala, the concentrated representation of the universe in a diagram of two-dimensional forms and symbols. Color is a primary material of both chakra and mandala. Still, as the ruins of these monasteries no longer consist of any colorful element, this study primarily focuses on forms, symbols, and other elements with physical properties.

3.1.1. Chakra-The Wheel of Consciousness:

The principal element of tantra is the Human body as a primordial existence of universal truth. The physical human body is considered a metaphorical pyramid of transcended chakra. These chakras are believed to be the spinning centers of spiritual energy ascending from the bottom of one's spine to the top of the head (Meadow, 1993, p.69). The active number of chakras varies from school to school and religion to religion. In Bengali Buddhist schools, seven primary bodily chakras were addressed. Tantra is blended in different religions so intensely that it is difficult to separate the meanings and symbols used in the extinct Bengali Buddhism with minimal hint of its use and understanding. This study still tries consolidating tantra's primary and common elements to shed light on Bengali

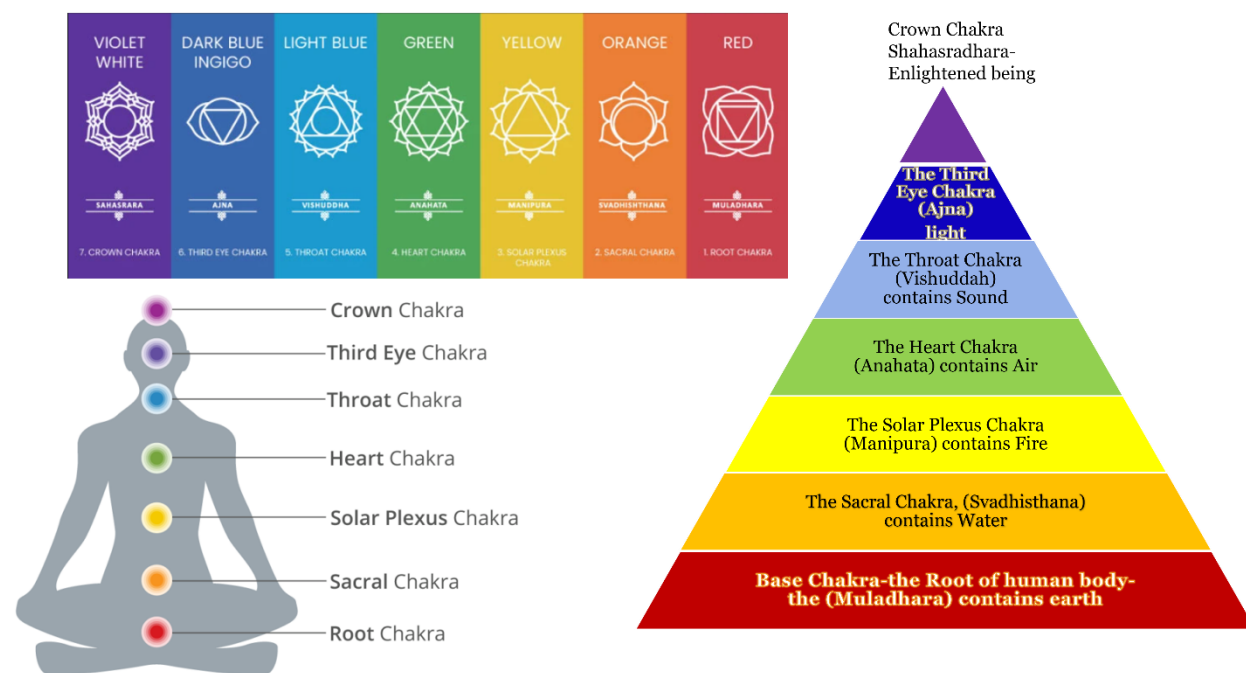
Buddhist architecture. Table-1 shows these seven chakras' names, elements, symbols, and activated energy (Meadow, 1993, p.69).

Table-1
Seven Primary Chakras of the Human Body

| No | Chakra | Element | Symbolic forms | Number of Lotus Petals | Activated Energy | Animal |
|----|------------------------------|-------------|----------------|------------------------|---|----------------|
| 1. | Root/Basal/Muladhara | Earth | Square | 4 | Locomotion (feet) | Elephant |
| 2. | Genital/Sacral/Svadhishthana | Water | Crescent | 6 | Prehension (Hands) | Crocodile |
| 3. | Solar Plexus/Navel/Manipura | Fire | Triangle | 10 | Elimination (Anus) | Ram |
| 4. | Heart Anahata | Air | Hexagon | 12 | Procreation (Genital) | Antelope |
| 5. | Throat/Vishuddhadha | Space | Circle | 16 | Speech (Mouth) | White Elephant |
| 6. | Eyebrow/ Third Eye/ Ajna | Mind | Dot/Point | 2 | Intuition/ transcendent psyche | Owl |
| 7. | Crown/ Shahasradhara | Nothingness | | 1000 | The ultimate knowledge of universal truth | |

Note- The table shows the symbolic elements of the chakra. By Meadow, 1993 in 'Yogicchakra symbols: Mirrors of the human mind/heart'. *Journal of Religion & Health*, 32(1), p. 68.

Figure-2
The Placement of Chakras in the Human Body is Regarded as a Metaphorical Pyramid.



Note- The image is a composition of collective symbolical representation of chakras. It was created by the author with the help of open-source images from the public domain (<https://www.healthline.com/health/fitness-exercise/7-chakras> and <https://www.rareearthgallerycc.com/blog-entry/85/the-7-chakras>).

The materiality of the mundane world resides in the bottommost chakra- the base chakra or 'Muladhara' associated with earth. Located in the bottom of the spine, it keeps the body grounded in the earth with all earthly elements, emotions, and actions. The middle or fourth chakra is the heart chakra associated with air. Being in the body's center, the heart chakra effectively works towards the universal balance. The fifth chakra is the throat chakra, symbolized by a circle and associated with space or sky—the first elevation of the physical world in symbolic manifestation. In architecture square is one of the most stable forms where the circle symbolizes motion. The transition of consciousness from a static position with the motion of wheels to an actively dynamic level elevated from the bottom is symbolized by the elevation of chakras from the base of the spine to the throat. The highest enlightenment that frees oneself from the cycle of rebirth is in the crown chakra. The element of the chakra is nothingness, the eternal

void. Again, a pyramid is a form of ultimate stability with a direction of upward infinity. The moving wheels in a pyramid represent the duality of dynamic forces inside a static body—a primary concept of tantric Buddhist philosophy. The organs and limbs of the human body are also associated with five universal elements earth, water, fire, wind, and sky. All physical movements, therefore, are connected to the universal motions of celestial elements. Regulating these movements could possibly place humans in a balanced position in that universal circulation. Thus, mudra or bodily gestures and postures became an essential part of these practices and were divided among the six chakras starting from the base to the third eye level of enlightenment. Each chakra represented a specific energy, and one or more patron gods guided the initiator to draw that energy upward by activating the bodily chakras through appropriate postures and gestures. **Figure-2** represents the color and position of seven chakras in the human body. This philosophy was symbolically expressed in the diagram of the Mandala—the encrypted instructions of tantra, where humans were symbolized as a ‘Yantra’ (Machine) who abide by mantra (the hymens/ chants) and mudra experienced the transcendental union in universal balance.

3.1.2 Mandala-Two-Dimensional Diagram of the Universe:

According to the Encyclopaedia of Britannica, a mandala is a symbolic diagram used in the performance of sacred rites and as an instrument of meditation. The mandala represents the universe consecrated as a collection point of universal forces (Encyclopaedia of Britannica, *Mandala* 2023). It is perceived as a sacred geometric diagram guiding the initiator to the center of the universal origin, where the cosmic balance of two equal and opposite forces is stored. Even though it is drawn two-dimensionally, it is perceived in its three-dimensional layout. Mandala is also a two-dimensional representation of the transcendent body of human beings, which incorporates the bodily chakras with cardinal directions (King, 2020). **Table-2** shows the directions of mandalas and their multi-tiered symbolism, along with their associated elements and chakras that connect the mandala to the universe’s movement. This ancient diagram of symbols had an immense impact on the development of the Buddhist architecture of Bengal.

Table-2

The symbolic representation of cardinal directions of Mandala

| No | Cardinal directions | element | Symbol | Residing Buddha | Associated Chakra | Transcendent wisdom |
|----|--------------------------------|--|------------------------------------|---|---------------------------|--|
| 1. | East(the bottom of a mandala) | Water | wheel | Vairocana | Sacral Chakra-Svadisthana | Mirror-like Transcendent Wisdom |
| 2. | South (to the left) | Earth | Jewel | Ratnasambhava | Basal Chakra-Muladhara | Transcendent Wisdom of Equanimity |
| 3. | West (the top of a mandala) | Fire | Lotus | Amitabha | Solar Plexus-Manipura | Transcendent Wisdom of Discrimination that leads to compassion |
| 4. | North (the right of a mandala) | Air | double vajra and the flaming sword | Amoghasiddhi | Heart-Anahata | Transcendent Wisdom of All-Accomplishing Action |
| 5. | Center | Ether(Sky) | Vajra | Akshobhya | Throat-Vishuddhadha | Transcendent Wisdom of the Absolute Truth |
| 6. | Zenith | Above the mandala—the elevated nothingness | a bell and Vajra. | the primordial or Adi Buddha Vajradhara | The third eye-Ajana | Five-fold Transcendent Wisdom-of enlightenment |
| 7. | Nadir | At the depth below the Mandala | bell and vajra | The primordial or Adi Buddha Vajradhara | | Fivefold Transcendent Wisdom |

Note- The table was prepared by the author from collected references from Nyingmanet by King, W. 2023. (<https://nyingmamandala.org/2020/05/20/mandala-principles/>) in the public domain.

Generally, a mandala is entered from the east—the direction of water contained in sacral chakra that purifies one’s body. West is the direction of fire—purifies even more by burning all the debris of one’s soul. South represents earth—the grounded mundane world associated with the basal chakra symbolized by the square. North is the direction of air that conducts its primary functions in the heart and actively contributes to restoring universal balance and the last spot for ascending to the elevated state. Situated in the center, the sky represents the first elevation toward the ultimate enlightenment with the knowledge of the universal truth. The last three chakras of the human body, from the throat to the crown, are the elevated transcendental chakras where the heart balances matter and spirit. The final elevated direction is the zenith representing the universal nothingness and is perceived as a radiant diamond from which all colors arise. The presiding god of zenith is the primordial or Adi Buddha Vajra Dhara; his symbols are

the bell and vajra, shown crossed at his heart. Therefore, the point in the heart of Adi Buddha where two vajras cross is the point where all active consciousness meets in a world of universal balance.

Symbolism, hence, became essential identification of Vajrayana Buddhism based on esoteric tantric practices of Bengal. To adopt these methods, one must be elevated from the material world and reach a higher level of conscience in the path of asceticism. The kriya and charya tantra prepared one to enter the elevated and secret realm of esoteric tantra with the guidance of a teacher. Mandala attained a life-scale three-dimensional assembly in the architectural layout of Bengali Buddhist Monasteries, which was never practiced before in any form or religion.

3.2. Bengali Buddhism-Vajrayana (Thunderbolt/Diamond Vehicle) School:

After a thousand years of forming the first two schools, Hinayana and Mahayana, Vajrayana Buddhism came to light. The Third and most dynamic school of Buddhist creed, Vajrayana, was erected in the territory of ancient Bengal. Nevertheless, it was the least discussed and exposed school of Buddhism until now. The evolution and development of the Vajrayana Buddhist school were embedded with the long-prevailing eastern Indian esoteric practice of tantra, widespread in ancient Bengal, especially in the eastern part. Even though different scholarships described Vajrayana as a distorted branch of the Mahayana Buddhist school, Bengal, the birthplace of Vajrayana school, had a minimum connection with the Mahayana schools of India when Bengali Buddhism started to flourish. Furthermore, until the 7th century, branches of Hinayana schools were prevalent in Bengali metropolises (M., 2007). There are enough references to believe that Vajrayana was an independent Buddhist school erected and developed in Bengal with the influence of prevailing tantric practices. The Buddhist monks adopted the indigenous practice of tantra order as a faster means to attain Buddhahood. With tantra, indigenous ingredients, such as esoteric yoga, mystic formulae, hymns, rituals, magic, sorcery, and astrology, crawled into the realm of Buddhism (Chutiwongs, 1982, pp. 76-85). The four hundred years of the Pala dynasty of Bengal, and the Deva, Chandra, and Kharag kingdoms of eastern Bengal, encouraged the practice of Tantra in all forms in this Bengali Buddhist School. Bengali Hinduism and Buddhism melted together in the new Vajrayana/ Thunderbolt doctrine. The immense power of tantra had moulded the Bengali Buddhist schools in such a way that its imprint was visible in every aspect of the societal order, from material culture to spiritual elevation. The Buddhist architecture of Bengal is a vivid example of the influence of tantra, which created the unique morphological characteristic of Bengali Buddhist monasteries.

3.3. Bengali Buddhism-Shahajayayana:

Shahajayayana school rejected the first two steps of Vajrayana tantra and directly entered the internal or esoteric Vajrayana yogic practices. This school was developed in Bengal with numerous indigenous elements in its order. It evolved around the concept of Dehatattwa¹- a scientific knowledge of the human body revolving around cosmic sexuality as yet the fastest means to experience supreme consciousness. With the elimination of elementary levels of Vajrayana schools, different rites, rituals, and education were also discarded, leading this school towards a mystic philosophical direction apart from religious bindings. Over time, this school focused on the human body, gradually eliminating gods and goddesses from its creed and replacing them with the enlightened human mind in different elevations, which is known as Bodhisattva. As the need for Gods became less, the monastery's size also converted smaller yet elevated, which is visible in the later monasteries of Bengal. The earlier monasteries erected following the Vajrayana tradition had a larger spatial layout ensuring the traditional mandala pattern.

4. Buddhist Monasteries of Bengal:

Buddhism started with the ideology of ceaseless wandering in the path of asceticism. Over time the number of monks increased to such that a designated place was needed to accommodate these monks. The term 'vihara' (monastery) came into scholarship as a place of residence for these Buddhist monks. Viharas became a permanent shelter for the monks to stay and enhance their knowledge and spirituality on the path of the bodhisattva (enlightenment) through study and practice (Kumar, P. 2018, p.62). The primary elements of Buddhist monasteries were cells for the monks, fire halls, huts for what was allowable, congregation space, privies, wells, lotus ponds, and shades (Conze 1954, p. 20). It became the standard functional layout of Buddhist monasteries until recently, with necessary modifications. The monasteries of Bengal are not much different from the functional point of view. The fundamental difference is in spatial layout. The primary source of knowledge about the most ancient Buddhist monasteries of Bengal are iconographies and ancient texts. The earliest physical example is probably from the 7th century. A chronological transformation and development have been seen since then. This study is focused on six Buddhist monasteries built from the 7th to 12th century in Bengal.

The morphological layout of Bengal Monasteries begins with an enclosed open quadrangular courtyard surrounded by small, large, inward-looking cells with no opening in the outer wall. These cells were accessed from a continuous

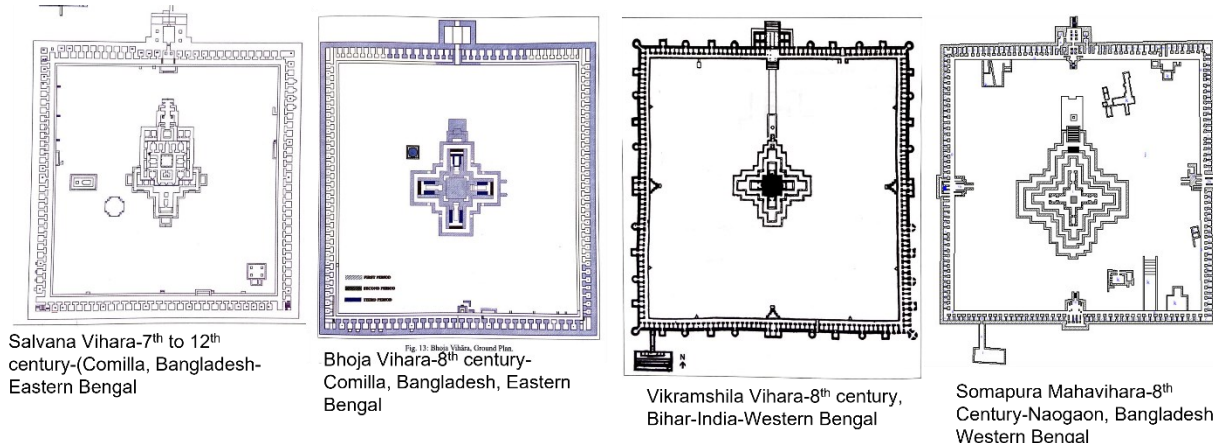
¹ Deha literally means living body, and tattwa means science, knowledge. The word literally means the knowledge or science of the Body.

veranda that is open towards the courtyard. These monasteries were entered from an elaborate gateway projected outside the main structure. Burned brick construction and extensive ornamentation of terracotta was an indigenous Bengal trademark in all aspects. The shrine architecture was probably another Bengal addition to Buddhist material culture (Reza, 2012). The larger viharas had a central shrine in the middle of the courtyard (Rahman, 2007, p.292). Comparatively small monasteries had a consolidated shrine or a shrine outside the complex. Hence, the monasteries of Bengal can be divided into three types-

4.1 Monasteries with Central Shrine:

Figure-3

Monasteries with Central Shrine

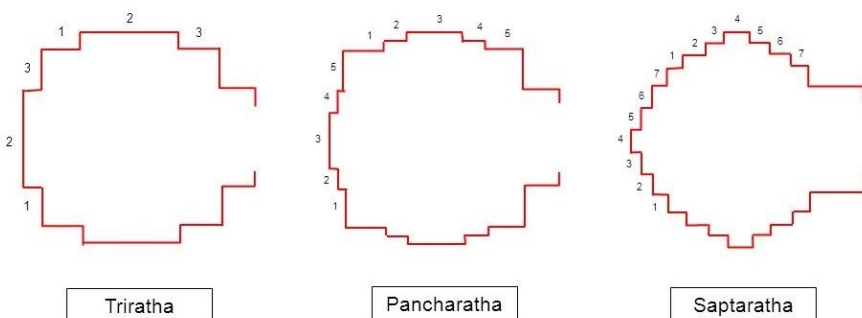


Note- Plans are collected from the Department of Archaeology, Bangladesh. Not in Scale

Figure-3 shows the surveyed monasteries of this typology. Two are from the eastern part of Bengal, and two are from the western part. These monasteries were specious in plan layout with connecting corridors on a high plinth surround an airy central courtyard on all four sides. The main entrance was always in the northern wing of the vihara, which is grand in scale, matching the imposing monolithic existence of the monastery. In the center of the court stands the monastery’s shrine. It was necessarily crucified in shape with diminishing terraces that gradually rose from the ground level to a higher elevation and with a single staircase to access all ascending terraces, necessarily from the north. The arms in the bottommost levels of these shrines follow the pancharatha (five-folded armed) pattern of North Indian Temple development with a Shaptaratha (seven folded armed) wing in its entrance in the north. The second terrace above it had a triratha pattern (3 folded armed), and the top layer, which is also the structure’s core, is a fundamental square shape. As a central shaft, this square holds the cross. **Figure-4** shows these three types of construction systems of ancient northern India. The crucified shrine is probably a Bengali innovation (Reza, 2012, pp. 135-226). The evolution of the crucified shrine, highly influenced by local tantric practice, modified the layout of Indian temples following a mandala layout, which was discovered in the study. Placed in the courtyard’s center, these crucified shrines completed a square mandala in its two-dimensional layout. **Figure-6** is the visual description of such similarity.

Figure-4

Formation of Ratha (arms) of Indian Temple Architecture



4.1.1. Salvana Vihara:

Until now, Salvana is the earliest constructed vihara, with a central shrine excavated in Bangladesh. It belongs to the eastern group of Monasteries. It was probably erected in the 7th century and had several remodelling until the 12th

century. The square plan measuring roughly 167.6 m. on each side and containing 115 living quarters surrounding a quadrangular courtyard in the middle. It has an obscurely crucified temple in the center of the courtyard. The crucified shrine was probably erected around the 7th century, and the surrounding monastic cells were built later (M. & Rashid, 1997). This central temple was remodelled at least six times. The first two phases could not be identified as they were covered with the crucified structure built in its third development phase. The later transformation is more curious as the crucified shrine turned into an oblong spacious, and functional building by its final alteration, probably between the 10th and 11th centuries. The rest of the arrangements are prototypes of Bengali monasteries that were described before. Apart from them, the only substantial feature is the corner staircase leading to an upper floor that no longer exists (M. & Rashid, 1997, pp. 32-41). Hence, it can be assumed that this monastery and probably many other monasteries achieved multi-story structural technology within the limitation of brick.

4.1.2. Bhoja Vihara:

Located in the eastern zone, the 8th-century Bhoja Vihara is one of the still surviving ruins of ancient Buddhist monasteries of Bangladesh. It is measured 175 square meters of a quadrangular area with an enclosed courtyard and high and protected walls on all four sides (Chowdhury & Chakravarti, 2018. P-270). The four arms of the monastery consisted of a series of 122 cells. The crucified temple in the middle of the courtyard had two ascending and diminishing levels of circumambulatory path (M. & Rashid, 1997. P-56), which is not drawn in the documented layout prepared by the Department of Archaeology, Bangladesh, due to incomplete excavation work. This also explains the variation in the number of arms of the temple, which are not symmetrical on all four sides.

4.1.3. Vikramshila Vihara:

Vikramshila is located in Antichak in Bihar, India. The archaeological examination reveals that this vihara was constructed in one single phase. The quadrangular vihara measures 330 m. x 330m. The center of the courtyard has a cruciform shrine with three ascending terraces. (Caudhuri et al., 2018, pp. 487-489). Four colonnade antechamber or mandapas are identified in the four projected arms of the crucified structure, countering the four outward-facing central sanctums on the topmost in all four cardinal directions. The monastery had a total of 253 cells. The eastern, western, and southern wings have larger rectangular suits of three cells projected outside in their middle, accessed through the first layer of rooms from the veranda. The addition of bastion-like cells in four corners and three additional temples were probably a Western Bengal evolution leading to the viharas with the consolidated shrine.

4.1.4. Somapura Mahavihara:

Somapura is one of the largest Buddhist monasteries south of the Himalayas. This 8th-century monastery is the pioneering one of its kind. It is nearly square in plan, measuring 274.05m from north to south and 273.70m from east to west. The number of excavated monastic cells is 177 surrounding a large central quadrangular courtyard. Three outward-projected internal temples with circumambulatory paths are consolidated with the other small cells in the middle of the east, south, and west arm. The center of the court has a substantial cruciform shrine with three gradually ascending levels (Rahman, 2007, p. 294). The shrine in Somapura Mahavihara is the least affected example of central shrined monasteries. All three terraces were identified, even though the bottom-most terrace is now protected under the surface level.

4.1.5. Discussion-Monasteries with Central Shrine:

The monasteries with central shrine-

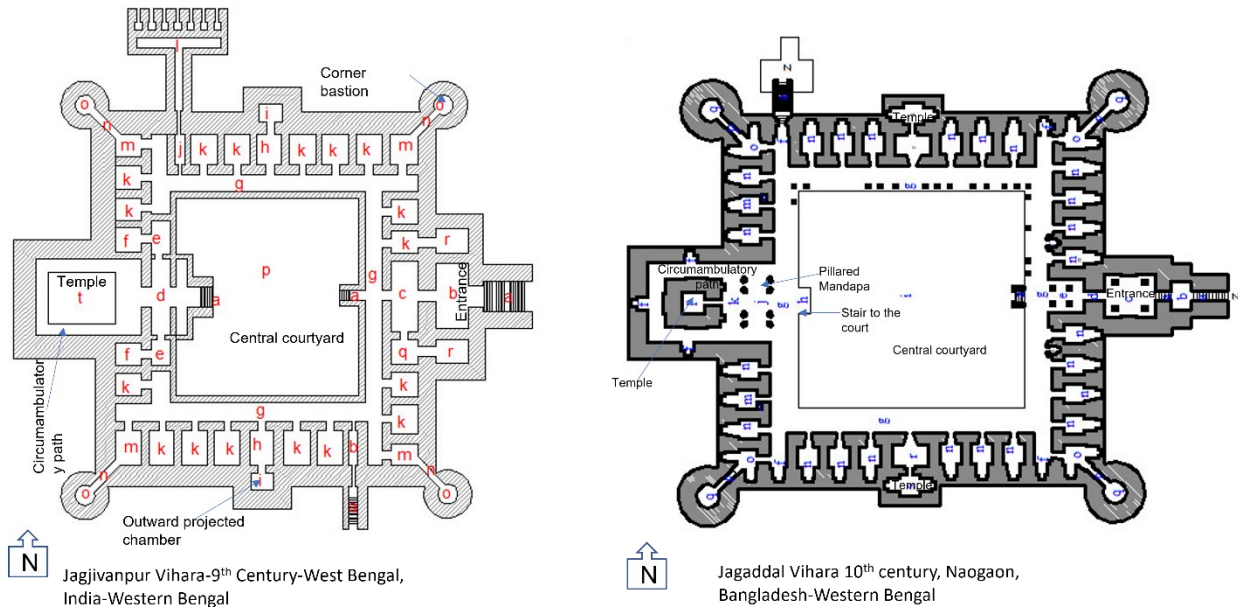
- a. Are spacious enough to incorporate religious and material functions in one walled compound, a unique development in Buddhist monasteries started in Bengal.
- b. These monasteries were entered from the north. North is the direction of the air and also indicates the Himalayas, which are still regarded as a sacred abode of gods and goddesses. The reason behind entering from the north is still under examination. However, the north is a sacred direction in many North Indian Hindu temples for entering. Only the monasteries with central shrines had this distinct northern entry. The central shrine was also entered from the. A single stairway connecting the circumambulatory path in all the temple levels provides an ascending spiral layout which is also interestingly curious and has enough space for philosophical interpretation.
- c. the crucified shrine architecture probably started in eastern Bengal and was incorporated in the center of a monastery. Nevertheless, the western Bengal monasteries achieved universal excellence in the technology of brick construction, which is evident in the formidable existence of the 80 ft high, multi-terraced central temple of Sompura Mahavihara.
- d. The monasteries of eastern Bengal do not have consolidated temples in the arms of a quadrangular section, whereas the monasteries of western Bengal have three consolidated temples on three sides

of the quadrangular quarters, which should be a mature development. Perhaps the western Bengal philosophical advancement started later and was not very popular among the Buddhists of eastern Bengal as no significant change in the monastery layout was discovered until now.

4.2. Monasteries with Consolidated Shrine:

Figure-5

Monasteries with Consolidated Shrine



Note- Collected from the department of Archaeology, Bangladesh. Not in scale.

Monasteries with consolidated shrine was probably a later development in Bengali Buddhism. Among the excavated monasteries, this type is found in a few smaller monasteries starting from approximately the 9th century, where the shrine was consolidated with the monks' living quarters. Generally, the western wing of the monastery had this shrine. The main temple is entered by a mandapa or antechamber in front of it. A circumambulatory path around the main temple starts and ends in the mandapa. This mandapa also separates the temple area from the circulation corridor. The rest of the monastery followed the typical spatial pattern consisting of a central quadrangular courtyard surrounded by connecting corridors and the monks' living quarters open towards the corridors. The Ratha-type temple layout consolidated into a quadrangular plan of a smaller, more functional temple space. Two monasteries shown in **Figure-5** were studied of this type. Both were developed in western Bengal after the 9th century. Even though they follow the same principle of spatial order, a substantial change occurred in the morphological character of later-period monasteries, which is evident in these two case studies.

4.2.1. Jagaddala Mahavihara:

Jagaddala Buddhist viharas was constructed by Rampala, the Pala king, between the 9th and 10th centuries. It is situated in Naogaon district of Bangladesh. The plan of this vihara is quadrangular, with a spacious courtyard in its center. The quadrangular arms are terminated with a circular bastion in all four corners of the monastery sprung outside the square. It is measured 60.5m in north-south and 63.37m in east-west direction. This vihara is entered through an externally projected mass from the center of the eastern wall. The shrine is also projected outside, mirroring the entry from the center of the western wall about 14.78m (Caudhurī et al., 2018, pp. 199-207). The temple is square in shape, measuring 8.75m x 8.75 m. with a circumambulation path around it. Two pillared antechambers in front of the shrine visually and spatially separate the shrine from the common circulation corridor. The court is accessed from the middle of the east and west verandas. (Remya, G.S. 2018, p.490). Two consecutive cells are constructed in the middle of the northern and southern wings. The rear cell is projected outside and is entered from the frontal cell, which could be used as a temple. The frontal cell is connected to the veranda. There are 34 cells other than the corner bastions in the ground plan with a plinth at a 5.5 m—elevation from the ground level (Zakaria, 1994, p.8).

4.2.2. Jagjivanpur Vihara:

Located in Maldah, West Bengal, India, this monastery is another example of a monastery with a consolidated shrine. Typically quadrangular, measuring 24.5m in north-south and 23.5 m. in east-west direction. This monastery was built in the 9th century by the Pala king Mahendrapaladeva. The plan shows an outward-projected grand entrance with two pillared hallways and a series of ascending stairs in the center of its east arm. The primary shrine is in the center of the western extension, projected outward in the western boundary reflecting the main entrance. This monastery also has four bastions in four corners. The courtyard is approached from the east and west corridors with small descending steps running down to the elevated courtyard (Caudhuri et al. 2018, p. 489). The plan shows the segregation of the temple from the living quarter through walls and accessed only from the courtyard, unlike the other example found in this type. The center of the north and south arms has two sets of double cells where the rear cell is projected outside, accessed from the frontal cell aligned with other cells, and opens to the connecting corridor (Caudhuri et al., 2018, p. 217).

4.2.3. Discussion- Monasteries with Consolidated Shrine:

The later development of religion probably brought this type of monastery to the surface. The monasteries with consolidated shrines are only found in western Bengal. The studied monasteries have almost identical features.

- a. Both the monasteries are smaller in scale than those with central shrines. They represent a sense of citadel-like layout with corner bastions and a high elevation in its floor level from the ground outside the monastery wall.
- b. Both the monasteries were entered from the east with an ascending staircase and a lofty hallway projecting outside that ends in the attached corridor surrounding the central courtyard from all four sides. Again, this spinal corridor seems to be a common identification of Buddhist monasteries from the very early period of this religion's development. However, the remarkable development is the order of a quadrangular courtyard which was not specified in any previous monasteries outside Bengal.
- c. The primary temple is situated in the center of the western wall projecting the entry, ensuring the symmetry of the layout. One significant difference in the accessibility and control of the temple is visible in these two plans. In Jagjivanpur Vihara, the temple area was entirely isolated with enclosed walls from the corridor, which created a 'U' shaped circulation in the entire monastery complex, which is a unique characteristic of this monastery. It is not known if the segregating walls were constructed at the time of the erection of this monastery or later. However, in Jagaddala Vihara, the circulation corridor continued on all four sides, and the mandapa and the circumambulatory area segregated the temple.

Two small outward projection was visible in the center of the north and south façade, which has a high possibility of being two additional temples or prayer space as these two projected rooms had controlled entrance from a frontal room connected with the continuous corridor. Scholars in Sompura Mahavira defined temples in similar spaces. Hence with the change of size and use of the monastery, the temple size also changed.

4.3. Monasteries with External Shrine:

The monasteries built before the 7th century had the temple separated and followed no specific pattern in layout. However, the functional arrangements of the residential quarters followed the standard pattern of Buddhist monasteries in addition to an open courtyard in the center. A wide variation in temple architecture is found in pre-8th century Buddhist architecture. The shrines were separated from the living quarters on the monastery premises or nearby. However, the cruciform temple structure appeared sometime in the 7th century or earlier. The Pancharatha layout is visible in the temples of this group. East was the direction of the entrance. The earlier shrines' size seemed humble, isolated, and single-storied, and monasteries adjacent to those shrines matched the pattern with their simple existence. This situation changed within one hundred years, visible in the later monasteries. The monolithic high wall, protected entrance, lofty internal space with many cells, and unification of the temple inside the walled premises in all monasteries from the 8th century testify to a formidable and secret religion requiring extreme control.

5. Philosophical Interpretation in Architectural Morphology of Bengali Buddhist Monasteries:

The first introduction of Buddhism in Bengal is still an obscure history. Yet, the substantial number of excavated monuments, iconography, and scriptures loaded with symbolic meaning bear the testimony of Vajrayana and Shahajayana Buddhism of Bengal. These symbols extremely influence the architectural pattern of Buddhist schools of Bengal.

5.1. Vajrayana Development:

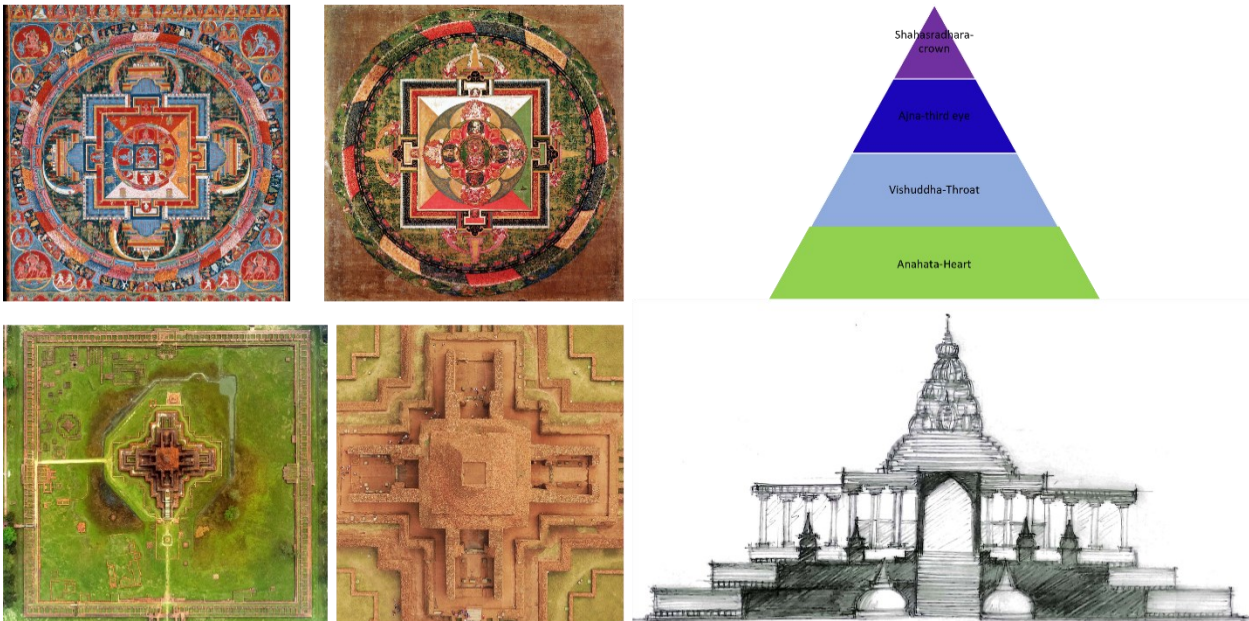
This study reflects significant morphological development in monastery architecture in the rise and transformation of Vajrayana Buddhism in Bengal. The study represents a distinctive development of monastery culture with crucified temples. This temple was outside the monastery until the 7th century and was primarily found in the eastern Bengali monasteries. After the 7th century, this crucified temple was pivotal in the heart of Bengali monasteries with its grand appearance in plan, elevation, and ornamentation. It established itself as the central element from all perspectives and its symbolic representation. The timeline of the development and flourishing of Vajrayana Buddhism influenced the physical development of the Bengali monasteries while incorporating the elements of tantra in Buddhist philosophy. The instructions were encrypted in the walls as terracotta plaque. The mandala is revealed in its three-dimensional form in Buddhist monasteries of Bengal.

The outer boundary of a mandala is primarily square, with lines and different diagrams connecting all cardinal points. Buddhist monasteries of Bengal adopted the shape of a square in their overall layout. The mandala represents a spiritual journey from the outer world to the core of conscience, where matter and spirit unite. Plans of the monasteries with central shrines have a striking similarity with the layout of a mandala. The pattern of the Mandala is vividly visible in the architectural layout of Somapura Mahavihara, referred to in scholarships, too (Caudhuri et al., 2018, p. 485). This study analyzed this monastery in the light of the mandala principles and the functional orders of chakras. **Figure-6** shows this similarity and conceptual symmetry between the spatial pattern and orientation of the Buddhist monastery and the imaginary spaces of a mandala.

- The crucified temple is placed in the center of the complex- which depicts Sky and Ethar, the first elevation of human consciousness and represents the divine wisdom of absolute truth.
- The plan is crucified with elevated arms flanked on all four sides, which rises in three gradually diminishing terraces. This crucified shape was formed with a solid square in its middle, holding the entire structure as the core of that building. A nine-square grid could instantly be drawn by connecting the large arms of this cross in a two-dimensional layout. Almost all the visible and invisible lines of this temple create a pure square. Square is the symbolic representation of human conciseness- the life of humans on this earth with the deep urge for spiritual elevation. Hence the lofty ground floor circumambulatory terrace with the sculptural idols of 64 gods and goddesses could be identified as the level of consciousness where much guidance was needed to reach the subsequent elevation.
- It was entered from the north- associated with air and hearth chakra, representing the wisdom of all accomplished acts. All yogic practices are conducted with a regulating breathing system in one's body. Therefore, we can assume this temple must be entered from an elevated consciousness when an initiator was prepared to experience the universal balance through the path of the heart (cardinal direction north). He reaches the center, which consists of the wisdom of truth and represents the sky. Therefore, the transcendental elevation was well portrayed with the elevated terraces in central temples. Therefore, the first ascending level should represent the throat chakra-the communication hub of the body. In every turn of the crucified circumambulatory path on that terrace were statues of a god, and the entire wall of this temple was extensively clad with terracotta motifs of symbolic origin. The method of communication would be the chants or mantras as the disciples encircle the temple uttering the chants by establishing a connection with the motifs on the wall. Again, the circumambulatory path had a significant number of sharp turns in changing directions at every levels which made this temple and other temples of this type entirely different from any previous Buddhist temples or stupas erected in India.
- The upper terrace was smaller in size, conforming to the pyramidal shape of the temple, and could be perceived as the third eye chakra, whose element is light and characteristic is vision, where residents the primordial god, Vajra Dhara. This top-level consisted of four temples or chambers on all four sides with an elevated base for a God. These chambers were countered by colonnade antechambers, presenting the duality of similar and opposite forces. The center part of the shrine is a solid square raised high to the now disappeared shikhara. The now-disappeared shrine, therefore, would be the ultimate nothingness of universal origin- the diamond. It probably gave the temple a complete formation of a pyramid conceptually representing a journey of a human to Buddhahood.

Figure-6

The Conceptual Layout of Somapura Mahavihara Inspired by Buddhist Mandala



Note- Top left- Mandala of Jhana Dakini, late 14th century, in the Metropolitan Museum of Art, New York, USA collection and Mandala Collection in British Museum, London. (Encyclopaedia of Britannica, *Mandala* 2023) Bottom left- Aerial view of Somapura Mahavihara (Dimir, 2022). <https://www.historicismysteries.com/wp-content/uploads/2022/02/Somapura-Mahavihara.jpg>. and Aerial view of the central shrine of Somapura Mahavihara. <https://visitworldheritage.com/en/eu/somapura-mahavihara/93e425f7-17ee-4577-a40e-3ea5c12cf1f1>, In the public domain. On the right, the conceptual section of the central shrine of Somapura Mahavihara to understand the relationship between the levels of consciousness and the elevated terraces of the central temple of the monasteries.

5.2. Shahajayana Development:

The later development of the Shahajayana school started directly in the highest grade of Vajrayana yogic practices as yet the fastest means to experience supreme consciousness. This school rejected all forms of sectarian education and unnecessary religious rituals. As this school was entirely concentrated on the physical properties of the human body and believed that one's body is the source of knowledge of the ultimate truth, the elimination of many gods and goddesses influenced the remarkable change in architecture. The monasteries with the consolidated shrine are later developments that match the timeline and place of Shahajayana's development in Bengal. Rational reduction of the size, orientation, and change of functional zoning can easily be related to this philosophical transformation in the Buddhist creed. Instead of constructing a crucified temple in the center of the courtyard, the monasteries elevated themselves to a significant height, higher than any previous lofty monasteries, yet, a smaller plan in a scale comfortable to the human eye. The practice of overbearing superstructure construction was significantly reduced in these monasteries of later periods. The temples became simpler and followed a simple layout of Hindu temples with an addition of a circumambulatory path around the sanctum. Hence, the deduction of the crucified temple and the development of a consolidated shrine are probably a Shahajayana influence that needs further investigation.

6. Results:

- With Vajrayana Buddhism's development, Mandala's philosophy and principles entered architecture, which transformed the spatial pattern of the Buddhist monasteries of Bengal.
- The crucified shrine evolved and developed with the rise of the Vajrayana practice and was incorporated in the center of the monastery in the 7th century as a complete layout of the mandala of tantric practice. It developed further in western Bengal in the 8th century, seen in the monasteries with a central Shrine of this period in the western part of Bengal. The three added temples in the center of the quadrangle's three arms among the monastic cells represent all the cardinal directions, patronizing gods and goddesses with their spiritual virtues.
- Hence, it can be said that Monasteries with a central shrine represents a three-dimensional layout of a Mandala. It achieved excellence in the design of Somapura Mahavihara with all its symbolic patterns, forms, and diagrams expressed in the plan and ornamentation of this monastery.
- The religion evolved to Shahajayana probably into the later 9th century in the western part of Bengal. Shahajayana started from an already elevated level and was focused on the esoteric practice of cosmic

sexuality. Hence, religion's unnecessary objects, education, and practices were rejected. It was reflected in architectural forms as well.

- e. Monasteries developed in later periods in western Bengal are monasteries with a consolidated shrine. Still quadrangular in layout-representing the human body on Earth. They were smaller in scale, and no temple in the middle of the courtyard reflects the deduction of unnecessary gods and the lofty monumentality of the religion to a more human-oriented approach, which is a significant transformation from the previous monasteries.
- f. Monumentality was a primary characteristic of the monasteries with central shrines. This overwhelming monumentality of the monastery was reduced to a human scale in the later development of the monasteries with consolidated shrines. However, the structures were elevated more than any other previous monasteries from the ground. These elevated smaller monasteries of quadrangular shape indicate the influence of the later philosophical development of Shahajayayana, which was entirely concentrated on the human body and its connection to the universe. The religion's transformation towards the philosophical origin from the magical layout of the mandala is visible in later monasteries of western Bengal. Conversely, the eastern Bengal monasteries were still following the crucified temple and mandala form of the Vajrayana school as the development of Shahajayayana is more prominent in western Bengal than the eastern.
- g. As the religion turned into a practice of esoteric yoga, the need for confidentiality gave birth to a doctrine of encrypted texts in art and architecture. For the same reason, individualism was more focused than the preliminary communal approach of brotherhood-the sangha. Sangha remained yet became dysfunctional over time. The result is visible in smaller and highly protected citadel-like monasteries.
- h. With Vajrayana Buddhism's development, Mandala's philosophy and principles entered architecture, which transformed the spatial pattern of the Buddhist monasteries of Bengal.
- i. The crucified shrine evolved and developed with the rise of the Vajrayana practice and was incorporated in the center of the monastery in the 7th century as a complete layout of the mandala of tantric practice. It developed further in western Bengal in the 8th century, seen in the monasteries with a central Shrine of this period in the western part of Bengal. The three added temples in the center of the quadrangle's three arms among the monastic cells represent all the cardinal directions, patronizing gods and goddesses with their spiritual virtues.
- j. Hence, it can be said that Monasteries with a central shrine represents a three-dimensional layout of a Mandala. It achieved excellence in the design of Somapura Mahavihara with all its symbolic patterns, forms, and diagrams expressed in the plan and ornamentation of this monastery.
- k. The religion evolved to Shahajayayana probably into the later 9th century in the western part of Bengal. Shahajayayana started from an elevated level and focused on the esoteric practice of cosmic sexuality. Hence, religion's unnecessary objects, education, and practices were rejected. It was reflected in architectural forms as well.
- l. Monasteries developed in later periods in western Bengal are monasteries with a consolidated shrine. Still quadrangular in layout-representing the human body on Earth. They were smaller in scale, and no temple in the middle of the courtyard reflects the deduction of unnecessary gods and the lofty monumentality of the religion to a more human-oriented approach, which is a significant transformation from the previous monasteries.
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7. Conclusion:

Even though the number of excavated sites is limited, the rise and fall of Vajrayana canon is clearly visible in Bengali Buddhist monasteries. Tantra played a significant role in determining the morphological evolution of Bengali Buddhist monasteries from the 7th to the 12th century. The religion not only adapted tantric orders in its texts and practices but tantra reformed the Buddhist architecture of Bengal according to its convenience. The introduction of the crucified temple as a physical and symbolic expression of Vajradhara reached its zenith in the 8th century. However, it lost its triumph within a hundred years, and the architecture returned to its humble form of small, elevated masses. The land and climate of Bengal never permitted formidable architecture here. Nature had set this land's course of life and material culture for thousands of years. The later Shahajayana Buddhism was more human-oriented that rejected almost all the gods and goddesses, bringing back the temples and monasteries to their subtle form. The subtraction of sublime and communal spaces reflects the later philosophical transformation that emphasized individual excellence as a part of the community. This research would like to conclude its discussion here with the conjecture that the architectural morphology of the Bengali Buddhist monasteries was entirely characterized by tantra, which was not a religion, but a set of primordial indigenous concepts of human origin that was adopted by many religions in numerous forms in many places of this earth. Further study with different methodologies is needed to support the conjectures of this research.

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Conflict of Interests

The authors declare no conflict of interest.

References

- Ahmed, E., & Harun-or-Rashid. (2007). *State and Culture*. Asiatic Society of Bangladesh.
- Allen, C. (2014). *Ashoka: The Search for India's Lost Emperor*. Abacus.
- Alam, A. K. M. M., Xie, S., & Wallis, L. A. (2009). Reconstructing Late Holocene Palaeoenvironments in Bangladesh: Phytolith Analysis of Archaeological Soils From Somapura Mahavihara Site in the Paharpur Area, Badalgacchi Upazila, Naogaon District, Bangladesh. *Journal of Archaeological Science*, 36(2), 504–512. <https://doi.org/10.1016/j.jas.2008.09.038>
- Aziz Amen, M., & Nia, H. A. (2018). The dichotomy of society and urban space configuration in producing the semiotic structure of the modernism urban fabric. *Semiotica*, 2018(222), 203–223. <https://doi.org/10.1515/sem-2016-0141>
- Amen, M. A., & Kuzovic, D. (2018). The effect of the binary space and social interaction in creating an actual context of understanding the traditional urban space. *Journal of Contemporary Urban Affairs*, 2(2), 71–77. <https://doi.org/10.25034/ijcua.2018.3672>
- Amen, M. A., & Nia, H. A. (2021). The Effect of Cognitive Semiotics on The Interpretation of Urban Space Configuration. <https://doi.org/doi:10.38027/iccaua2021227n9>
- Aziz Amen, M. (2017). The inspiration of Bauhaus principles on the modern housing in Cyprus. *Journal of Contemporary Urban Affairs*, 1(2), 21–32. <https://doi.org/10.25034/ijcua.2017.3645>
- Beverley, H. (1874). The Census of Bengal. *Journal of the Statistical Society of London* 37(1), <https://doi.org/10.2307/2338834>.
- Brown, P. (1959). *Indian Architecture: (Buddhist and Hindu periods)*. D. B. Taraporevala sons & Co.
- Burnouf, E. (2015). *Introduction to the History of Indian Buddhism*. The University of Chicago Press.
- Caudhuri, A. M., Chakravarti, R., & Thapar, R. (2018). *History of Bangladesh Early Bengal in Regional perspectives (up to c.1200 CE)*. (1 & 2). Asiatic Society of Bangladesh.
- Chakma, N. K. (2011). Buddhism in Bengal-A Brief Survey. *Bangladesh e-Journal of Sociology* 8(1). 37–44.
- Charan, S. (2014). *Legacy of Buddhism in Bengal*.
- Chutiwongs, N. (1982). Visual Expressions of Tantric Buddhism. *Journal of Siam Society* 70. 76–85.
- Clarke, P. B. (2006). *Encyclopedia of New Religious Movements*. Routledge.
- Conze, E. (2014). *Buddhist texts through the ages*. Bloomsbury.
- Damdinsuren, Ts. (1981). A Commentary on Kalacakra or Wheel of Time. *The Tibet Journal* 6 (1). 43–49. <http://www.jstor.org/stable/43300008>.
- Dasgupta, S. B. (2015). *An Introduction to Tantric Buddhism*. Cosmo Publications.
- Deva, K. (1974). *Buddhist Art and Architecture in India and Nepal*. Namgyal Inst. of Tibetology.

- Dimir, B. (2022, February 28). Temple, Spire or Alien landing pad? the mystery of Somapura Mahavihara ... <https://www.historicmysteries.com/somapura-mahavihara/>
- Elisée, R. J. J. (1891). *Primitive Folk. Studies in Comparative Ethnology*. Encyclopedia Britannica, inc. (2023a, May 20). *Mandala*. Encyclopedia Britannica. <https://www.britannica.com/topic/mandala-diagram>
- Evola, J. (2009). *The Yoga of Power Tantra, Shakti, and the Secret Way*. Inner Traditions International.
- Hardy, A. (2007). *The Temple in South Asia*. British Association for South Asian Studies.
- Harshananda. (2016). *Hindu Gods and Goddesses*. Third Millennium Press Ltd.
- Hazra, K. L. (1998). *The Rise and Decline of Buddhism in India*. New Delhi.
- Kochhar, R. (2006). *The Vedic people: Their History and Geography*. Orient Longman.
- Kumar, P. (2018). Buddhist Monasteries in Ancient India: Religious Education and Cultivation of The Buddhist Self through the Aura Of Religious Complex. *Bodhi International Journal of Research in Humanities, Arts, and Science* 2(2). 61–66.
- King, W. (n.d.). *W. King*. Nyingma Mandala. <https://nyingmamandala.org/2020/05/20/mandala-principles/>
- Kowalski, R. (2011). *The Mindfulness and Mindbalancing Handbook*. Taylor and Francis.
- Masood Imran, Md., & Masud, M. (2022). Predictive 3D modelling and virtual reality of the World Cultural Heritage of ruins of the Buddhist vihara at Paharpur, Bangladesh. *Heritage - New Paradigm*. <https://doi.org/10.5772/intechopen.98928>
- M., H. A. B. (Ed.). (2007). *Architecture, A History through the Ages*. Asiatic Society of Bangladesh.
- M., H. A. B., & Rashid, M. H. (1997). *Mainamati-Devaparvata: A Survey of Historical Monuments and Sites in Bangladesh, SHMSB 001*. Asiatic Society of Bangladesh.
- Mandala of Jnanadakini: Tibet*. The Metropolitan Museum of Art. (n.d.). <https://www.metmuseum.org/art/collection/search/37802>
- Meadow, M. J. (1993). Yogicchakra Symbols: Mirrors of the human mind/heart. *Journal of Religion & Health*, 32(1), 67–78. <https://doi.org/10.1007/bf00995818>
- Mishra, A. K. (2010). *Vajrayana Buddhism*. MD Publications Pvt Ltd.
- Mostafizur, R. S. S. (Ed.). (2007). *Archaeological Heritage*. Asiatic Society of Bangladesh.
- Netchev, S. (2022, September 29). *Robert Clive & the East India Company rule in India, c. 1765*. World History Encyclopedia. <https://www.worldhistory.org/image/16452/robert-clive--the-east-india-company-rule-in-india/>
- Reza, M. H. (2012). *Early Buddhist architecture of Bengal: Morphological Study on the Vihāra of c. 3rd to 8th centuries* (dissertation).
- Rowland, B. (1977). *The Art and Architecture of India: Buddhist, Hindu, Jain*. Penguin Books.
- Samuel, G. (2017). *The Origins of Yoga and Tantra: Indic Religions to the Thirteenth Century*. Cambridge University Press.
- Schopen, G. (2006). The Buddhist 'Monastery' and the Indian Garden Aesthetics, Assimilations, and the Siting of Monastic Establishments. *Journal of the American Oriental Society* 126 (4). 447–505.
- The Tantric Age: Tantra and Bhakti in Medieval India. (2019). *A Genealogy of Devotion*, 29–63. <https://doi.org/10.7312/burc19032-004>