

## INTERPRETING THE MORPHOLOGY OF THE CENTRAL CRUCIFORM STRUCTURE OF *SOMPUR MAHAVIHARA*, PAHARPUR; A COGNITIVE APPROACH

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### ABSTRACT

The ruins of Sompur Mahavihara at Paharpur are the earliest evidence of conscious architecture in Bengali soil. From the nature of existing archaeological remains demonstrate a conscious attempt of space creation with symbolic and metaphoric meaning is clearly discernible. The missing superstructure of the central cruciform mound draws the attention of most of the scholarly studies on this particular monastic complex. The reason is the fragmentary nature of archaeological evidences and the lack of substantial epigraphic records that work as the main thicket to reveal a continuous narrative of architectural characteristics of this structure. This paper is intended to address this lacuna from a different perspective. It attempts to delve deeper on the cognitive process through which the seemingly complicated design of this structure is conceived and materialized.

**Key words:** Sompur Mahavihara,, Stupa, Stupa shrine, Design process, Vernacular built environment

### I. INTRODUCTION

*Sompur Mahavihara* was one of the major learning centers during the heyday of Buddhism in Bengal under the Pala kings (8<sup>th</sup>-11<sup>th</sup> centuries AD). The architectural layout of this huge monastic complex consists of a cruciform stepped structure within a courtyard formed by a large square perimeter building accommodating 177 monastic cells (Figure 1). This lofty pyramidal structure lies in the middle of the 22 acres courtyard. The structure rises upward in a tapering mass of three receding terraces, which, even ruins, reaches a height of 23 meters (Figure 2). Each of the terraces has a circum-ambulatory passage around the monument. At the topmost terrace (of the existing ruin) there were four antechambers on the projecting arms of the cross. The over all design of this complicated architecture is centered on a square hollow shaft, which runs down from the present top of the mound to the level of second terrace.

The present status of the ruins of this monument certainly poses some phenomena that need to be resolved. We would examine the monument from an architect's perspective and try to understand the process through which the problem of this

architecture is confronted by the architects/artisans within its context i.e. time, space and culture.

### II. CONTEXTUAL ISSUES

The purpose of this central structure at the midst of the courtyard remains unsolved since its discovery. Nevertheless it is considered as the most unique feature of the whole complex that demonstrates the emergence of a newer genre of Buddhist architecture in medieval Bengal. This premise is further substantiated by the recent discovery of at least five other monastic complexes in Bengal that have similar architectural layout and belong to the same period. All of them have a central cruciform structure at the middle of the courtyard and have almost identical architectural features (Figure 3). This implies the notion that the conception and materialization of *Sompur Mahavihara* is not an individual incident, rather it is a part of a larger scheme that is responsible for this distinct morphology.

Although, it seems that this scheme is precisely guided and ordered to cater certain religious purpose, but as architecture they are materialized

more in a vernacular mode. In a vernacular building industry, as Rappoport

architectural element. As vernacular mode works with an idiom and with variations within given order [2], it repeats the use of certain models through addition, alteration and even some time rejection to cater the need of the existing society and culture. Hence the conception and realization of these sacred monuments was actually originated through a process that is primarily motivated and determined by the internal conditions of a Bengal i.e. the existing social and religious need, climate, and technology. We need to delve into this process to resolve the architectural characteristics of these cruciform structures.

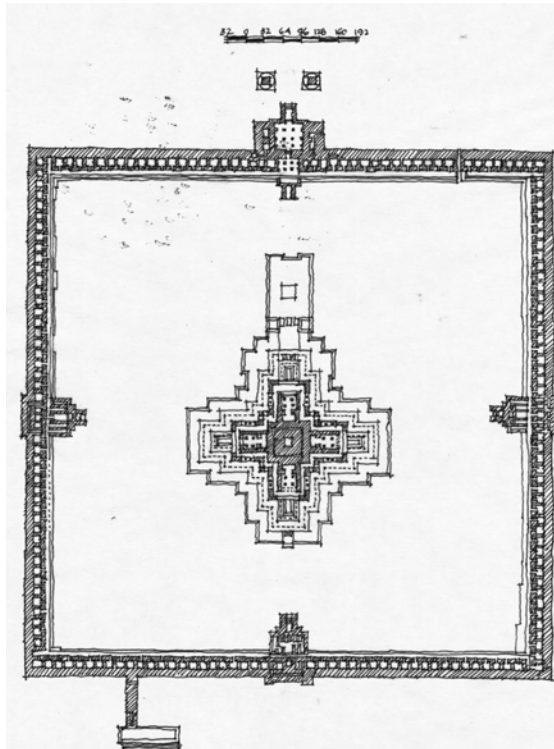


Figure 1: Plan of Sompur Mahavihara at Paharpur

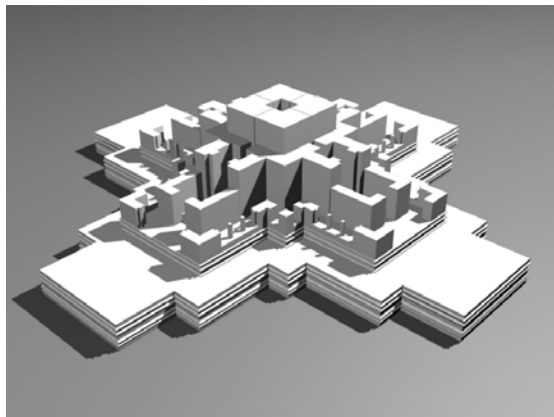
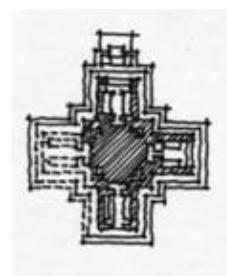
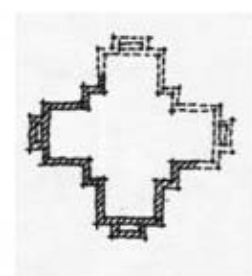


Figure 2: Reconstructed model of the ruins of the central structure.

defines, although, the owner often participates in the design process but he relies on the skilled craftsman to construct the actual building [1]. This process relies on limited ranges of models both at the level of overall layout and individual



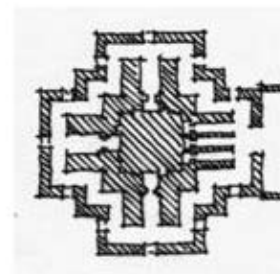
Central Structure of Bhoja Vihara (late 7<sup>th</sup> Century)



Central Structure of Ananda Vihara (7<sup>th</sup>-8<sup>th</sup> Century)



Central Structure of Vikramashila Vihara (8<sup>th</sup> Century)



Central Structure of Rupwan Vihara (Early 8<sup>th</sup> Century)



Reconstructed drawings of the Central Structure of Salban Vihara (early phase Early 8<sup>th</sup> Century)

Figure 3: Other cruciform central structures in different monasteries in medieval Bengal

### III. DEFINING THE STRUCTURE

#### A. Earlier discourse

There are different arguments regarding the terminating top of the central structure of Sompur Mahavihara. Dikhsit [3] has argued it as temple and propose a shrine at the top. Later researchers like Myer [4] and De Leeuw [5] have refuted the idea of the possibilities of shrine placed over the central shaft for two very practical reasons. Firstly the difficulties of covering up the 3.5 meters square shaft to build the platform of the shrine and secondly the absence of traces of any staircase or ramp to lead up to that level. This carefully designed shaft with no access from any side definitely has some symbolic implication and its connection with the superstructure at the top should have further enhanced this symbolic meaning. Myer has proposed a stupa as the most possible superstructure for the top, but neither he offered any reason, symbolic or technical, nor explain any relationship with the Stupa form he proposed. Further, Myer's proposal seems to depend more on the premise that suggests a fairly homogenous and linear development stupa architecture from its origin in India towards South East Asia as he argued for visual connection with the stupa Sompur either with the Nalanda or that of Java, due to its geo-temporal location. Certainly there exists some visual similarity between Sompur Mahavihara and at least two structures in Java, Candi Loro Jongrang and Candi Sewu. While the former shows similarity with the angular projections, truncated pyramid and horizontal band of decoration with Sompur Mahavihara, the later resembles strikingly with planning of the central shrine, especially at the upper terraces. However, this does not necessarily indicate the presence of similar reasons behind this similar formal expression. Moreover, the discourse on the historical connection between Bengal and Malayan archipelago and transformation of ideas is problematic. There prevails a significant number of arguments and counter arguments regarding this matter. This debate is out of the scope of this paper so we would not further problematize the issue. Rather we concentrate on some other aspects that may give us some clue regarding use of this structure.

#### B. Symbolic aspects

As a religious architecture that belongs to the most matured phase of Buddhism in Bengal, while

rituals, rites and symbolism played a vital role, [6] it definitely have some symbolic association. The consistency the overall of geometry, organization and proportioning system all these indicates the architectural layout of Sompur Mahavihara was precisely guided by certain principle. The basis of these principles lies in the cosmogony and cosmology of this religion that integrates the microcosm of man and the macrocosm of the universe. In the later Buddhism this worldview revolves around the concept of *Mandala*- a psychocosmogram that represents structure of the universe. Buddhist architecture in this period considered as the reproduction of the cosmos, which is manifested by using certain mandala as a guiding principle [7]. Hence Sompur Mahavihara is a *Mandala* and in any Buddhist mandala the centre considered as the most vital point through which the transcendence from human realm to celestial occurs. Architecturally stupa is the most sacred and venerated Buddhist edifice. It is a symbolic representation of the mount Meru [8] that connects the two planes, ones with human consciousness another with absolute consciousness. Therefore it is very much possible that the central structure of this monastic complex is crowned by stupa.

#### C. Historical aspects

The stupa is exclusively a Buddhist religious monument. Although, similar cult of erecting sepulchral mound was evident in the pre Buddhist era as well, but the symbolic and religious meaning that is associated with the term 'Stupa' is only present in the Buddhist culture. From where this monument is originated and how it became a Buddhist "religious edifies par excellence" [9] is a question of debate. There exist many opinions about the origin of stupa. Whatever the origin is, there is no doubt that this stupa cult became well established and elaborated only under the Buddhist tradition through out the time and this particular architectural form became the main emblem of the Buddhist faith [10]. Most interestingly, the evolution of this cult as well as the form of stupa has some kind of correlation with the change of the Buddhist religious beliefs, practice and rituals. Thus every change in the formal expression in its architecture is associated with some change in religious belief either by the influence of existing local themes or by incorporation of some new ideas within the religion. The stupas in the early period were used as a sepulchral monument to contain the relics of Buddha. However as Buddha's relics

cannot be multiplied indefinitely, they are replaced by the ashes of his funeral pyre initially and later by the piece of his written law, when the ashes were no longer available. In the later phases most of the stupas were erected for commemorative purpose and they neither contain any relics nor any object used by Buddha, but this particular form has such an impact on the devotees that it is enough for them to venerate it. Hence, numerous smaller votive stupas and stupa motifs were reproduced by the later follower as it was considered as deed of merit.

So, the stupa which was initially considered as an embodiment of the Buddha was gradually associated with a much wider and varied meaning and became the centre of the universe as a representation of the mount *Sumeru* as well as the *Mandala*. The changes in the doctrinal beliefs through time, space and culture become instrumental to define this associated meaning of the stupa and its different parts and eventually determining its form. As the historical development of Buddhism in India and Bengal indicates that the cult of stupa gradually gets more importance in religious beliefs, ritual and practice in the later periods (8th-12<sup>th</sup> century A.D.), so the presence of a stupa within *Sompur Mahavihara* is quite accepted.

#### IV. CENTRAL STRUCTURE AS A STUPA

In this situation, we need to examine that whether the present archaeological remains of the central structure conforms to the architectural features of a stupa. The best possible way to verify it is to

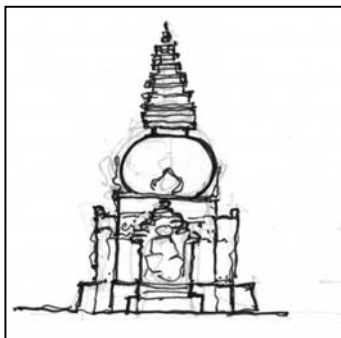


Figure 4: Sketch showing the features of stupa motifs found during Pala and Sena Period.

compare it with the other stupa architecture of the contemporary period. Although, there exists

virtually no remains of any stupa architecture in this region that belongs to the period of *Sompur Mahavihara*, but we have numerous records of contemporary stupa motifs in sculpture, miniature paintings and votive form. By putting all these evidences in a systematic manner it may be possible to fill up the knowledge gap regarding the stupa architecture of this particular period. It is a common practice by the artisans in different religion in different period to use a famous and reputable religious monument as a motif for painting and sculpture. Thus it is possible to get some kind of visual references of the contemporary major religious architecture in terms of form and proportion by the systematic study of these motifs. Being one of the monuments of high reputation, as we find in the literary and epigraphic records, it is very much possible for the stupa of the *Sompur Mahavihara* to be used as religious icon by the contemporary and later artist in different art forms. Although the intention of this paper is not to analyze the contemporary art forms to retrieve the lost for of *Sompur Mahavihara*, but a quick comparison of the stupa motifs in the *Pala* period with the existing remains of the central structure may demonstrates some closer formal similarity. [11] A significant number of motifs from this period represent a stupa with squatted hemisphere on an elongated drum with a much elaborated parasols and finials at the top. The most interesting features of this type are the presence of four decorated niches on four cardinal directions with a seated Buddha images and the stepped base with cruciform projections (Figure 4). If we take this four niches with seated Buddha as a two dimensional representation of the four antechambers of the central stupa of *Sompur Mahavihara* then it gives us some interesting clues for farther thinking. As Buddhism was gradually transforming from *Hinyana* to *Mahayana* and eventually to some more ritual oriented cults like *Vajrayana* in Bengal, the enshrinement of Buddha images within the stupa become and important part of its architecture, which is also evident in the stupa motifs. It seems that in *Sompur Mahavihara* this enshrinement of Buddha image become more elaborated and at the end took the shape of four chambers.

#### V. CONCEPTION OF THE DESIGN

It is clear now that this 'unique' architectural layout is conceived to cater the religious, social and political aspiration of that time. Yet, in a vernacular

nature of building industry where the use of model or variations of models was the main practice for the construction of building, it is difficult to imagine that some artisan(s) had come up with a unique design like cruciform central form solely out of his/ their creativity. Rather it is more rational to think that they have certain model in front of them and they did some addition and alteration of that model to meet the newer demand that created either for certain rituals practice or some political aspiration. In our case this original model is definitely a stupa as we discussed earlier.



Figure 5: Hypothetical reconstruction of a stupa motif (from later Buddhist phase) in three dimension.

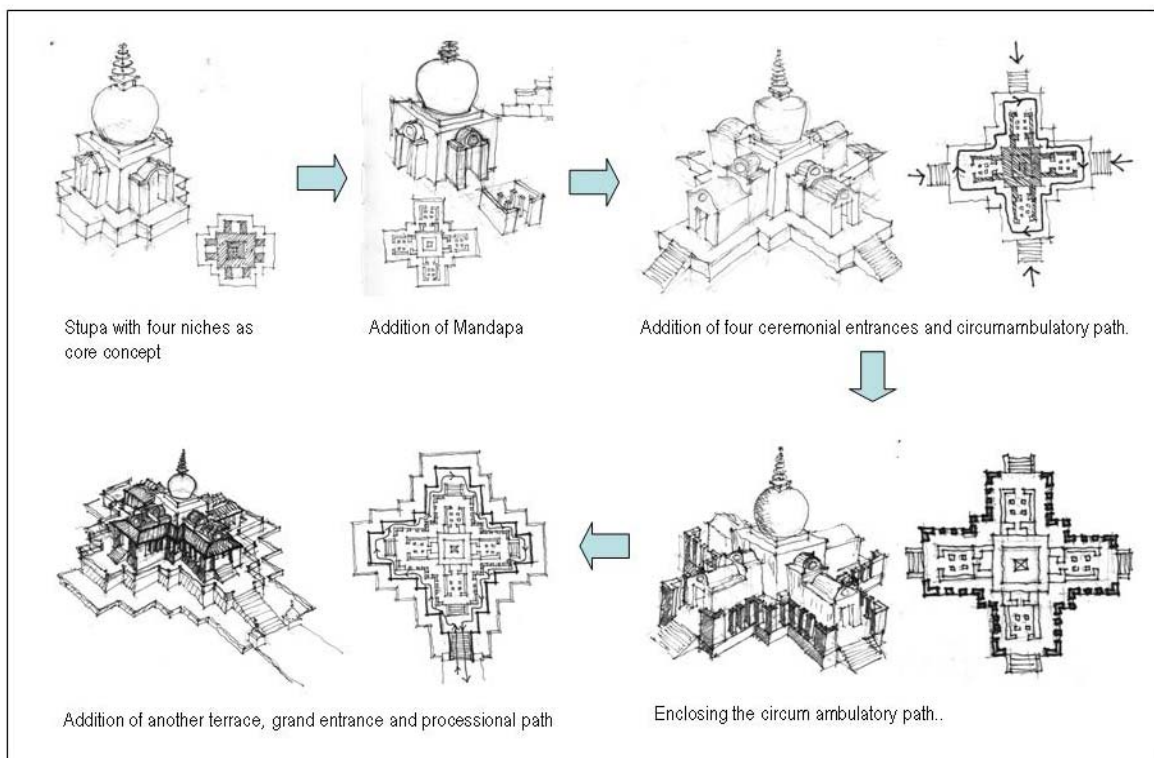


Figure 6: Conception of the design of the cruciform stupa shrine

### A. The original Stupa

Here, we like to analyze the apparently complicated design of the cruciform central structure and trace out its connection with stupa type that was most common during that period. In the previous section we have done a quick comparison of the contemporary stupa type with the cruciform structure and showed a conjectural reconstruction (Figure 5) of this stupa type into a similar cruciform structure by transforming the four niches into four antechambers. However this is

just a hypothetical reconstruction to check the visual similarity between these two. The actual manifestation is not as simple as we have done here.

From examining the architectural evidences as well as the stupa motifs we have categorized certain stupa from as predecessor for the stupa shrine of the Sompur Mahavihara or in general for all the cruciform central shrine of that period in Bengal. So we can conclude that this particular stupa form was known to the builders of this mega-structure

and thus there is very good possibilities of using at as a basic model to develop the stupa shrine. This basic model is featured with a cruciform base, four niches at four cardinal points with Buddha images, elongated drum, squatted dome and elaborated finials as described in Figure 6.

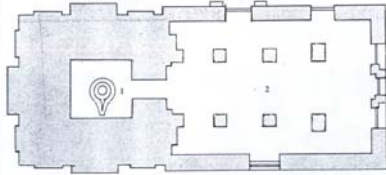


Figure 7: Plan of typical Hindu temple with *Garbha Griha* and *Mandapa*. (Temple of Parsurameswara, 800AD)

### B. Addition of Mandapa

Devotion becomes one of the important parts of the Buddhist religious practice of that period and offering different sacred objects like, flower, incense, and jewelry was an integrated part of expressing devotion. The ritual practice became much similar with the Vedic or Hindu religious practice as there existed a clear intention to establish Buddhism as rival of Hinduism. Eventually it led to establish a series of godheads parallel to Hindu beliefs and adopting similar hierarchy in overall religious system. That resulted into the need of similar architectural space to house the god as well as to place the offerings from the devotees. Further, similar hierarchy was also established in terms of offering and performing rituals. Generally a Hindu temple is has strong hierarchical sequence in its different parts. It represents a journey from light to darkness i.e. from an open and large space to the confined and small space [12]. This small and dark space is basically a metaphor of a cave that housed the god and the temple itself represents the symbolic mount Meru in which the cave is dug out. In the simplest manner a Hindu temple thus can be divided into two major parts (Figure 7). The first one, where the god is housed is the most sacred and most protected part and known as the ‘womb-chamber’ *Garbha Griha*. The second part, we rather call it a zone that work as a transition between the open to close space, is the place designated to perform ritual by the laities and place offering. It is known as *mandapa*. In larger temple this part is divided into some other parts known as *Natmandir*, *Bhagmandir*, *Jagmandir* depending on the

sequences of the ‘journey’. There is also a distinction between the spatial layout between the North Indian and South Indian temple type. However, the basic hierarchy that can be observed between these to is same i.e. a space for god and a space for devotees to place offering and perform rituals. Hence, during 7<sup>th</sup>-11<sup>th</sup> century, when the Buddhist rituals becomes parallel to Hindu rituals and the basic space requirement became same, then it definitely demand a similar pattern of hierarchy between the space for god and the devotees. The niches of the stupa that already holds the four godheads of *Vajrayana* Buddhism becomes the chamber for the gods and demands a similar hierarchical sequence of a Hindu temple. The first attempt could be the addition of the front chamber or hall to house the devotees i.e. a parallel of the *mandapa* of the Hindu temple. This addition of the *mandapa* accentuates the cross axial character of the structure. A clear distinction can be observed between inner and the outer chamber in all four sides. This distinction is done by changing the thickness of the wall which eventually determine the height of the chamber as well as placing door as a threshold between these two spaces. This is common features for all the cruciform central structures that have been discovered so far including our case. In the case of Sompur Mahavihara there is a remarkable change in the width of the wall which is narrowed down significantly in the outer chamber. There are also evidence of a door way and change of floor level between these two spaces. Most interestingly the character of the two spaces is totally different. Where the outer chamber takes the shape of hypostyle hall or colonnaded chamber, the sanctum remain unadorned and give cave like feeling resembling the character of the character of *Garbha Griha*. Although, whether the presence of four column bases in the outer chamber are actually representative of hypostyle hall with roof supported by columns or they are actually creating a inner pavilion to accommodate a Buddha statue for circumambulation, remains unresolved, but there is no doubt about the different character as well as purpose of this two spaces.

### C. The circumambulatory Path

Although it takes the shape of “*sarbotovadra*” or four-faced temple type of Hindu belief after adding the *mandapa*, but their remains a clear distinction between a Hindu temple and Buddhist stupa shrine. In the Hindu shrine the centre remains hollow



housing a chamber for the god and entered through either one or four of the *mandapas*. In case of Buddhist stupa shrine, the centre is solid accommodating relics for the stupa; the four chambers got equal importance and entered through all four sides. Another important feature of any Buddhist religious structure is the circumambulation. ‘Circumambulation’ or ‘*pradakshina*’ is one of the most important part of the Buddhist religious rituals since its early days. Any sacred structure, stupa or images must have a *pradakshina* path around it. With the addition of the *mandapa* in the front, the original stupa no transformed into newer entity- the stupa shrine. This transformation implies a newer meaning to it and the cruciform stupa shrine now transcends to another level as a sacred entity. The structure itself becomes an element to be worshipped and eventually needs a circumambulatory path around it for this purpose. The addition of the second terrace level is actually the addition of a path for circumambulation as well as to provide a connection between all the four chambers. The walled pathway of the second terrace level becomes an integral part of the stupa shrine. As Buddhist considers higher ground as more venerated than the lower one, the whole structure is then elevated to another level with an additional ambulatory path. The first terrace level of the central structure of Sompur Mahavihara that holds the whole stupa or stupa shrine is basically the platform to add veneration to the stupa shrine. That eventually resulted into an 11’ wide circumambulatory path with 16 projecting angle as it runs parallel with the second terrace level. Interestingly another level of transcendence takes place with this.

#### D. As the centre of the Mandala:

The whole structure is now becomes the centre of the mandala as symbolic representation of mount Meru. It is now connected with the much larger context- the universe, which is resulted into addition grand approach from the north through a huge stair case and a processional path. The symbolic implication of this northern orientation and the offsetting of axis are already discussed earlier. Then at the ground level it is enclosed by another barrier to designate another *pradakshina* path. So we can see that the design is actually originated from a stupa and gradually through the process of addition and transformation that makes the structure to transcend from one level to another,

as a response to existing religious need it takes the shape of a complicated cruciform structure (Figure 8).

## VI. CONCLUSION

The most interesting part of this analysis is that we can see that each level of this transition their works certain reasons that motivate the designer to adopt changes in design. Nevertheless, the main theme of the stupa veneration or the *Mandala* always remains as the core concept. Thus, each phase of this design development does not come up only with a newer formal expression but the same time

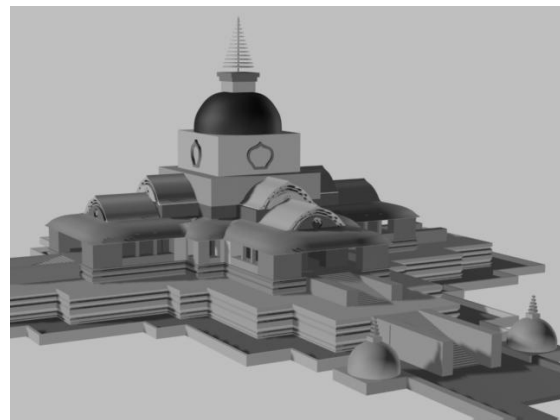


Figure 8: Reconstructed view of the possible three dimensional articulation of the central structure of *Sompur Mahavihara*, Paharpur.

adding a newer meaning to the structure and gradual change of scale. Ultimately the most humble form of stupa is transformed to one of the most symbolic and metaphoric architecture at the end through a longer process of design development. One thing should be noted here that the transition from one level to other is certainly not occurred in single instance. Rather it works in a heuristic manner that involves lot of adaptation, alteration and rejection before coming up with an accepted model. In this paper I have just presented an over all scheme of the process and any detailed study of any of the transitional phase is open for future research.

## REFERENCES

- [1] Amos Rapoport, *House, Form and Architecture*, New Jersey, 1969. pp.4-5.
- [2] Amos Rappoport, op.cit.

- [3] K.N. Dikhsit, *Paharpur, Memoirs of Archaeological Survey of India*, Vol 55, New Delhi 1938
- [4] P. R. Myer, 'Stupa and Stupa Shrines', *Artibus Asiae* Vol. XXIV, Ascona, 1961. pp 25-34.
- [5] Lohuizen de Leeuw. J. E.V. 'The Recent Excavation in Paharpur', *South Asian Archaeology*, (ed. Janice Scotsmans and Maurizzion Taddei) Naples, 1985. pp- 741-750.
- [6] Rama Chatterjee, *Religion in Bengal; During The Pala and The Sena Times*, Calcutta, 1985
- [7] F.W. Bunce, *The Iconography of Architectural Plans: A study of the Influence of Hinduism and Buddhism*, D.K. Print world, New Delhi, 2002.
- [8] A. Snodgrass, *The Symbolism of Stupa*, Colonel University, Ithaca, 1985.
- [9] A. Foucher, *L'Art gréco-bouddhique du Gandhara*, Paris, 1905, t.1, p.59
- [10] Debala Mitra, *Buddhist Monuments*, Calcutta, 1971, p.21
- [11] Sudipa Bandopadhyaya, *Architectural Motifs in Medieval Art of Eastern India* (2002), elaborated the evolution of stupa motifs in different art forms under Pala-Sena period.
- [12] George Mitchell, *The Hindu Temple, An introduction to its meaning and form*, 1977. Also see, Stella Kramrisch, *The Hindu Temple*, 1976.