
Compositional Connections: Temple Form in Early Southeast Asia

Sambit Datta and David Beynon

School of Architecture and Building, Deakin University, Geelong, Australia

Abstract

The temples of Southeast Asia are remarkable and intriguing in their architecture, in that they are obviously derivative from Indic canon and yet profoundly original and different from the corpus of the subcontinent. Further, the regional nuances of these temples, whether in Java, Cambodia or Champa, defy obvious and linear connections within these traditions and with the pan-Indic corpus. While epigraphists, Sanskritists and historians have made significant connections between these temple building traditions, much work remains to be done on the compositional and architectural linkages along the trading routes of South and Southeast Asia. This paper is an early attempt at understanding the compositional connections, as evident in the temple forms of early southeast Asia. To elucidate the complex material, the authors deploy a comparative method on two levels. Between ideal notions of the Hindu temple and shared cosmogony on one hand and individual temples as a realization of the ideal on the other. The consideration of the compositional material yields some surprisingly rich and varied connections. For example, the affinities between 7th century cellas in Cambodia and early Gupta models from central India are difficult to ignore. Further, the linkages between these cellas and the early Deccan experiments in structural stone raise questions about both idioms. The range of experimentation in Cambodia (in plan forms, superstructure and construction methods are discussed with reference to their Indic antecedents. The findings of the paper raise questions about the relation between temple and treatise; between theory and practice and between the individual temple and its collective corpus.

Introduction

The pre-Angkorian temples of Sambor Prei Kuk, Hanchey and Phnom Kulen in Cambodia are among the earliest Southeast Asian examples of monumental Hindu architecture. Analysis of their composition and constructive geometry is critical in understanding the development of the archetypal Brahmanic/Hindu cella, through its variations and manifestations elsewhere in Java, as well as in other Southeast Asian locations such as Java and Champa (present-day Vietnam). As a contribution towards such understanding, this paper presents some findings from an ongoing study undertaken by the authors in India, Cambodia and Java. The establishment of the architectonics of the earliest Indian, Javanese and Khmer temples through measurement, photogrammetry and comparative modelling are assisting in how architectural and compositional ideas travelled around ancient South and Southeast Asia. The constructive geometry of these early temples demonstrate numerous similarities as well as differences with contemporaneous examples in India and Cambodia. These similarities and differences are indicative of the movement of religious, cultural and technological ideas through the region. It has been speculated whether the architecture of these temples owe their compositional characteristics to adherence to treatises, the interpretation of priest-architects or the usage of earlier examples as architectural models for later ones. In the absence of local textual records, the evidence embedded in the geometric and material composition of the surviving monuments is the main, and sometimes the only evidence by which a more conclusive understanding of the relation between theory and practice in these buildings might be developed. The motivations for the reconstruction and recovery of the three dimensional forms are to develop a digital dataset of early Indian antecedents, test new technologies for the acquisition of built heritage and develop new methods for comparative analysis of built form geometry. A long-term aim is to use the dataset of antecedents to understand parallel developments in temple building in Southeast Asia.

Sarkar suggests four sources of influence, the most important of which are the Gupta dynasty of northern and western India in fourth to sixth centuries and the Pallava dynasty of south-eastern India, a little later but with overlapping impact¹.

This paper concentrates on tracing the links between the Gupta temples and two Southeast Asian sites, Sambor Prei Kuk and Hanchey in Cambodia (Figure 1). To test our comparative analysis, we present photogrammetric and digital modelling data from Nacchna, a Gupta temple from Central India; N17, Prasat Sambor; Temple 1 and Temple 2 in Hanchey, Cambodia.

□



Figure 1. Map of southeast Asia showing the location of early pre-Angkorian temples. The sites of Phnom Kulen, Sambor Prei Kuk (SPK) and Hanchey are in modern Cambodia. The sites of Gedong Songo and the Dieng Plateau are in Central Java.

The Gupta temple

Structural stone temples begin to appear in India in the fifth century. The varieties of Gupta experimentation in stone and their material remains provide tenuous clues on the genesis and evolution of structural temples in Khmer, Javanese and Cham temple sites (Figure 1).

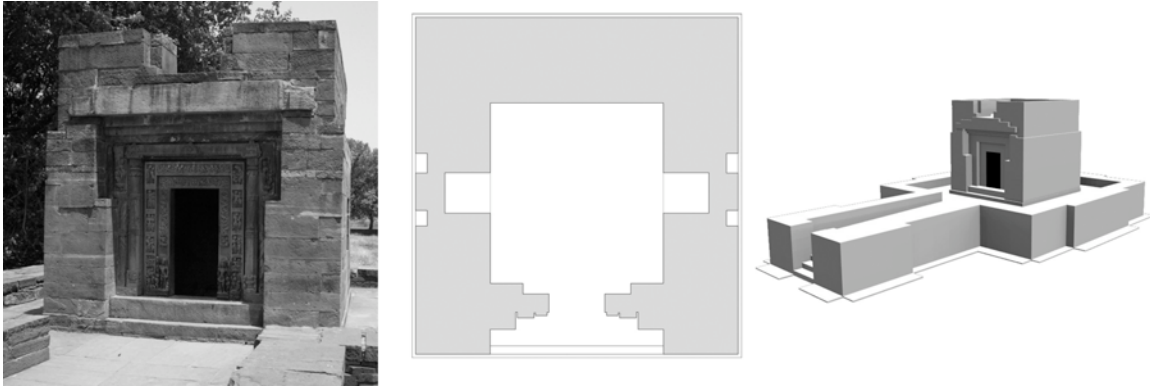


Figure 2. Parvati Temple, Nacchna, Central India. Reconstruction model (left). Plan of Cella (centre). Perspective view of cella form (right).

The Parvati Temple (c.475 CE) at Nacchna, Central India, is among the earliest extant structural temple from the Gupta period in South Asia². Scholars of Gupta temple architecture distinguished three general types³. The first of these is the temple with a square garbhagrha and flat roof, generally provided with a porch, such as Temple No. 17 at Sanchi and the Kankali Devi temple at Tigowa. The second type was provided with a superstructure or Sikhara, examples being the Visnu temple at Deogarh and the brick temple at Bhitargaon. In addition to these two, attention has been drawn to a third type of temple with a covered circumambulatory path, best illustrated by the Parvati temple at Nachna-Kuthara discovered by Cunningham in 1883. This temple had, in addition, a plain square chamber, possibly with a flat roof superimposed over the sanctum forming a second storey (Figure 2)⁴. All three types can be seen in various forms in Southeast Asia.

The Parvati temple at Nacchna provides insight into early geometric and architectonic principles used in temple construction and sheds light on parallel or later developments in Southeast Asian cellae. The basic formal scheme of the cella (Figure 2) comprises the *Pitha*, or base, the *Prasada* consisting of the *Garbagriha*, a cuboidal inner sanctum with a flat roof. While each of these formal elements were based on a body of theoretical knowledge recorded in canon, the practice of this knowledge was the subject of wide experimentation within the regional schools of temple building spread over several centuries. The temple at

Nacchna is almost square in plan, being slightly longer than its width (2442 x 2694 mm). The cella sits on a *jagati* or platform with a distinctive *pradakshina*, or circumambulatory (approx 1650 wide). The presence of a second storey shrine (now collapsed) makes this early structural temple both an archetypal cell as well as an intriguing exception to canonical description.

Three Pre-Angkorian structural stone cellas

The development of Khmer architecture and cities began in the pre-Angkor period, before the founding of the Angkor Dynasty in the 9th century ⁵. One of the most significant vestiges in the study of early Khmer culture is the Sambor Prei Kuk monuments, located in Kompong Thom province, approximately 140 km southeast of the Angkor monuments. The monuments are identified with Ishanapura, the Chenla capital during the 7th century mentioned in Chinese historical materials and inscribed accounts. The sculptures, structures, and temples forming compound complexes had already been at an advanced stage. Three groups of monuments, as well as a number of isolated sanctuaries, comprise the site. The bulk of the monuments in the northern and southern groups probably date to the first three quarters of the seventh century ⁶.

By assimilating Indian culture and other foreign cultures while maintaining the original culture of the land, the monuments gave initial direction to their future indigenization as an artistic style unique to Khmer architecture.

N17

Parmentier's report ⁷, which is widely accepted as the most comprehensive account of structures belonging to the monument group, documents 72 structures at 27 sites. N17, as numbered by Parmentier ⁸, is sited within the newly discovered third enclosure of the Prasat Sambor (northern) temple complex, comprising mostly brick sanctuaries. The structures remain in an advanced state of disrepair ⁹. The northern group (Group N) consists of monuments dedicated over a long period of time, from perhaps the sixth century well into the

Angkorian period. The earliest structure at Sambor Prei Kuk probably belongs to the north group (N17)¹⁰.

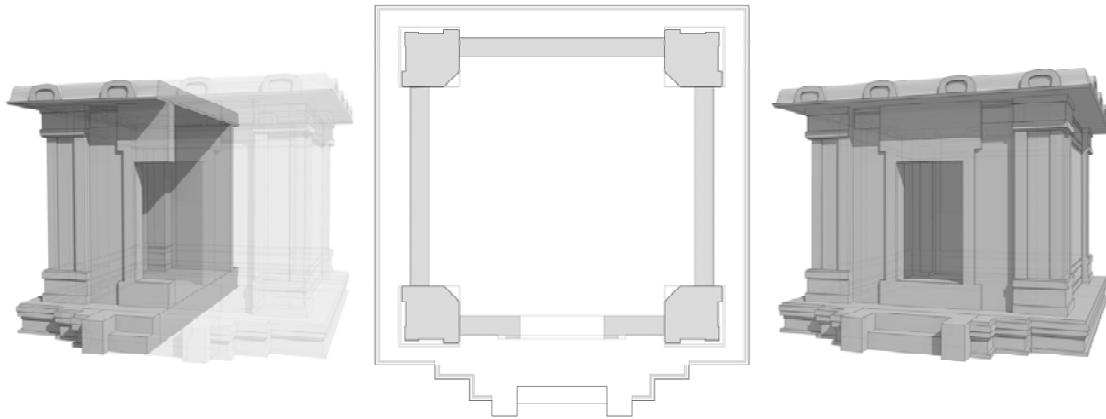


Figure 3. Cella N17 in Sambor Prei Kuk, Cambodia. This shrine represents a pre-Gupta compositional style, reminiscent of the earliest structural shrines extant in India. (e.g. Sanchi, Temple 17). Sectional model (left). Plan of N17 (centre). Perspective view of cella form (right).

In this paper we focus on the sanctuary N17 for several reasons: its unique structural design, reminiscent of early Gupta cells, particularly Temple 17 at Sanchi, its use of stone and similarity with later Gupta period stone construction and its relative state of preservation. Our photogrammetric studies of N17 and earlier drawings of the temple by scholars¹¹, enabled us to reconstruct, in some detail, the three dimensional form of the temple (Figure 3). N17 bears many of the structural and compositional characteristics of early Gupta architecture. It is sited on a platform or *jagati* decorated with motifs. Though the platform remains partially buried, it is possible to deduce the presence of a distinct vedibandha outline in parts of the lower portions of the visible *jagati*. The cella is conceived as a trabeated post and beam structure, with four corner pillars and an enclosing thin wall. The plastic nature of the stone stereotomy contrasts with the attempt to represent a pillared structure on the other. The roof is definitively flat-roofed with a protruding ribbed eave decorated with *candrasalas*. The influence of pillared shrines, the transition from timber techniques to stone, the flat-roof with

projecting eave and candrasala motifs suggest close affinities with parallel and preceding experimentation during the Gupta period.

Hanchey 1

The two inscriptions on the inner door pillars of the old brick sanctuary at Hanchey, just above Kompong Cham on the Mekong, were among the first discovered and were long considered as the most ancient in Cambodia¹². In our study of the shrines in Hanchey, we focused on the two structural stone cells also located in the same complex as the old brick sanctuary. The first structural cell, which we have labelled Temple 1 (see Figure 4), is made of thin structural stone slabs. The construction and composition of temple 1 can be contrasted with the upper shrine of Lad Khan's temple in Aihole, India, built in the sixth century by the Early Chalukyas. A more significant comparison is with N17 in Sambor Prei Kuk, discussed above, and to the emergent stone cellas of the Gupta period. Dhaky¹³ and Meister have both referred to the brick and timber origins of early structural stone temples in India¹⁴. Early stone use in India was associated with the idea of the temple-as-cave and rock excavated architecture rather than structural temples. Temple 1 at Hanchey appears to follow the same lineage, showing the use of timber construction techniques in stone.

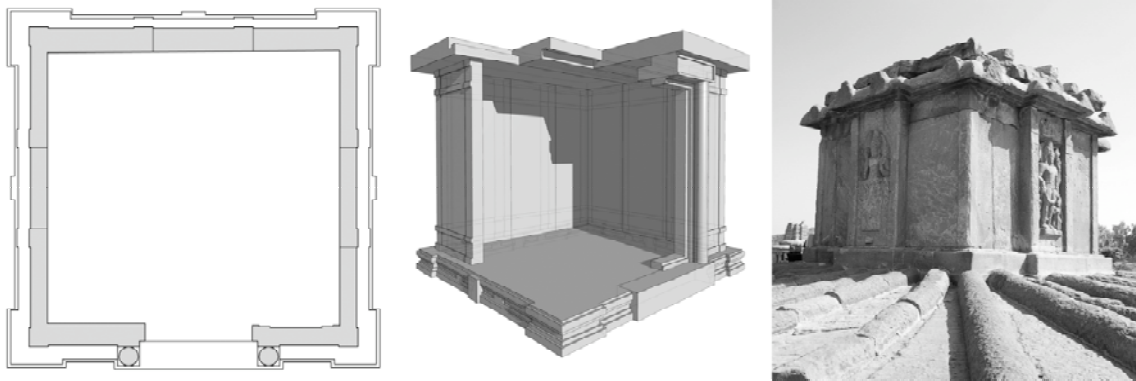


Figure 4. Temple 1, Hanchey Cambodia. The plan of this temple (left) can be compared to the Dolmenic shrines in Early Indian architecture. Sectional perspective (centre). The upper shrine of Lad Khan's temple in Aihole (left).

The superstructure of temple 1 is flat roofed and constructed out of interlocked stone slabs, shown in our reconstruction in Figure 4 using a similar technique as in the Gupta temple at Marhia in central India and at Lad Khan's temple in Aihole. The plasticity of timber composition, construction and details are evident in this small shrine and may have been inspired by wooden structural temples rather than stone precedents.

Hanchey 2

In the same complex as Temple 1 and the brick sanctuary, closer to the banks of the Mekong is Temple 2, a classical early stone temple¹⁵. It is lithic in its conception, constructed of dressed stone (Figure 5) and has a storeyed pyramidal superstructure composed of tiers. The elements of this shrine can be traced to many antecedents in the Gupta period.

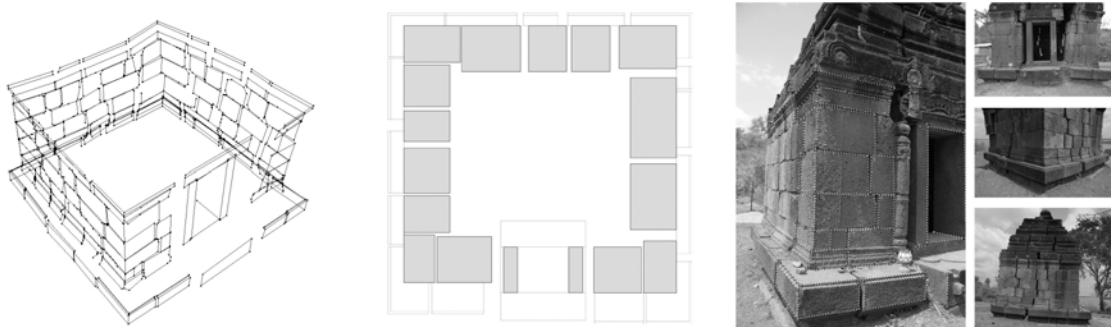


Figure 5. Temple 2, Hanchey, Cambodia. Recovery of external surface with digital photogrammetry (left). Reconstructed plan (centre). Compositional and constructional influences from Indic antecedents are evident in this temple (right).

The ruinous state of the temple, in an advanced state of collapse, makes dimensional correlation very difficult. However, the early date of the temple, its well developed superstructure and its proximity to known Gupta examples, makes it a crucial example of the pre-Angkorian temple corpus. The cuboidal cella sits on a solid *jagati* with a distinctive *vedibandha* molding which is partially buried and yet to be excavated. The *jangha* or wall portion of the sanctuary is largely bare and simple. The distinctive *candrasala* motif appears on the superstructure tiers. The Vamana temple at Marhia and the Siva temple at Bhumara have similar bases, treatment of wall and motifs¹⁶. However, the most significant aspect of

this sanctuary is the tiered pyramidal superstructure with a distinctive molding. In contrast to flat roofed temples, and the more developed superstructures at Sambor Prei Kuk and at Phnom Kulen¹⁷, this temple has the tiered pyramidal form of superstructure, known from earlier wooden temples adopted in stone.

Conclusion

The study of compositional connections between the early temples of Southeast Asia and their Indic models present an interesting series of preliminary findings. Classical Gupta temples (such as the Parvati temple at Nacchna) are the earliest known structural temples in India. These stone temples, are raised on significant plinths, have an ambulatory and follow a trabeated form of construction in imitation of timber construction. These temples showing only the beginnings of superstructure, are flat roofed, or capped by pyramidal tiers, probably in imitation of wooden roofs. For example, N17 in Sambor Prei Kuk and Temple 1 in Hanchey are trabeated, flat roofed temples that may have had ambulatories enclosing them. The superstructure of Temple 2 in Hanchey is a pyramidal composition in three tiers that closely resembles the upper shrine of Lad Khan's Temple in Aihole. The presence of flat-roofed and *vedi* superstructure structural stone cellas in Cambodia, only seen in the Gupta Period in India, raise questions about the genesis and development of Southeast Asian temple architecture.

All the temples presented in this paper from South and Southeast Asia exhibit the systemic use of an ideal architectural canon. While the systemic use of canon is not in doubt, the compositional connections present an intriguing body of evidence regarding the flow of architectural ideas between parts of South and Southeast Asia during the end of the fifth and early sixth century. The use of canon in the formal composition of the temple is evident in the formal layout and geometry of the plan, the structuring, sequence and shape of the base mouldings, the elaboration of the tiered superstructure, the elements of the entrance doorways and the use of distinctive motifs such as the *candrasalas*. Further work is necessary in the systematic study of module and measure in these early temples and their relation to particular treatises and ideal composition.

Acknowledgements

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Endnotes

¹ Himansu Bhusan Sarkar, *Some Contribution of India to the Ancient Civilisation of Indonesia and Malaysia* (Punthi Pustak, Calcutta 1970), 23-24.

² As an elaboration on the Brahmanic/Hindu cella, this temple provides a pivotal body of evidence concerning the movement of religious, structural and architectonic ideas across Asia. Pinna Indorf. 2006. Analysis Of Form Composition In Early Khmer Architecture (AFCEKA) Field Notes And Observations with illustrations. Research Report, Centre for Khmer Studies (CKS) May, 2006.

³ Cunningham, Archeological Survey of India Report (A S I R , IX), first outlined the most striking characteristics of Gupta temples, emphasizing the flat roofs. The Parvati Devi temple at Nacchna, (A S I R , XXI:93-98), is a flat roofed shrine dated Cunningham to the early Gupta period. R.D. Banerji, (Age of the Imperial Guptas, Benares, 1933) suggested a Gupta temple type with a flat-roofed sanctum and a covered path of circumambulation.

⁴ Pramod Chandra, *A Vamana Temple at Marhia and Some Reflections on Gupta Architecture*, (Artibus Asiae 1970), 32:2-3,125-145.

⁵ Lawrence Palmer Briggs, 1951 . The Ancient Khmer Empire. Transactions of the American Philosophical Society, New Series – 41:1:1, 295.

⁶ Paul A. Lavy, *As in Heaven, So on Earth: The Politics of Visnu, Siva and Harihara Images in Preangkorian Khmer Civilisation* *Journal of Southeast Asian Studies* (Cambridge University Press 2003), 34, 21-39, 30.

⁷ Henri Parmentier: *L'art khmèr primitif* (2 Vol.), (Paris, PEFE0 21-22, 1927).

⁸ The numbering scheme adopted by the Sambor Prei Kuk Conservation project, labels this sanctuary as M.16. See Ichita Shimoda. General Sketch of the Ancient City of Ishanapura. Unpublished research report and personal communication, February, 2007.

⁹ At the time of writing, extensive archeological and conservation works were in progress under the Sambor Prei Kuk Conservation Project. This project was begun in 1998 by Waseda University, Science and Engineering, Laboratory of Architectural History (headed by Takeshi Nakagawa) and the Cambodian Ministry of Culture and Fine Arts.

¹⁰ Lawrence Palmer Briggs, 1951 . The Ancient Khmer Empire. Transaction of the American Philosophical Society, New Series – 41:1, 1-295, 74; Jacques Dumarçay and Michael Smithies, *Cultural sites of Burma, Thailand, and Cambodia* (Kuala Lumpur: Oxford University Press, 1995), 73-

79; and Jacques Dumarçay and Pascal Royère, *Cambodian architecture eighth to thirteenth centuries*, trans. Michael Smithies (Leiden: Brill, 2001), 39-44.

¹¹ Indorf, Pinna, 2006. Analysis of Form Composition in Early Khmer Architecture (Afceka) Field Notes and Observations with illustrations. Research Report, Centre for Khmer Studies (CKS) May, 2006.

¹² Lawrence Palmer Briggs, 1951, *The Ancient Khmer Empire. Transaction of the American Philosophical Society*, New Series – 41:1, 1-295, 41.

¹³ MA Dhaky refers to this class of temples constructed in stone but reminiscent of timber, as “dolmenic”. Personal communication, AIIS Gurgaon, April 2006.

¹⁴ Michael W Meister, 1974 A note on the superstructure of the Marhia temple. *Artibus Asiae*, 36:1/2 (1974), 87. Stone in North India was used as a supplementary material, appropriate for cave-cells. Meister contends that stone as “a material it has neither the amorphous plasticity of brick (which makes brick, like stucco, a medium often used to mimic other materials) nor the structural lightness of wood” and hence may have not been the primary material for high structures, which were built in brick and wood.

¹⁵ See Indorf, Pinna, 2006. Analysis Of Form Composition In Early Khmer Architecture (Afceka) Field Notes And Observations with illustrations. Research Report, Centre for Khmer Studies (CKS) May, 2006.

¹⁶ Pramod Chandra, 1970. A Vamana Temple at Marhia and Some Reflections on Gupta Architecture, (*Artibus Asiae*), 32:2-3, 125-145.

¹⁷ For a discussion of the temples at Phnom Kulen, see Beynon, D. and Datta, S. (2005) .“Celebrating the Generation of Architectural Ideas: Tracing the lineage of Southeast Asian Temples”, in A. Leach, G. Matthewson (eds.), *Celebration: Proceedings of the 22nd Annual Conference of the Society of Architectural Historians, Australia and New Zealand* , 47-52, Society of Architectural Historians, Australia and New Zealand (SAHANZ), New Zealand.