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# Early Connections: Reflections on the canonical lineage of Southeast Asian temples

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## Abstract

Temples were constructed across Southeast Asia following the spread of Brahmanic/Hindu culture between the fifth to eight centuries CE. Epigraphic evidence, architectural and stylistic similarities between temples in the region are strongly indicative of historic cross cultural links between the traditions. This paper presents the findings of a research project that pieces together fragments of evidence from early temple sites in Southeast Asia to establish the linkages between the Southeast Asian temple building traditions. The focus of the paper is on tracing the canonical connections between these traditions through an examination of temple sites in Cambodia and Java respectively. The legacy of this ancient diasporic movement remains celebrated today in the admiration of Southeast Asian monuments such as Angkor Wat and Prambanan. However this architecture evolved over time through a process of long experimentation with philosophies, world-views, and methods. . In order to permit a deeper examination of canonical connections, the authors use methods such as photogrammetry, digital and physical models to reconstruct the architectural forms. A detailed analysis of the canonical geometry and compositional form of these temples is undertaken with reference to Indic texts and temples. Comparing the relationships between cosmology, geometry and physical form in this earlier sites with both Indian and developed Southeast Asian models, it is intended that its generative role within Southeast Asian architectural historiography can be clarified and more fully celebrated.

**Keywords:** Southeast Asian temple architecture; parametric modeling; reconstruction

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The Hindu temples of Southeast Asia are surmised to be of Indic origins. While there are profound regional differences, Epigraphists, Sanskritists and historians have made significant connections between the temple building traditions of South and Southeast Asia. The compositional and architectural linkages along the trading routes of South and Southeast Asia, particularly between Java, Cambodia and Champa formed an important aspect of early Southeast Asian architecture and urbanism. However, as these traditions of temple building developed locally, the extent to which their architecture can be related

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directly to any Indic canon remains unresolved. How did these separate architectural traditions develop from common origins? This is a question that has (thus far) only partially been answered by cultural historians, drawing on archaeological remains, contemporary accounts and the fragmentary epigraphic record. Remains of early Hindu temples in India and Southeast Asia represent a key part of this record, Analysis of their decorative details, motifs, key elements and statuary have all been used in order for the purposes of categorisation of temples in types, periods and schools of thought. As Kramrisch reminds us, the problem with visually perceiving a Hindu temple is that we are looking at the outside of an idea that has been conceived from the inside.<sup>1</sup> Following on from this, the detail and decoration that we view are manifestations of cosmological principles that are also generated from within. Its meaning is centred, literally, in its sanctum, the simple, often unembellished space of its interior. What is seen on the temple's exterior is a manifestation of cosmological meanings that have emanated from within. In the absence or erosion of remaining motifs (colonnets, superstructures, lintels, etc.) on many of the earliest temple sites in Southeast Asia, it is the relationship between the cosmological meaning of the temple and its physical form that may fill gaps in the historical and epigraphic record. Manifested in their fundamental layout and proportions, individual temples may be found to relate to lineages and traditions of temple architecture.

### **Origins and Early antecedents**

The early temple sites of Southeast Asia, therefore contain a pivotal body of evidence concerning the movement of religious, structural and architectonic ideas across Asia, and this paper presents the findings of a research project that pieces together fragments of evidence from early South and Southeast Asian temple sites to establish the linkages that proportional and compositional aspects of their architecture might reveal. To elucidate the complex material, the authors deploy a comparative method on two levels. On the one hand there are ideal notions of the Hindu temple and shared cosmogony. On the other, there are individual temples as a realization of the ideal. Linkages between temples in different locations and whose appearances imply quite different influences raise questions about particular traditions, about the relation between temple and treatise, between theory and practice and between individual temples and a

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collective corpus. 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 aim of this project is to study the constructive geometry of the temple's fundamental type, as embodied in the simple cella. The cella is a single-cell structure, a sanctum that lies at the core of all Brahmanic/Hindu temples, however elaborated and developed. By looking at the earliest extant temples in both South and Southeast Asia, tracing the inter- and intra-regional lineages and relationships between cella forms, modelling the similarities (and differences) between spatial and formal characteristics of South and Southeast Asian cellae, particularly in terms of their constructive geometries can be discerned.

With the early temples of Southeast Asia, we have the physical remains of the temples as a starting point. We do not know what drawings or diagrams, if any, were used to represent their construction. We have only a generalised connection with similar temples from which connections have been made with mandalas and other cosmological/geometric diagrams. This paper will concentrate on one method of compositional comparison between canon and constructed temple – the use of the mandala as a basis for constructive geometry, and the manifestation of its proportions as evidence of cosmological similarities between different temple traditions. The mandala provides us with a possible starting point for understanding this, as its proportional relationships set rules that arguably have been used to generate actual temple plans. The geometry that generates the temple form is projective in the sense that it projects a geometrical representation of cosmology into three dimensions, but it is not projective in the sense of an image. This method differs from study of physical elements and details. The process of measurement in order to discover aspects of the underlying geometry of temples requires a certain suspension of the vision-based sensibility that an architect naturally brings to fieldwork. The primacy of the visual, of trying to comprehend a building through consideration of its visual characteristics, needs to be suspended in favour of

what Robin Evans might refer to as other means of projection.<sup>2</sup> As the authors have noted in an earlier paper, the process of understanding the principles behind temples through measurement of their form might be likened to the opposite of the stereotomy described by Evans in his discussion of geometry, in particular in his description of the trait.<sup>3</sup> The trait is a series of graphic instructions for cutting stone into complex forms, a non-representational means of projection from drawing to building. It does not look anything like the architecture that can be constructed from it, yet it contains its geometrical basis. Evans describes the trait as an orthographic but not visual projection of geometry conceived to construct architecture. The mandala can be more directly projected onto a temple plan, but it is similarly not intended to be representational. While, as Affleck and Kvan observe, (2005: 169), the majority of virtual heritage projects attempt to create in the computer a realistic representation of their subject, this is not the primary intent of this project (though it is a possible application). Partially this is an attempt not to fall into the trap of mistaking realism for authenticity, but essentially what is important is not so much to recreate ancient sites in their architectural entirety, but to uncover how their architecture was developed by comparing formal properties with models from which they may have been derived.

A key to this may lie in the cosmological origins of the Brahmanic/Hindu temple, and its relation with archetypal form. While there are thousands of variations in form, one way of understanding temples is through their relationship with principles outlined in canonic Sanskrit texts (shastras) such as Mayamata and Agni Puranas.<sup>4</sup> These texts provide sets of prescriptive rules which touch on all aspects of temple construction; site selection, formal types, details, and location of sculptural elements. The architectural elements described by such shastras are based on a number of geometric figures known as mandalas, and it is through discerning relationships between these cosmic diagrams and temple plans that closer correlations than observations of resemblance between different examples of constructed buildings might be approached. This approach takes as its starting point the premise that the evolution of the temple embodied a progressive elaboration of this prototypical schema, using a sacred constructive geometry that conveyed the syncretic

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Brahmanic cosmology.<sup>5</sup>

Embedded in the plan of most early (fifth to eighth century) Indian temples is a ritual grid diagram of  $8 \times 8 = 64$  squares (mandala), as prescribed for temple building in the *Brhat Samhita* and other shastras.<sup>6</sup> The '*Brhat Samhita*' speaks of two types of diagrams, one consisting of 64 equal squares (pada) and other of 81 squares. In chapter LV. 10, it is enjoined that the area of the temple should always be divided into 64 squares (Kramrisch :46).

In order to permit a deeper examination of canonical connections, the architectural forms have been reconstructed by the authors using methods such as photogrammetry, digital and physical models. Using spatial information modelling (e.g. parametric models, rule-based design and mathematical development of rule-based surfaces), fragmentary evidence from diverse sources is being pieced together to gradually establish a comprehensive picture of the range of early South and Southeast Asian temple forms and geometric characteristics. While bearing in mind the influences from other sources, computational modelling of spatial information provides a new tool for researching the genesis and evolution of temple forms. Through the use of architectural photogrammetry, computer form models can be generated from existing temples and compared with models derived from textual canons (shastra rules and diagrams). Computation of spatial information has been used to plot links between architectural remains and the principles of geometrical and architectural composition as presented in the texts. The representation of the building through the series of computed points is, therefore, not just a device for visualisation but a description of underlying geometry.

An example of how this diagram can be the basis of actual temple construction can be found in the work of the archaeologist and temple historian Michael Meister. Meister has analysed the composition of monuments of similar antiquity to the Kulen temples in India, as well as in Pakistan and Afghanistan on the opposite edge of the ancient Brahmanic/Hindu world. Working from an understanding of temple construction sequence

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as well as their ritual underpinnings, he has found the sixty-four square mandala's dimensions correlate closely to the constructed dimensions at the level of the vedibandha, (which corresponds with the level of the sanctuary threshold rather than through the jangha, or main body of the wall, where an architect might normally measure a building's plan). After testing this premise on a number of examples, Meister has come to the conclusion that the horizontal dimensions of the vedibandha provide for a set of proportional relationships that relate to shastra prescriptions.<sup>7</sup> Furthermore, he shows how the horizontal profile of the cella depends on the number of offsets and the proportional relationships between each offset based on the subdivision of the sixty-four square grid.<sup>8</sup> Following Meister's method, close analysis of the empirical and proportional dimensions of base plan and cella forms in early Southeast Asian temples have been made by the authors and relationships between their constructive geometries compared. Generation from mathematical derivation of canonical sources, if compared to the formal reality of Southeast Asian temples, have analysed the geometrical bases of links. Following this method, the connection between the use of the mandala as a basis for temple composition, and way in which the temple represents its own meaning can be explicitly connected. In Meister's use of Pierce's semiotic terminology, the meaning of a temple is not just symbolic but actual, embodied within correlation of its mass and space to the sacred diagram of the mandala, as well as its visual characteristics (Meister 1990: 395).

For archival material, please use: Author, type of document [memo, note, diary entry], date, folder/box/dossier name or number, page number, name of collection, archival institution, location. For an example, please see this endnote.<sup>1</sup> As archives differ in the ways they catalogue material, not all of the above information may be available. However, you must provide an author and some form of identifying information.

### **Brahmanic/Hindu Temples in Java: Dieng Plateau and Gedong Songo**

The earliest extant Brahmanic/Hindu temples in Southeast Asia are in two locations in Central Java, on the Dieng Plateau and on the slopes of Mount Ungaran (Gedong Songo). While there may have been earlier temples both here and in West Java,

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lack of substantial remains means that relations between these temples and previous developments on Java can only be speculated upon (Sarkar 1988: 136).

There are eight remaining temples at Dieng, and while each shares the characteristic of being a small stone cella with a single interior space, these buildings also represent a variety of compositional approaches to this building type. Thus, it has been speculated that the temples at Dieng represent an early experimental phase in development of the Javanese candi (Sarkar 1988: 139). Apart from Candi Semar (which is essentially a subsidiary temple facing Candi Arjuna) and Candi Bima, all the temples face west. Dumarçay suggests that the earliest temples at Dieng are Candi Arjuno and Semar, which together form a Sivaite complex (Dumarçay 1986: 14). These joined on the same site by Candi Srikandi, Candi Puntodewo and Candi Sembodro. Srikandi is similar to Arjuno, and Puntodewo and Sembodro have a more developed composition, and are considered to be slightly later in origin (Chihara 1994: 107). Slightly more distant are three more candi. Candi Gatotkoco and Candi Dwarawati have a composition that is further elaborated, with an increasing overlays of square and cruciform geometries. Candi Bima is unique, not just in terms of the other Dieng temples, but in terms of Javanese temple architecture more generally.

The Gedong Songo temples are considered to be contemporaneous with the Dieng temples. While the name 'Gedong Songo' means 'nine buildings' in Javanese, there are only five extant (though Gedong Songo III is itself a small complex of three temples). Compared to the Dieng temples, the first notable characteristic is how similar they are to each other in composition. Resembling Candi Arjuna at Dieng, each of the Gedong Songo temples is square in plan, with a tiered superstructure of three false storeys, which varies from temple to temple in proportion of height to width rather than compositionally (FIG.1). Otherwise there are variations in the treatment of the porch roof (Gedong Songo I and II's porch roofs have a shallow curved form and the smaller temple of Gedong Songo III has singly pitched roof sloping towards its front, whereas the other Gedong Songo temples have triangular gabled porch roofs) and in the overall sizes. This consistency implies a standardization of form, and Dumarçay suggests that it is here that the prevalent model of Javanese temple architecture became established (Dumarçay

1986: 16). The later temples of Candi Kalasan and the Candi Prambanan complex certainly show the same compositional characteristics, if considerably elaborated. Another characteristic that is common to all the temples at Dieng and Gedong Songo (except Candi Bima which faces east) is that they face west, whereas most later Hindu temples, both in Java and in other locations, face east (a notable exception is Angkor Wat, which, according to some scholars is a funerary temple).



Fig.1. Reconstruction models of Gedong Songo III (left: larger shrine, right: smaller shrine).

In looking at the plans of two representative Gedong Songo temples (FIG.2), the larger and smaller shrines of Gedong Songo III certain correlations can be readily made. In each case, the inner dimensions of the sanctum, if taken to relate to the inner 16 squares of a 64-square mandala, form the basis for a proportional relationship where the exterior face of the wall at the level of the vedibandha aligns (with some allowance for reconstruction) with the outer 64 squares.

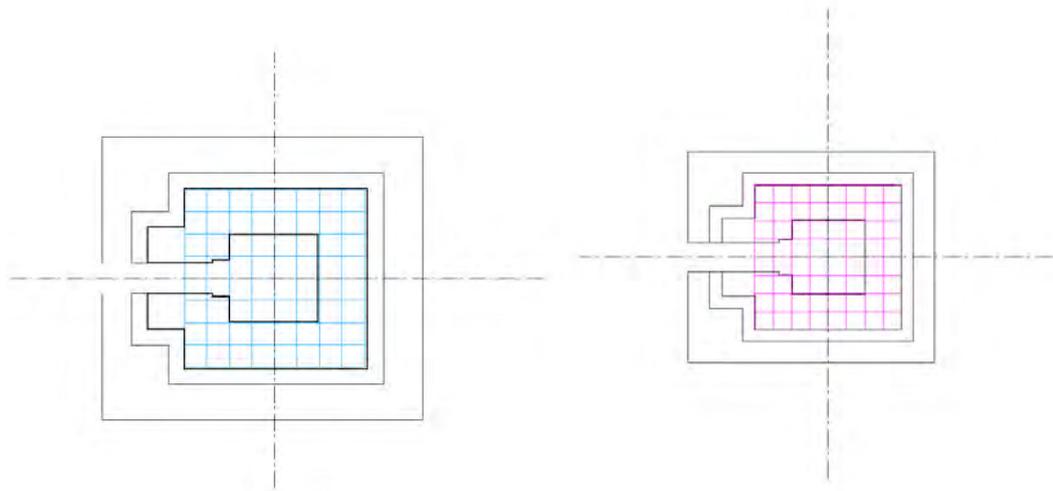


Fig.2. Gedong Songo III plans (left: larger shrine, right: smaller shrine)

Gedong Songo V has the same compositional basis, and in plan is very similar to the Gedong Songo III temples (FIG.3). The main difference is in the exaggeration of its superstructure, considerably more attenuated than the other Gedong Songo temples. The use of false stories here is perhaps the earliest example of the use of forced perspective, a characteristic that can also be seen in Candi Kalasan, and then later in even more exaggerated fashion, in East Javanese temples such as Candi Kidal and Candi Singosari.

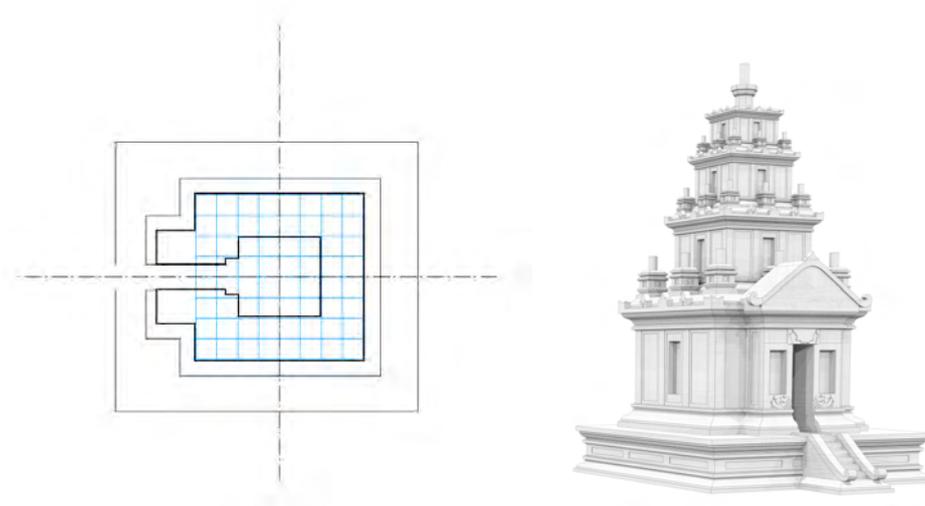


Fig 3. Gedong Songo V. Left: plan, Right, view of parametric model.

Further correlations can also be read in the Dieng temples. The earliest

examples (Arjuno, Sembadro) are similar to the Gedong Songo temples in plan and composition, but the later ones, Puntadewa, Gatokaca, show further elaborations. Candi Gatokaca is an interesting example (FIG.4). Here, while the inside of the sanctum is an unelaborated square, like the earlier temples, the exterior face of its walls show the development of projections, axially in all four cardinal directions. These projections manifest in the superimposition of a cruciform layout on the simple square. Candi Gatokaca's form is also notable in that its plinth projects no further outwards from its centre than the mouldings of its vedibandha, though there are traces of further structures in what is now the ground around the temple. Even without its lost superstructure, the visual effect is to emphasize its verticality, something which can also be seen in the compositionally similar Candi Dvaravati, as well as the quite distinct Candi Puntadewa. Candi Gatokaca also shows development of false doors on its north, south and east faces, a feature that is found on other Dieng temples, as well as those in Gedong Songo. Interestingly, this expression is quite distinct from the niches found in contemporaneous Indian temples, suggesting a local architectural expression.

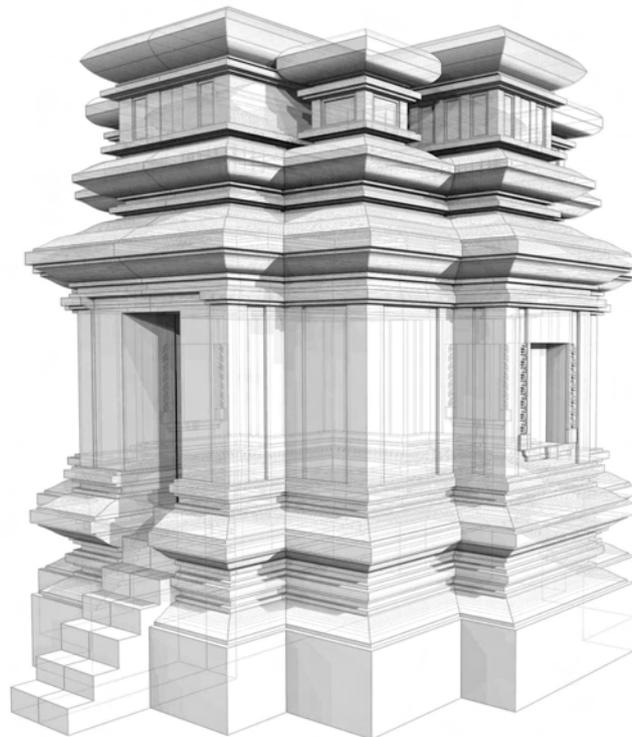


Fig.4 Candi Gatokaca, Dieng Plateau, view of reconstructed parametric model

In looking at the plan of Candi Gatotkaca (FIG.5), the same correlation between the proportions of the inner sanctum, and the basic square of the exterior walls can be seen. However, it is more difficult to see correlations between the cruciform projections and these same proportions. Some of this lack of correlation may be due to the reconstructed nature of the temple, but also perhaps due to the experimental nature of the formal variations among the Dieng temples. In this variation of composition and form within a small group of temples, Dieng could be compared to the sites of Pattadakal and Aihole in India. In both Indian locations, there is a degree of experimentation apparent in the typology of the temple. At Pattadakal and Aihole, there are temples from both the developing Nagara school of northern Indian temple architecture, the Dravida school of southern Indian architecture, as well as temples such as Ladh Khan and Meguti whose development of the flat-roofed temple is indicative of an earlier, pan-Indic form.

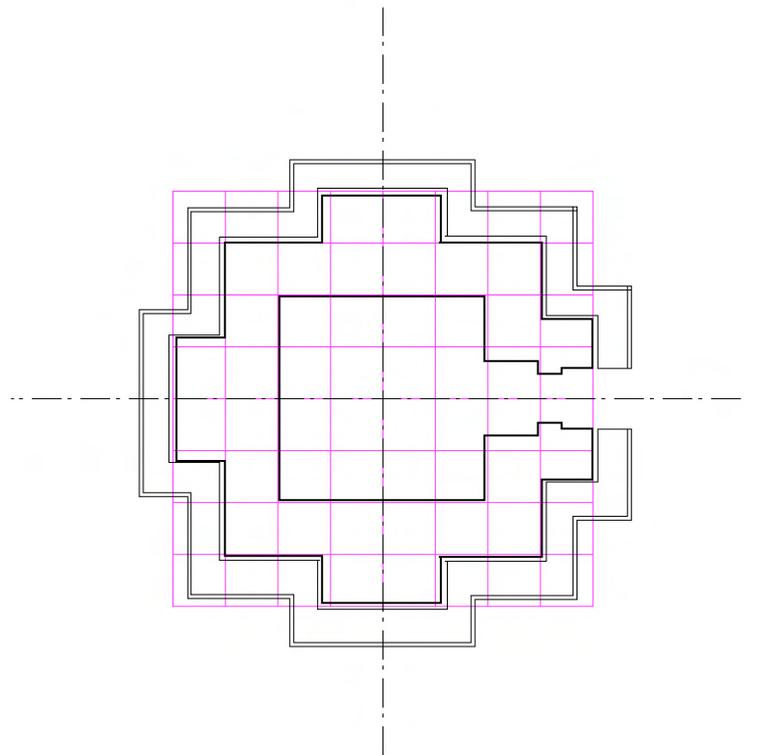


Fig.5 Candi Gatotkaca, Dieng Plateau

When looking at the plans of the various Dieng temples, the closest correlation between plan and 64-square mandala can be seen in Candi Arjuna, and

Candi Srikandi, a slightly rougher correlation in Candi Sembadro, and Candi Puntadewa, as noted above, only a partial correlation in Candi Gatotkaca and Candi Dvaravati, and little correlation discernable in Candi Semar and Candi Bima. In this, Candi Semar's variation is understandable, as essentially this is a subsidiary temple to Candi Arjuna. Candi Bima, as in its other compositional characteristics, is unique among the Dieng temples in its rectangular layout, and incorporation of a mandapa (vestibule) rather than just a porch entry. Leaving Candi Bima aside, the degree of relation of the Dieng temples to proportions of the 64-square mandala do correspond with estimations of their relative ages. In Chihara's opinion, the Earlier Dieng temples (Arjuno, Srikandi) date from around 680 to around 730, whereas the latest ones (Gatotkocha, Dvaravati) date from around 730 to 780 (Chihara 1994: 110). The implications of this are necessarily speculative but bearing in mind Dumarçay's thesis that in Southeast Asia earlier temples served as models for later temples (a basis made more in the circumstances of technique and regional expression than in strict canon), the evolving forms of Dieng's temples suggest this thesis, even at this earliest stage of the Southeast Asian cella (Dumarçay 2003: 10).

### **Brahmanic/Hindu Temples in Cambodia: Phnom Kulen Plateau**

The influence of Javanese architecture on early Khmer architecture has been documented historically, and when looking at pre-Angkorean architecture in Cambodia, both the influence of canon (as represented by application of the 64-square mandala) and regional variations can be seen. The development of Khmer architecture and cities began in the pre-Angkor period, before the founding of the Angkor Dynasty in the 9th century,<sup>9</sup> and the influence of Java is on the epigraphic record. According to a stele found at Prasat Sdok Kak Thom:

*St. 70-77: Then a Brahman named Hiranyadama, scientist in magic science, came from the country of Janapada (a province of the kingdom) because the king had invited to make a ritual so that the country of Kambuja was not dependent any more on Java, and that there is nothing any more but one sovereign who was Cakravartin.<sup>10</sup>*

This appears to refer to a ritual in which Jayavarman II led the Khmers to free themselves from vassalage under the rule of Java. While the exact definition of Java in this

case is disputed, variously being held to refer to the Sailendras on the island of Java itself,<sup>11</sup> or more generally to another Malay kingdom (such as perhaps the Srivijaya empire),<sup>12</sup> it is clear that both the unification of ancient Cambodia and its independence from other powers can be attributed to Jayavarman II's act of ritual occupation. This occupation happened at Phnom Kulen (Mount Kulen) in 802. However while Phnom Kulen was only briefly the royal centre, it marks a time of transition in which Jayavarman II's kingdom went from being a small polity to the most powerful empire in Southeast Asia. Phnom Kulen is a massive sandstone outcrop, a flat-topped mountain that rises singularly out of the plains of northwestern Cambodia. Historically Phnom Kulen has been identified with Mahendraparvata (Mount Mahendra), in Indian cosmology the home of Siva.<sup>13</sup> By taking control of the mountain, Jayavarman II identified himself and his rule with the authority of Siva, and as the stele relates, with the help of ritual magic he succeeded in impressing this authority on Cambodia as a whole. Hidden in the thick scrub of the Phnom Kulen plateau, are numerous small temples (*prasat* in Khmer). As Chevance notes in his recent survey, twenty-four of these have been identified conclusively as pre-Angkorean.<sup>14</sup> These temples are in varying states of disrepair, at best heavily eroded, and at worst, with only fragments extant. However, in analysis of the best-preserved examples, some comparisons can be made both with the Indic canon, and with Javanese temples.

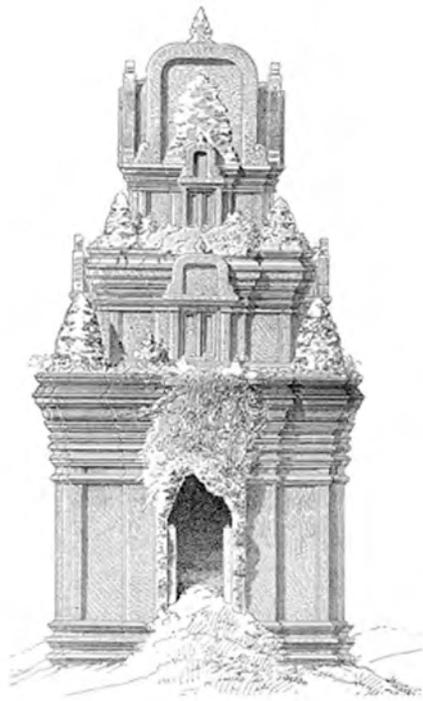


Fig.6 Prasat O'Paong, Phnom Kulen

Prasat O'Paong is the largest of the Phnom Kulen temples. The whole temple is visibly raised on a podium in the middle of its clearing, though the form of the podium can only vaguely be seen through the vegetation. It is almost eight metres square, and is also constructed of brick (FIG 6). Its walls have shallower modulations than the other two temples, and there are no false doors. Instead a *bhadra* (part-temple form in extruded relief) forms the central part of each wall, framed by its own pilasters. The main body of the wall is otherwise quite undecorated. There are also only a few remnants of the stucco that may have covered this brickwork. Its superstructure, while heavily eroded, follows the same method of articulation as that nearby Prasat Thma Dap, consisting of three tiers of part-wall/part-roof of decreasing size. The difference is one of proportion as well as size. At Prasat O'Paong, the vertical elements are far more prominent in height, giving the overall superstructure a sense of exaggerated height. Chevance suggests that this characteristic is an attempt to increase the perceived height of the temple by use of forced perspective.<sup>15</sup> Here comparison might be made with the superstructure of Gedong Songo V, as well as later Javanese temples.

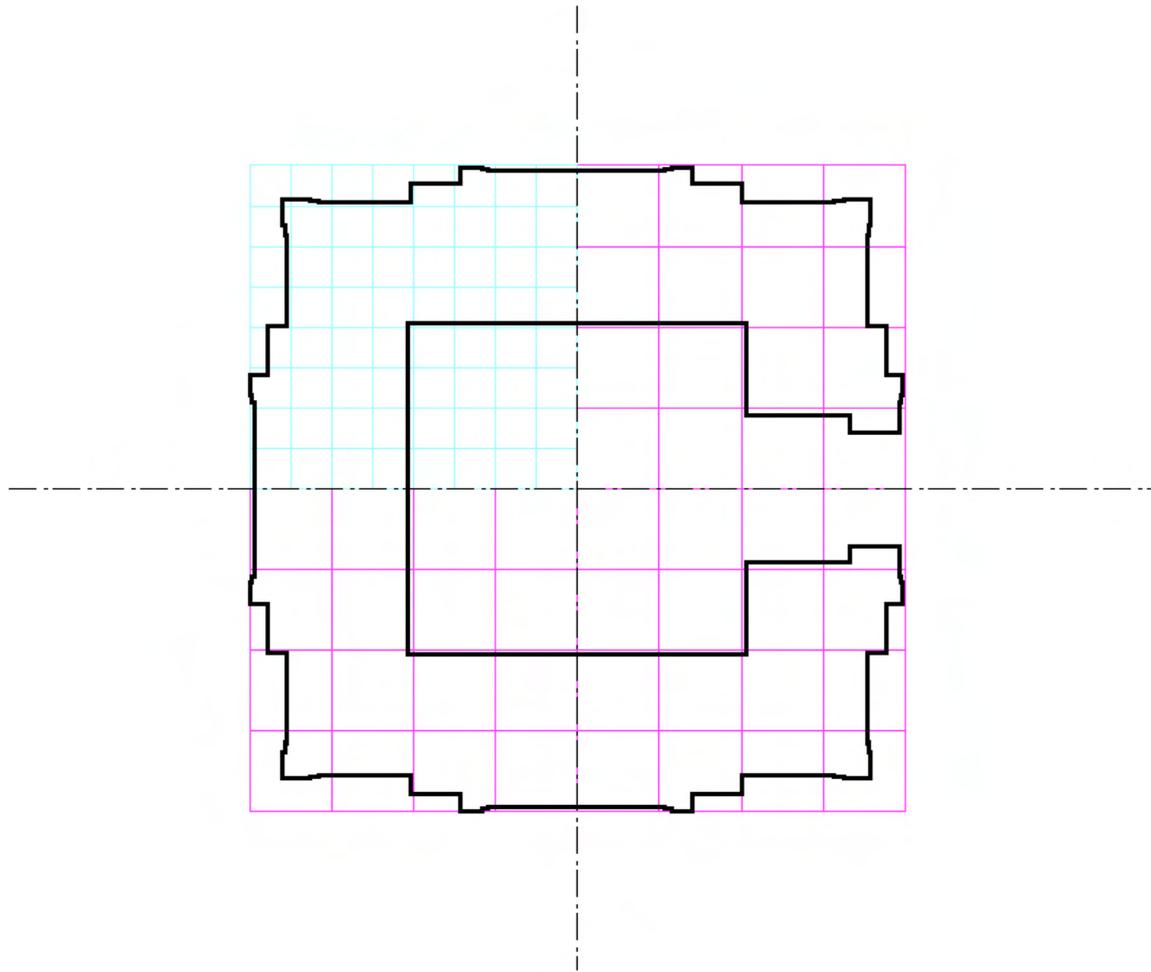


Fig.7. Plan, Prasat O'Paong, Phnom Kulen

## Reflections on Canonical Lineage

Geometric relationships in the temples of Dieng, Gedong Songo and Phnom Kulen suggest the importance of canon in early Southeast Asia, while the appearance of elements such as false doors and false perspective through exaggerated superstructures suggests the development of regional forms of architectural expression. Correlations with the 64-square mandala are, as Meister suggests, indicative of the use of the sacred diagram to delineate and protect the inner sanctum of the temple, how “the sacred

character of the temple's inner space-both the sanctum itself and its potent center-was given a physical embodiment on the temple's outer walls." (Meister 1990: 395). However, we also need to be wary of claiming too much meaning in correlation. The geometry of a temple can only tell us so much. Meister has surmised after his investigations into Indian temples, that from around the ninth century onwards temple plans were generated from reference to earlier temples, with the mandala maintaining a ritual, but no longer a geometrical significance.<sup>16</sup> Dumarçay's argument about traditions of temple design being derived primarily from the development of built examples as models, corresponds to this.<sup>17</sup> Even in the measured correlation between a temple's measurements and a sacred diagram, there remains a gap. The nature of this gap lies in not knowing how and why such a diagram was used in the construction of a temple, or whether the philosophy and cosmology embedded in the diagram is also embedded within its walls. While the systemic use of canon is apparent, variations from it, and other 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 the early ninth century. What becomes increasingly clear is that Southeast Asian temples, while derived from the archetypal Brahmanic/Hindu *cella*, represent lineages also constantly being adapted and hybridised according to influence from within the region. Notions which are currently used to explain twenty-first century cultural interactions; hybridity, in-betweenness, authenticity, can be seen through the study of these buildings to be ancient happenings.

## Endnotes

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<sup>1</sup> Stella Kramrisch *The Hindu Temple*, Motilal Banarsidass, Delhi (1976), Indorf (2004).

<sup>2</sup> Robin Evans, *The Projective Cast: Architecture and Its Three Geometries*, The MIT Press, Cambridge, (1995) p.xxxi.

<sup>3</sup> Evans (1995), p354.; David Beynon & Sambit Datta (2005) p.54.

<sup>1</sup> Stella Kramrisch, *The Hindu Temple* [reprint], Motilal Banarsidass, Delhi, (1976).

<sup>5</sup> Michael Meister, 'Geometry and Measure in Indian Temple Plans' *Artibus Asiae*, 44, 4 (1983), 12.

<sup>6</sup> Kramrisch (1976).

<sup>7</sup> Meister (1983), 274.

<sup>8</sup> Michael Meister, *Mandala and Practice in Nagara architecture in North India*, *Journal of the American Oriental Society*, Vol.99, No.2, (1979), 205.

<sup>9</sup> Lawrence Palmer Briggs, 1951 . *The Ancient Khmer Empire*. *Transactions of the American*

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Philosophical Society, New Series – 41:1:1, 295.

<sup>10</sup> translation from Khmer in Chevance (2005), 23.

<sup>11</sup> Coedès, (1968), 100.

<sup>12</sup> P.Y. Manguin, 'Etudes sumatranaises I. Palembang et Sriwijaya: anciennes hypotheses, recherches nouvelles (Palembang Ouest)', *Bulletin de l'Ecole Française d'Extreme-Orient*, 76, (1987).

<sup>13</sup> George Coedès, *The Indianized States of Southeast Asia*, ANU Press, Canberra, (1968), 100.

<sup>14</sup> Jean-Baptiste Chevance, *L'Architecture et le décor des temples du Phnom Kulen, Cambodge*, Université Paris III – Sorbonne Nouvelle UFR Orient et Monde Arabe, Paris (2005), 39.

<sup>15</sup> Chevance (2005), 119.

<sup>16</sup> Meister (1979), 207.

<sup>17</sup> Jacques Dumarçay, *Architecture and Its Models in South-East Asia* (2003) Orchid, Bangkok.