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## **Candi, space and landscape : a study on the distribution, orientation and spatial organization of Central Javanese temple remains**

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## CONCLUSION

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By way of conclusion, I would like to draw on the preceding chapters and summarize my main results and hypotheses. Through this thesis, I hope to have demonstrated that the architectural landscape of Central Java is the result of a complex socio-cultural process. The distribution, orientation and design of Central Javanese temples were determined – at various levels – by economic, political and religious factors, revealing the manifold nature of the relationship between shrines, land occupancy, natural environment, conceptualized space and building traditions.

### Temple distribution and land occupancy

The creation of a new inventory of temple remains – both preserved and vanished – including their geographical coordinates has allowed us to go one step further than the ancient inventories available (Verbeek 1891; Krom 1914a; Bosch 1915) and to draw a precise archaeological map of ancient Central Java (see appendices and in-text illustrations in chapters 4-5). These geographical data have been used to initiate our reflections over the physical structure of the Central Javanese territory (chapters 4-5), and to assess the extent of the Hindu-Buddhist sphere of influence over the neighbouring regions of Java (chapter 4). Religious buildings are today the only extant *in situ* remains of the ancient Central Javanese polity and are found across the whole region studied, from Semarang to the Indian Ocean. Their density, however, varies considerably: vestiges are far more numerous in the southern part of the Progo valley and on the south-western slope of Mount Merapi than anywhere else, reaching a peak around Prambanan.

My analysis of the correlations between temple distribution patterns, ecological zones and topography, enriched by data from secondary sources, has allowed me to reconstruct the main traits of land occupancy. The territory of ancient Central Java was structured around a core agricultural region, a series of secondary centres and several religious centres – sometimes relatively isolated (chapters 4-5).

Temple distribution patterns and ecological data show that the economic heart of the polity was the region extending from Prambanan and Muntilan. In this area, correlations between temple distribution, water accessibility, soil fertility and gentle topography suggest a direct relationship between shrines, settlements and agricultural activities (chapter 5). The large majority of the remains are indeed found on gently sloping plains covered by a dense network of streams. High, dry land, as well as marsh and flood areas are avoided. These observations confirm those made by Mundarjito for the districts of Sleman and Bantul (Mundarjito 2002), as well as earlier research on ancient Central Javanese society, strengthening the hypothesis that the economy of Central Java was essentially agriculture-based (Krom 1931; Wisseman Christie 1992; 2004). The relationship between temples and cultivation is made more explicit in inscriptions, which show that temples drew a large part of their income from taxes on agriculture. It was thus in the interest of religious foundations to change dry fields into *sawah* and so to intensify rice production (Wisseman Chrisite 1992; 2004; and chapter 4). Geographical information derived from the Chinese annals have further revealed that the Central Javanese *kraton* – the ruler's residence and political centre of the polity – was most probably originally located in the northern part of this rich agricultural zone, around the town of Muntilan (chapter 4). This conclusion is in contrast to a previous study made by Soekmono, who suggested that the palace was actually located near Grobongan, in the northeastern part of Central Java (Soekmono 1967); an hypothesis that neither temple distribution patterns nor ecological data seem to sustain (chapter 4).

Outside this central, agricultural area, I have identified three clusters of temple remains, located respectively near the modern towns of Secang, Ngadirejo and Boyolali (chapter 4). These clusters are situated in areas of medium to low agricultural value, but at important points in the landscape, and most probably represented key centres within an ancient route network (chapter 5). Temple distribution patterns show that this network linked the rich agricultural plains of the south to the northern coast *via* two main itineraries: one goes all the way north through the Progo valley, the other follows the eastern foot of the Merapi-Merbabu massif (chapter 5). The existence of such routes confirms that the economy of Central Java was not a closed economy based on isolated communities, but quite the contrary; it relied on an extensive trade network, as already underlined by Jan Wisseman Christie on the basis of inscriptions (Wisseman Christie 2004). This network not only linked Central Javanese villages with one another, but also linked the economic centre of the polity to the outside world *via* a harbour situated on the northern coast. The exact location of this port is still to be determined, but the evidence points towards the area of Semarang (chapter 4): this is where the communication routes apparently ended and it also corresponds with a slight increase in the density of temple remains. This conclusion is in obvious contradiction to the opinion of Soekmono, who placed the harbour of Central Java in the area of Grobongan – close to the place where he located the *kraton* (Soekmono 1967). Not only does this identification of Grobongan as the main harbour of Central Java not fit with temple distribution patterns, but the hypothetical reconstruction of the ancient coastline on which his argumentation is heavily reliant is at best erroneous (chapter 4).

Besides temples related to places of economic interest, Central Java possessed a series of religious centres linked neither to roads nor settlement (chapter 4). We have demonstrated that the densely clustered remains around Prambanan could not be interpreted as a large-scale settlement: the sharp decrease in temple density to the east of Prambanan is indeed better explained by the existence of an important religious centre, located on the eastern periphery of the Central Javanese polity and does not fit with the hypothesis of a bustling economical centre. The development, in later times, of a road linking Prambanan directly to the northern coast – without passing through the Progo valley – seems nevertheless to suggest that the area acquired a new status of economic interest during the 9<sup>th</sup> century and might well have been the Medang in Mamrati where the *kraton* was transferred around 855 A.D. (Casparis 1956). If this proves to be true, it puts in perspective the shift of power from Central to East Java, presenting it as a slow process that started in the mid-9<sup>th</sup> century (Barrett Jones 1984), rather than as an abrupt change (Krom 1931).

Unlike Prambanan, which is located in the plain, a series of other important religious sites are located on dry, high and relatively isolated grounds (chapter 5). These are the temples situated in the Pegat-Ijo hills (including - among others - Ratu Boko, *candi* Barong and *candi* Ijo), together with Dieng and Gedong Songo further to the north. Although they were built in areas unsuitable for wet-rice cultivation and could not sustain large settlements, these sites show a very long period of occupation and a rich construction activity, all elements that point towards a significant ritual role apart from any obvious economic interest.

Outside the area constituted by the Progo valley, the Yogyakarta plain and the eastern slope of the Merbabu-Merapi massif, Hindu-Buddhist sites are scarce (chapter 4). To the west of the Progo valley, Hindu-Buddhist remains are often restricted to *yoni* and stone terraces and are often found in combination with small menhir and a sort of mortar stone; thus showing simultaneously the geographical limits of the Hindu-Buddhist polities and their influence on neighbouring cultures.

### Interaction between architecture and natural environment

Irrespective of whether temples were built in fertile plains or on high ground, the choice of the site was guided by a series of factors determined by the natural environment (chapter 5). Religious buildings were most often associated with specific landscape markers such as rivers, water confluences or sources, isolated hilltops, sulphur springs, transitional zones, etc. Whenever possible, building sites combined several of these elements. *Candi Ngempon*, near Ambarawa, is a good example of this phenomenon, being located on a riverbank near a confluence, and close to hot and cold springs. Similarly, *candi* Gunung Wukir stands not only on an isolated hilltop, but is also surrounded on three sides by rivers and is located in a transitional zone marking the junction between the Progo valley and the more open landscape of the Yogyakarta plain.

Sometimes, landscape markers played a role in the choice of the site but had no further influence on construction. In other cases, however, architecture was influenced by and made use of the natural environment. Although the vast majority of the temples were oriented more or less towards the cardinal points and faced either east or west, the relative position of rivers and mountains played a role in the location of the entrance. This is especially true in south Central Java, where most of the temples are oriented with their back to a river or hilltop. Thus, while making offerings to the deity housed in the main shrine, the devotee was also facing a river or mountain, introducing the natural environment into ritual practice. In a few cases, the mountain or hilltop rising behind the temple appears to have been the main focus of the site. *Candi Miri*, for example, is not built atop Gunung Pegat, but immediately below its summit, so that the devotee paying homage to the deity would clearly see the peak behind the building.

Even when temples are located on isolated hilltops, such as *candi* Abang or Gunung Wukir, the natural features of the site do not appear to have been altered or subordinated to the architectural program. With the notable exception of Borobudur, hills were not artificially re-shaped by means of concentric terraces and axial staircases, as was sometimes the case for the mountain-temples of Cambodia.

It should be emphasized that the association of temples with rivers was not based exclusively on economic interests (chapter 5). The inscriptions leave no doubt about the ritual importance of rivers. On the one hand, temples benefited from the sacred presence of purifying water, while, on the other hand, rivers gained religious significance and potency through the presence of temples along their banks. The physical relationship between temples, inscriptions, and landscape clearly shows that the natural and the built environment were mutually strengthened by religious association and were perceived by early Javanese society as an undivided and inseparable whole.

### Built space and conceptualized space in Central Javanese architecture

Beyond the questions of territory and landscape, the present work also offers reflections on the structure of the built space and its possible relations with conceptualized space. On this subject, architectural and epigraphic data have both shown the influence of imported Indian concepts – as well as their limits. While Central Javanese temples are oriented around the cardinal points – as expected from the Indian textual sources – they show no marked preference for an eastward orientation (chapter 5). The fact that a slight majority of Central Javanese temples face west rather than east (whereas east-facing temples are the *de facto* norm in Indian architecture) and that the position of rivers and mountains also played an important role in the placement and orientation of temples, shows that the art of Central Java was not exclusively based on the Indian building tradition. We have furthermore come to the conclusion that temple orientation, as suggested in inscriptions, was influenced by two

distinct conceptions of space: one of Indian origin, based on the movement of the sun around a unique centre; and another one probably local, that structures space around two axes – something that had already be noted for East Java and Bali (Klokke 1995).

In fact, the Indian concept of space appears to have been more directly implemented into Buddhist architecture than in Hindu shrines. The layout of the large Buddhist temples of Central Java indeed depicts a rather concentric view of the cosmos, compatible in most respects with Indian descriptions of the universe. The Hindu religious compounds, on the contrary, emphasize a different approach in which the idea of progression is reinforced, as well as the association of sanctity with the rear of the temple compound, as so frequently found in East Java.

The westward orientation of many temples, the role sometimes played by landscape markers in this orientation, the concept of a space structured around two axes and the sanctity of the rear are all elements showing that the art of Central Java can no longer be merely described as “connected with facts known elsewhere” (i.e. from India; Bernet Kempers 1959). Indeed, since the same characteristics have been recognized in East Java as well (Patt 1979; Klokke 1995), our observations bring Central Javanese and East Javanese architecture closer together, proving that the concept of localization – which is often associated with East Java (Bernet Kempers 1959; Soekmono 1990) – is essential to our understanding of ancient Central Java as well.

### **Hindu and Buddhist building traditions**

The analysis of temple plans and spatial arrangement has further shown that there was a distinct Buddhist architectural tradition in Central Java. This tradition was characterized by the systematic use of staggered square or rectangular plans, and an inclination for concentric arrangement – at least in the larger temple complexes. The study of architectural mouldings has confirmed this hypothesis, showing that the presence of a torus was not related to stylistic evolution – as previously thought by Soekmono (1979) and Williams (1981) – but was linked to the existence of a distinct tradition: the torus being associated with Buddhist architecture, as foreseen by Dumarçay (1981).

Despite the many uncertainties concerning the relative chronology of Central Javanese temples it is probable that a separate Hindu tradition existed alongside Buddhist architecture. This Hindu building tradition distinguished itself from the Buddhist tradition by making use of square plans and flat mouldings, and by a tendency towards linear arrangement. In later periods, however, a series of Hindu structures incorporated elements from the Buddhist tradition. The most magnificent example of this Buddhist-influenced Hindu architecture is of course *candi* Loro Jonggrang, the layout of which is reminiscent both of small-scale Hindu sanctuaries (for the inner courtyard) and of the larger Buddhist compounds of the Prambanan plain (for the concentric rows of buildings, its staggered square plan and its use of mouldings including a torus). Such similarities may not be limited to architecture and probably explain why the famous Hindu compound was first described as a Buddhist temple (Jordaan 1996).

### **Further research**

Although this book has – I hope – achieved its goal in showing the complex relationship between temple, space and landscape, it has also raised many further questions that are left open. The hypothesis concerning the existence of a ritual network - through which the king of Mataram could both acknowledge local ritual practices and strengthen his power over distant territories - requires further analysis and, in particular, a re-examination of the epigraphic data. Similarly, future archaeological research along the northern coast could shed new light not only on the location of the main harbour of Central Java, but also on the relations between

the coastal region and the hinterland, and the modes of interaction between Central Java and its Southeast Asian neighbours.

Furthermore, one of the most intriguing features I have come across during my research is the presence, at several Hindu-Buddhist sites, of *batu lumpang*; a sort of mortar stone also commonly found in west Central Java, in areas where megalithic cultures predominated. The question that inevitably comes to mind is: are these the *batu kulumpang* so frequently mentioned in Old Javanese inscriptions and to which offerings were made during *sīma* demarcation? Additional research on the distribution of these artefacts and on the rituals described in the inscriptions would certainly reveal more information on this subject.

Finally, I hope that my conclusions, hypotheses and observations will raise the interest of many others and invite further reflections on the nature and history of early Central Javanese society.