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

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CHAPTER 4

Distribution of Temple Remains: General Trends and Patterns

In this chapter, I will describe the general distribution trends and patterns of Hindu-Buddhist temple remains, first at a regional level (Central Java), then at a sub-regional level (namely southern Central Java, the Progo valley area and the area around Mt Ungaran). In the course of the discussion, I will present more in depth the geography of the sub-regions and introduce a first series of hypotheses that might explain the distribution patterns observed. In the following chapter (chapter 5) I will try to correlate the distribution patterns with specific natural features and show how it helps to understand the religious landscape of Central Java.

Regional distribution trends: extent of the Hindu-Buddhist sphere of influence

Temple remains of the Central Javanese period are found in most of the districts (*kabupaten*) of the provinces of Jawa Tengah and DIY, with the exception of the eastern ones.[1] The density of remains, however, varies widely. Actually, Hindu-Buddhist shrines are clearly clustered in the Yogyakarta plain, the Progo valley and the surrounding volcano slopes – the area which is the focus of the present book (Figures 7 and 8). To the east of this zone, there are almost no remains. As for the western part of the province of Central Java, it is dotted with Hindu-Buddhist remains, though the density is considerably lower than in the core region.[2] In western Central Java, the remains are mainly dispersed along the southern coastal plain, the Serayu valley and on the lower slopes of the Mounts Sumbing and Slamet.[3]

In the core region itself, site density is not homogeneous (Figures 7 and 8). Zones with the highest density of temple remains occur around the two largest known sanctuaries of Central Java: Prambanan (*kabupaten* Sleman) on the one hand, and Borobudur (*kabupaten* Magelang) on the other hand. A medium-density corridor stretches between these two centres and extends northwards, following the course of the Progo River, up to the area of Secang (northern Magelang district). Three other areas of medium temple density can be seen on the map, respectively around Ngadirejo (to the northwest), Mount Ungaran (to the north) and Boyolali (to the east).

Differences between the core region (Progo valley – Yogyakarta) and its periphery are not limited to density (high *versus* low) or distribution pattern (clustered *versus* dispersed): the size and the character of the remains are also at variance. With the exception of Dieng, Gedong Songo[4] and – maybe – *candi* Bogang (in Wonosobo), none of the remains of the peripheral regions can match in size the temples of Magelang or Yogyakarta. In many cases, the only significant piece is a *yoni*

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1 No temple remains from the Central Javanese period have been recorded in *kabupaten* Blora, Demak, Jepara, Karanganyar, Pati, Rembang, Sragen, Sukoharjo and Wonogiri. See above, p.34.

2 There is 0.1055 site per 25km^2 in the districts west of the Sundoro-Sumbing massif, whereas the mean density is 1.7266 per 25km^2 in the Progo valley-Yogyakarta area.

3 A nearest neighbour analysis of the area comes up with a nearest neighbour value of 0.8874, i.e. a tendancy towards randomness. See Hodder, Orton 1976: 38-40; Wheatley, Gillings 2002: 129-130.

4 Dieng and Gedong Songo are considerably vast complexes, but they are made of small-size structures, in contrast to the most important sanctuaries of Kedu and Prambanan, which are articulated around (a) large shrine(s).

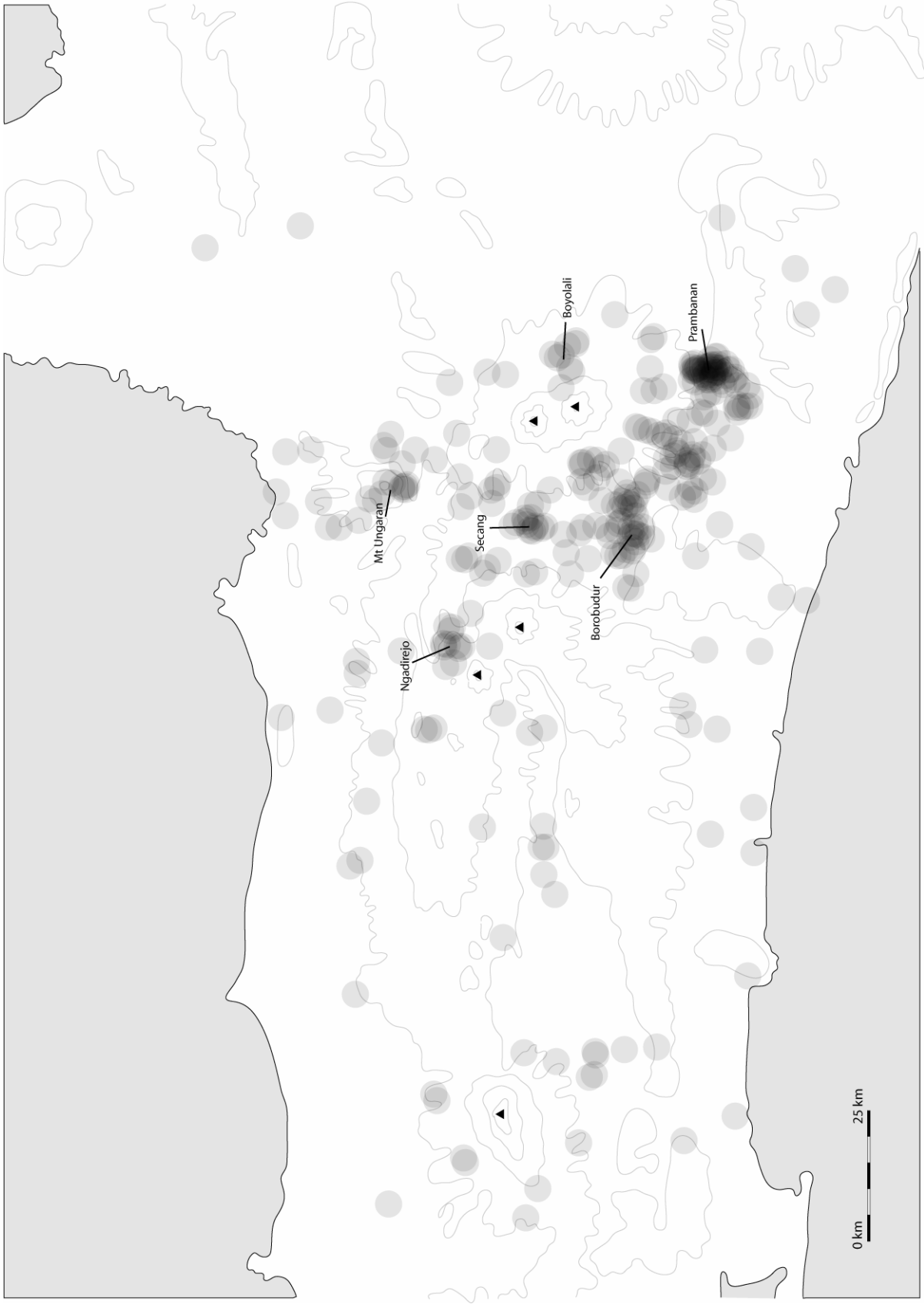

Figure 8: Density of temple remains

accompanied by some cut stones. It is possible that we are not always dealing with the previously discussed type of brick or stone temple, but, possibly, with more rudimentary structures, such as terraces or light shelters for *lingga* and *yoni*.

The lay-out of the site of Seplawan would support this idea: two small, simple platforms, one supporting a *yoni* (Soekatno 1982:223). A similar, open-air worship place has been discovered in the village of Tumbuk (Batang). There, four rectangular inscribed pillars were surrounding a bull (Oemar 1981). Although the text engraved on the pillars is illegible, palaeographic analysis has ascribed the script to the late 9th or early 10th century (Wisseman Christie 2002-2004, n° 174).[5]

The scarcity and simplicity of the known remains in the districts surrounding the Progo valley area suggest that those regions were already at the fringe of the Central Javanese kingdoms.[6] The kings who built Borobudur and Loro Jonggrang seem to have ruled directly over the Yogyakarta-Prambanan plain, the Progo Valley and, at some point, the northern coast, but they were maybe not directly involved in the administration of the western regions.

In some areas, and particularly in the district of Pekalongan, megalithic traditions seem to have played an important role. A couple of sites further suggest that there was some connection between the megalithic and the Hindu-Buddhist traditions, since Hindu-Buddhist sculptures are sometimes found in places of worship belonging otherwise to the megalithic tradition. The site of Baron Sekeber (Gunung Garamanik) is a well-known example of this relationship. The five terraces shaped from the Gunung Garamanik hill have indeed yielded artefacts from both traditions: half a dozen menhirs and several *batu lumpang*[7] as well as 2 *dwārapāla* and one (small) *yoni* (Krom 1914a:132; Tjahjono 2000:41). Dating the megalithic sites, however, is problematic: megalithic cultures were still active in some parts of Indonesia until the last century and it should not be taken for granted that menhir and other similar remains date back very far in time. Without any single piece of archaeological evidence, part or all of the megalithic sites of Central Java may be contemporaneous with – or even more recent than – Hindu Buddhist remains (Bellwood 1997:287-293; Heine-Geldern 1945; Suleiman 1976:8).

Megaliths are not absent from the heartland of Central Java. A 2m long stone phallus, for example, is in the archaeological depot of *candi* Sambisari. It was apparently gathered from the nearby village. This type of artefact recalls the art of the quite late *candi* Sukuh (*kabupaten* Karanganyar, east of Solo) or the numerous wooden drums still in use in the Yogyakarta area. A thorough study of the megalithic traditions of Java would be needed to assess the age and extent of these cultures – and to determine whether the Progo valley and the Prambanan area shared a megalithic tradition with the surrounding regions before the development of the Hindu-Buddhist

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5 In the absence of a clear archaeological context (these two sites are at ground level and have never been excavated) it is not certain that the structures are in their original state. The different elements, the platforms and *yoni* in the case of Seplawan, the pillars and the bull for Tumbuk, might have been combined after the classical period to build a *punden*, a place of worship for villagers from the surroundings. Artefacts from the Hindu-Buddhist period are indeed quite frequent at such places. See, for example, the Jurang terracottas (Sujatmi Satari 1981:1-2). My own field experience, however, told me that, in many cases, there might also have been continuity in the use of sacred places. Some modern *punden* or meditation places are clearly *in situ* archaeological remains (such as *candi* Dukuh in Semarang, *candi* Dengok in Gunung Kidul or *unur* Lempeng at Batujaya, West Java).

6 I mean the *kabupaten* Banjarnegara, Banyumas, Batang, Brebes, Cilacap, Demak, Jepara, Kebumen, Kendal, Kudus, Pekalongan, Pemalang, Purbalingga, Purworejo and Tegal.

7 Circular stone with a small cavity in the centre. See on next page, footnote 8.

polities.[8]

Distribution patterns in southern Central Java

Geography of DIY and Klaten

The geography of southern Central Java is quite complex and requires a closer look if one wants to understand temple distribution (Figure 9). From a topographical point of view, the area is characterised by the presence of the two rich agricultural plains of Yogyakarta and Solo, bordered by high hills (the Menoreh hills and the Gunung Kidul), and dominated by Mount Merapi.

The plain of Yogyakarta is bordered to the northwest and to the west by the Menoreh hills, a chain of steep hills that culminates at 1022m. To the southeast, the ring of the Gunung Kidul marks the border between the plain of Yogyakarta and the Wonosari depression, while to the northeast the impressive Mount Merapi guards the access to the Solo and Kedu plains.

Located in the southeastern part of the DIY, the depression of Wonosari is a dry area surrounded on all sides by a chain of high hills commonly known as Gunung Kidul.[9] Its highest summit within DIY culminates at 785m above sea level.

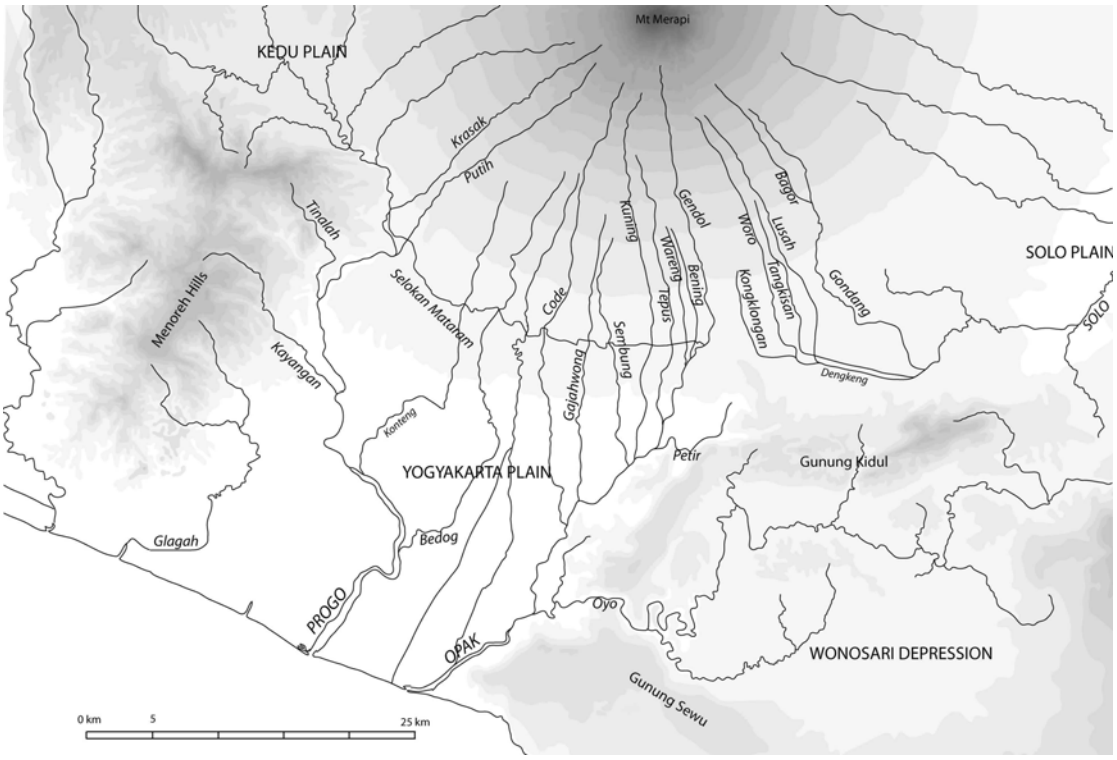

Figure 9: Southern Central Java, topography and main rivers.

[8] Apart from proper megaliths, there are, in Central Java, quite a lot of mortar stones. Some are small and round, others are large and rectangular. Their area of distribution goes at least from Brebes to Magelang. Some of them are associated with temple remains. This is the case at Bumiayu (Brebes) (Tjahjono 2000:48), Gunung Wukir (Magelang), Kalimalang (Magelang) and Ngrajek (Magelang). Several rectangular mortar stones have been found in the village of Payak (DIY) where an ancient bathing place has also been unearthed. But this list is certainly not exhaustive.

[9] The southern ridge of the Gunung Kidul, parallel to the coast, is named Gunung Sewu.

The other plain of the area, the plain of Solo, geographically belongs to East Java. Mount Merapi and the northern tip of the Gunung Kidul separate the Solo plain from the Progo valley and the plain of Yogyakarta.

The most impressive landscape marker of the DIY is Mount Merapi. It is actually the southernmost summit of a volcanic chain extending northwards to Mount Ungaran and including Mounts Merbabu, Telomoyo and Soropati. Mount Merapi is a stratovolcano of which the present summit, Mount Anyar (2947m), is located to the southwest of the older Batulawang volcano (Neumann van Padang 1951:24).[10] On the southern slope of Mount Merapi, close to the summit, are located the sulfatara fields of Kawah Gendol and Kawah Woro.

Mount Merapi is one of the most active volcanoes of Indonesia. Its activity is characterised by the growth and collapse of a summit lava dome, accompanied by lava flows, *lahar*,[11] ash falls and pyroclastic flows.[12] While lava flows are generally limited to areas close to the summit, pyroclastic flows, ash falls and *lahar* may have more dramatic consequences.[13]

Whereas the plain of Solo and the depression of Wonosari are fenced off from the ocean, the plain of Yogyakarta gently slopes down to the sea (Figure 10). This access to the southern ocean is of limited economical interest: the area is classified as a high wave-energy coast and offers no shelter from wind, oceanic streams and waves (Swan 1979:10, fig.1.7). In other words, it is not suitable for navigation. As far as we know, trade ships have always preferred the northern coast, which is a low wave-energy area and offers numerous safe anchorage places.

The region possesses four important rivers, namely the Progo, Opak, Oyo and Dengkeng. The source of the Progo River is high on Mount Sundoro, in northern Central Java (Figure 2). In the DIY (Figure 9), it follows the foothills of the Menoreh before heading into the plain and flowing down to the ocean. Along its course, the Progo River receives many tributaries, originating from both the Menoreh Hills and Mount Merapi.

The Opak River flows southwards from the upper slopes of Mount Merapi until it reaches the northern tip of the Gunung Kidul. Then it bends to the south-southwest. In

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[10] The estimated height of the original Batulawang volcano is 3300m (Neumann van Padang 1951:25). Its summit collapsed to the south-southwest following an eruption. R.W. van Bemmelen and M. Neumann van Padang were of the opinion that the collapse happened in 1006 A.D. (Van Bemmelen 1949:560; Neumann 1951:25). However, more recent studies prove that the collapse – together with the formation of the Gendol hills – did not take place in historic times, but rather during the late Quaternary (Bahar, quoted in Voûte 1999:9). It seems that, during the Central Javanese period, Mount Merapi did not know any increase in volcanic activity. An eruption is dated 870 A.D. (± 100 years, radiocarbon) and another 940 A.D. (± 100 years, radiocarbon), but they were by no means as dramatic as the collapse of the Batulawang (http://www.volcano.si.edu/world/volcano.cfm?vnum=0603-25=; access date: 26/04/2008).

[11] A *lahar* is a mixture of rock debris and water that originates on the slopes of a volcano. The speed of a *lahar* may vary from a few meters per second to tens of meters per second.

[12] A pyroclastic flow is a ground-hugging avalanche of hot ash, rock fragments and volcanic gas. Its temperature may be greater than 500º C and its speed is typically greater than 80km per hour (http://www.volcano.si.edu/world/tpgallery.cfm?category=Pyroclastic%20Flows; access date: 02/01/2004).

[13] In 1984, ash falls from the Merapi were reported as far as Weleri, Kendal and Semarang. In 1872, pyroclastic flows rushed down the Apu, Tlising and Senowo rivers, destroying all the villages above 1000m (http://www.vsi.esdm.go.id/mvo/mvosummary.html; access date: 26/04/2008). In 1975, a *lahar* in the Krasak river crushed the bridge linking the provinces of DIY and Jawa Tengah, on the Yogya-Semarang highway, about 25km southwest from the summit (http://www.ipgp.jussieu.fr/~beaudu/vsi/monitor.html; access date: 26/04/2008).

its lower course, it receives the waters of the Oyo River. With the exception the Oyo River, all the tributaries of the Opak originate from Mount Merapi.

The third important river of the area is the Oyo River. Unlike the other ones, its source is in the depression of Wonosari, draining water from the surrounding Gunung Kidul hills. It flows westwards until the neighbourhood of Imogiri, where it meets the Opak River.

The last main watercourse is the Dengkeng River (Figure 8). The Dengkeng belongs to a different water basin. While the Progo, Opak and Oyo rivers are part of the Progo valley zone and flow to the Indian Ocean, the Dengkeng flows down Mount Merapi before bending east and meeting the Bengawan Solo, the longest river of Java. The Solo River (Bengawan Solo) flows through the plain of Surakarta, and then crosses the whole eastern Java before reaching the Java Sea slightly to the north of Gresik, near Surabaya (Figure 2).

Most of the rivers flowing down the southern side of the Merapi are natural pathways for pyroclastic flows, avalanche debris and *lahar* heading down the volcano. This is especially true for the Krasak, Boyong, Gondang, Kuning, Gendol and Woro rivers.

Although the general characteristics of the natural landscape are dictated by long-existing physiographic features (namely Mount Merapi and the Gunung Kidul) and have therefore remained similar since the Hindu-Buddhist period, local modifications inevitably happened – and are difficult to evaluate properly.

First of all, the impact of the activity of Mount Merapi in ancient times is not well known. Although it was not more active than it is today, the exact shape of its summit is unknown, nor are the most frequent channels for pyroclastic flows and *lahar.* Generally speaking, however, all the areas above 1000m and/or around main river

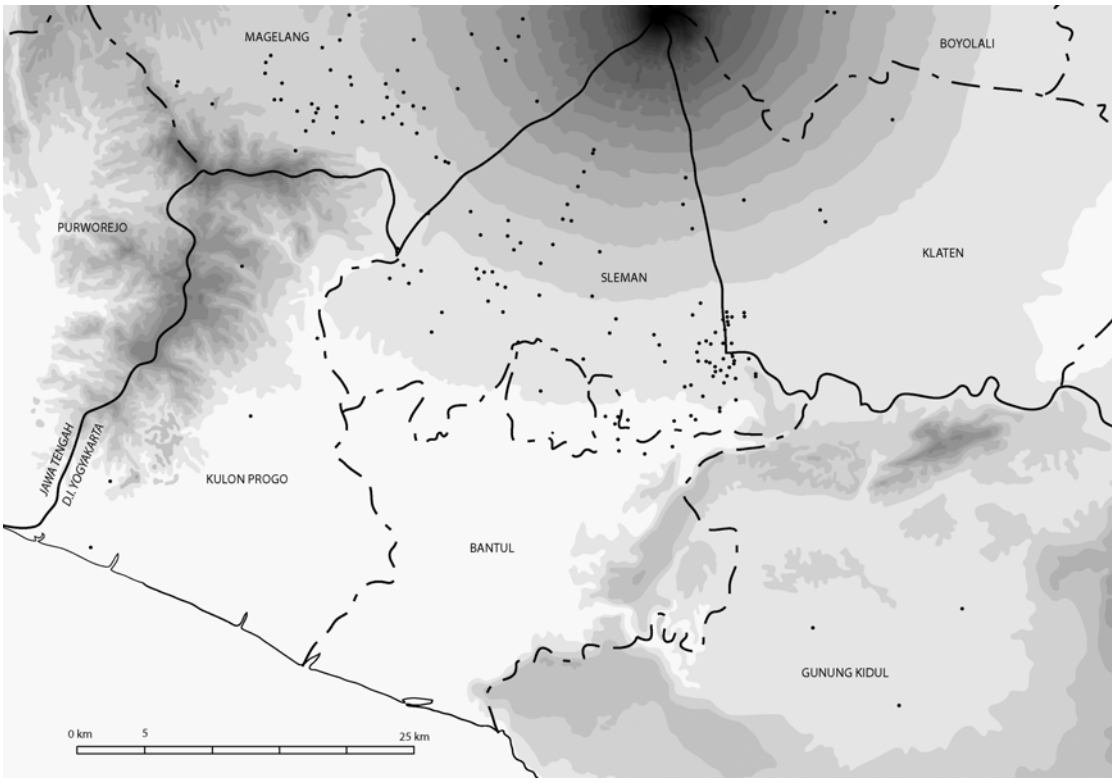

Figure 10: Temple remains in south Central Java, distribution map

beds, should be considered as dangerous, especially on the southern and western slopes of the volcano.[14] *Lahar* may also have had an impact on river courses, as the debris they carry may block tributaries, changing river flows in the upper areas.

Secondly, the impact of human activity is difficult to estimate. In most of the upper Yogyakarta plain, changes in river courses due to man seem limited, as rivers are not canalised. The main waterworks are the *selokan* Mataram, a channel built under the Japanese occupation. It collects water from the Progo River and goes eastwards, crossing river beds with the help of bridges and distributing water along its way. However, the upper courses of certain rivers, well known for being channels for *lahar*, have been fortified by dykes. This is the case for the Krasak, Gendol and Woro rivers.

In the plain of Yogyakarta and Bantul, only two important watercourses have been canalised (namely the Winongo and the Winongo Kecil). The picture is quite different in *kabupaten* Klaten. In this zone, the lower beds of numerous rivers were canalised, as early as under Dutch colonial rule, in order to suit the demand for water of sugarcane fields and sugar factories. The courses of the following rivers were straightened: Kongklangan, Woro, Tangkisan, Lusah, Dengkeng and Ujung.

Furthermore, everywhere on over-populated Java, water is diverted from natural rivers into small channels that carry it to the rice fields. The extension and intensification of agriculture was planned to respond to the needs of a population that increased significantly from the 19th century onwards (Owen 1987). Before that period, as population pressure was not so strongly felt, it is probable that less land was cultivated and irrigated. Therefore, during the Hindu-Buddhist period, less water would have been diverted from the rivers and watercourses would have had a greater water flow than today.[15]

Temple distribution: general distribution trends

In southern Central Java, the *kabupaten* correspond roughly to the geographical divisions of the area: *kabupaten* Kulon Progo encompasses the dry Menoreh Hills, Gunung Kidul the southern mountains and the depression of Wonosari, Bantul the lower plain, and Sleman the middle plain, on the southern slope of Mount Merapi.

Temples are most numerous in *kabupaten* Sleman (more than 70%), then in Klaten (12.7%), but they are quite scarce in other districts (Table 7).

Table 7: Distribution of temple remains per district in southern Central Java

Kabupaten	*Sites*	%
Gunung Kidul	4	3.6
Kulon Progo	5	4.6
Bantul	7	6.4
Klaten	14	12.7
Sleman	80	72.7

It can be observed that the area of DIY and *kabupaten* Klaten is almost entirely scattered with temple remains, with the exception of the centre south (Bantul) and extreme east (eastern Klaten). However, the ruins are unequally distributed. They are far more numerous in *kabupaten* Sleman and its direct surroundings (north Bantul and west Klaten): 101 temple sites, i.e. 91.8% of the total number of remains.

[14] The eastern slope is partially protected by the remains of the Batulawang volcano.

[15] During the 18th century, ships could navigate in some rivers of the Prambanan area, as testified by Sterrenberg (quoted in Jong 1878, X:45).

Furthermore, none of the sites located outside this area can match the size of the remains of the Prambanan plain, except *candi* Risan (*kabupaten* Gunung Kidul).[16]

It is clear that, at the end of the Central Javanese period at least, the whole area was within the sphere of influence of the Hindu-Buddhist culture. However, this Hindu-Buddhist presence does not translate into the same density of sanctuaries all over the area. The highest density of temples is to be found to the north (east), i.e. on the southern slope of Mount Merapi, and, especially, around the modern town of Prambanan (Figure 10). The heterogeneity of the distribution may express a difference either in population density and/or in degree of penetration of the Hindu-Buddhist culture.

Within *kabupaten* Sleman and its direct surroundings, we can notice three different spatial patterns: to the east (Prambanan area), sites are densely clustered; to the west, sites are more dispersed, with a tendency towards regular distribution;[17] while higher on the Merapi, we can notice a series of sites in a line (Figure 10).

Site clustering around Prambanan: central place or religious centre?

An intriguing feature of distribution of Hindu-Buddhist temple remains in Central Java is the location of the highest density zone in the Prambanan area. I would like to show here that this feature is best explained if we consider Prambanan not as a population centre, but as an essentially religious place built originally at the easternmost limit of the Hindu-Buddhist polity of Central Java. To do so, I will first propose an alternative view, *i.e.* that Prambanan was a population centre, and show how it fails to explain satisfactorily temple distribution in the area.

If temples are linked to settlements – at least those located in fertile areas, as suggested by Mundarjito (2002: 375), temple density would be proportional to population density. Prambanan would then be the largest settlement of Central Java. According to the usual understanding of the central place theory, providing that the environment is uniform, the existence of a large – and thus high order – settlement (providing high order services, such as well-furnished markets, learning centres etc.) implies that there are low order service centres around it (Christaller 1933; Hodder, Orton 1976:60). Nevertheless, in the case of Prambanan, the smaller shrines that would testify for the existence of such lower order settlements are only found to the west. Site density is indeed quite high west of Prambanan, where sites scatter the landscape up to Borobudur, while, to the east, the density drops sharply and temple remains are almost non-existent. In other words, there are no traces of smaller centres east of Prambanan.

This singularity could have three main origins: 1) the central place theory as such is not applicable in Central Java, 2) the model is generally applicable to Central Java but it disturbed by factors proper to the Prambanan area, 3) Prambanan is not a population centre.

The central place theory is a geographical model that seeks to explain the size and distribution of towns and villages. In Central Java, however, the very existence of towns has received strong criticism by J. Wisseman Christie (1991). She has argued that, since no inscription refers to towns, the economical landscape of Central Java

[16] *Candi* Risan is in a poor state of preservation. Its dimensions, though, are still impressive. It is composed of two buildings on the upper slope of a high hill. Both constructions are of 12-13m square.

[17] The nearest neighbour formula produces a value of 1.1265 for that area (on the map, within the rectangle).

should better be perceived as a network of markets deserving villages, with no tendency towards urbanization. Is the central place theory applicable to a culture without cities? The idea behind the central place model is that small settlements do not provide sufficient demand to support certain activities or services. These services or activities are thus supplied by larger centres only – which are normally located close to smaller centres but far away from other larger centres. The emphasis is thus less on urbanization (the abandonment of agriculture and concentration of population in a single place) than on the function of towns as market places and the existence of a sufficient demand for high-ranking goods and services. Now, a densely populated area where villages adjoin one another uninterruptedly may have a demand sufficient enough to sustain a high order market - even if a great part of its activity is agricultural. Such places would then be considered central places. As we see, there is thus *a priori* no reason to think that the model could not be applied to Central Java, all the more because it has already been stressed that markets functioned in a hierarchical networks, with high order markets catering for more specific goods.

If the model applies to Central Java but does not fit with the case of Prambanan, then it could be that local factors have disturbed expected settlement patterns. Such disturbances are well-known, since the central place model only works perfectly in the case of a uniform land; a change in the natural environment can indeed lead to a modification of the pattern. However, there is, to my knowledge, no significant difference in resource availability east and west of Prambanan. Neither is there a change in climate or topography. Rivers large enough to restrain land passage but too shallow to allow river transportation exist in the west as well.[18] The natural environment is actually quite uniform and fails to explain the drop in temple remains. Nevertheless, we have to take into consideration the possibility that the disturbance is of another nature, not geographical, but political: the area could have constituted the easternmost limit of the Central Javanese polity.

This last hypothesis deserves attention, since not only temple remains, but also inscriptions suggest that this was indeed the case. Although they must be treated with caution – since inscriptions are usually easily movable artefacts, inscriptions apparently show distribution patterns similar to those already noted for temple remains. Kalasan, Ratu Boko, Sari and Sewu, the most ancient remains of the Prambanan plain[19], are all clustered in a small area. Towards the east, building activity seems to have been at first limited to *candi* Merak.[20] After *c.*830 A.D., starts another, later phase of building activity in and around Prambanan. This time a temple is built well to the east of the Konklongan River: *candi* Morangan.

The distribution of the find spots of inscriptions presents a comparable situation. For the period from 732 A.D. to 855 A.D., 40 inscriptions were found in Central Java[21] (Figure 11), but only three were found east of Prambanan: the inscriptions of

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18 See for example the Opak River.

19 See p.15 for the dating of these temples.

20 Remains of what was probably another temple were found also at Candirejo, near Tulung, in the district of Boyolali.

21 These are the inscriptions of which the original find spot is known. 7 other inscriptions, most probably from Central Java, are of "unknown origin" and cannot be used within a distribution map.

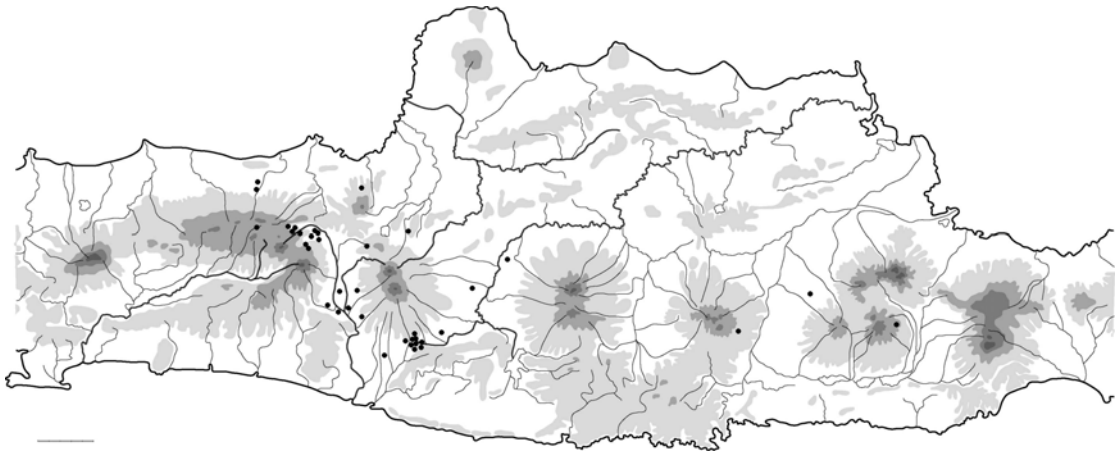

Figure 11: Inscriptions of Java (732-855 A.D.), distribution map (adapted from Wisseman Christie 2002-2004)

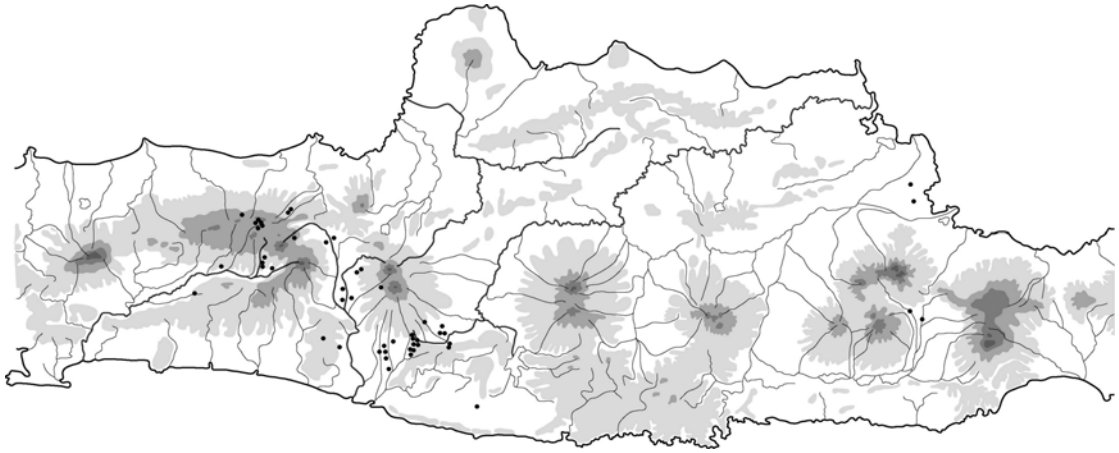

Figure 12: Inscriptions of Java (855-898 A.D.), distribution map (adapted from Wisseman Christie 2002-2004)

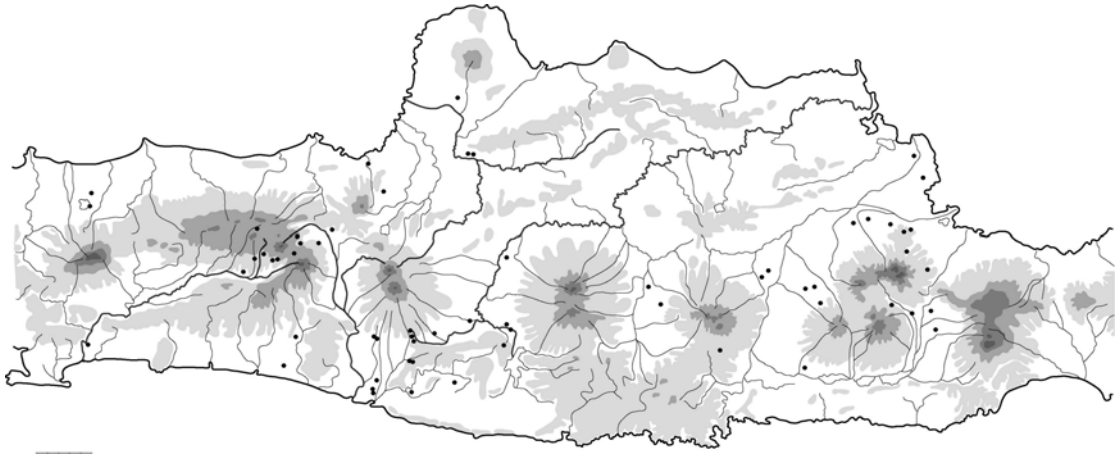

Figure 13: Inscriptions of Java (898-928 A.D.), distribution map (adapted from Wisseman Christie 2002-2004)

Garung (819 A.D., found near Boyolali), Abhayānanda (early to mid 9th c., found near Klaten) and Sragen (id.?, found to the northeast of Solo) (Soekarto 1969:18-21; Sarkar 1971-1972: n° 8; Jordaan 1999: 34, 85 n.39; Wisseman Christie 2002-2004: n°32, 37, 47). For the period from 855 A.D. to 898 A.D (Figure 12), the discovery of 6 inscriptions[22] around the modern town of Klaten suggests that the influence of the Central Javanese polity had then extended a little more to the east. From 898 A.D. to 928 A.D. inscriptions of Central Javanese kings are found from Wonosobo, in western Central Java, to Mojokerto and Malang in East Java (Figure 13).

Distribution of inscriptions and temple remains seems to indicate that, at least prior to 855 A.D., the Central Javanese polity extended little beyond Prambanan. It further suggests that the area with the highest density of temple remains in the whole of Central Java was not at the heart of the polity, but at its periphery. This observation could well explain the lack of low order settlements to the east: the proximity of the border would have impeached those settlements to develop, since land to the east of Prambanan would have belonged to a different polity.

It is possible to imagine that the political border between the Hindu-Buddhist polity of Central Java and the adjacent territories was so sealed that it prevented the natural development of lower order settlements – or at least lower settlements belonging to the same culture. This hypothesis, however, runs counter to most models of state organization proposed for Central Java.[23] There seems indeed to be a consensus among historians on the fact that boundaries of Javanese states were not fixed, but rather fluctuant. With fluctuating borders, the presence of a (very) large settlement at the eastern fringe of the kingdom would certainly have had as consequence to make adjacent territories fall under the sphere of influence of this settlement and thus to push the boundary further east. Now, it did not happen in the Prambanan area. We are thus left with two possibilities: either we reject the idea of fluctuating boundaries, or we consider that Prambanan did not develop to the east because it was actually not a settlement – or at least not a large one.

As other possibilities have been discarded (changes in natural settings or hermitically closed border), the absence of temples to the east of Prambanan would suggest that temples of the area were actually not linked to a major settlement centre, that, in this case, temple density is slightly misleading and that the area was maybe not more densely populated than the rest of *kabupaten* Sleman. It can indeed not be assumed that one temple stands for one village, although there is a relationship between temples and village: no temple can survive without income from village communitie(s) and all Hindu-Buddhist settlements must have had access to a place of worship – the stone or brick temple being the most appealing one. In the case of Prambanan, distribution patterns should probably be best interpretated as a sign that the temples built there were only loosely related to villages, that their function was not to serve a large community. The numerous land gifts and place names enumerated in the *sīma* charters found in the area suggest that, during the 2nd half of the 9th century – when most of the temples were already in use, the plain of Prambanan was a succession of villages and rice fields, and that forests were limited to the peripheral

[22] Namely the inscriptions of Upit (866 A.D.), Anggĕhan (875A.D.), Pastika (881 A.D.), Ngruweng (882 A.D.), Kuringan (885 A.D.) and Kaduluran (885 A.D.). See Stutterheim 1940: 29-32; Soekarto 1969: 6-7, 22-24; Sarkar 1971-1972: n°33, 60; Soekarto 1975: 247-253; Wisseman Christie 2002-2004: n° 75, 87, 113, 116, 122, 123.

[23] See above, p.10.

areas north and south of Prambanan,[24] but the same picture arises for many places in Central Java. Prambanan would then not be a particularly important centre of population, nor a main trading centre – this central place could have been located anywhere to the west of Prambanan, somewhere between Prambanan and Borobudur, in order to serve as many villages as possible within the polity.

How can we then explain the concentration of temple remains and the distribution patterns? Why are there so many temples in a single place, all the more if it was a peripheral settlement far away from the heart of the realm and probably not a main market centre? My hypothesis is that the importance of a place cannot be judged on the sole basis of population and trade. It is obvious that Prambanan – and the Ratu Boko hill – were centres of religious importance since the very beginning of the Hindu-Buddhist period. The remains of the original *candi* Kalasan are among the most ancient vestiges of Central Java and references to Sinhalese monks and Indian religious teachers are found in inscriptions of the area.[25] My explanation to the singular distribution patterns of temple remains around Prambanan is that Prambanan was not a population nor a trading centre – at least not at first: it was above all a religious centre at the fringe of the kingdom. The existence of important religious foundations far away from the centre of political power is a phenomenon that has already been observed for later periods. Religious practices of the 14th century Majapahit kingdom, for example, included a "Royal Progress" during which the king visited various ritual sites dispersed around his kingdom and sometimes at quite a distance from the *kraton* (Hall 1996).

The *Nāgarakĕrtāgama*, an East Javanese text of the 14th century commissioned by King Hayam Wuruk, gives a fairly detailed description of the Royal Progress of 1359. During this progress, the king worshipped at the temples of his ancestors and of previous rulers, as well as at the shrines of mountain deities. The places he visited included *candi* Jawi, Bureng and Panataran, situated several days of travel away from the royal capital of Majapahit (*Nāgarakĕrtāgama* 57.5; 17; 38; Pigeaud 1962, 4:236). In addition, the king undertook an annual pilgrimage to Panataran, after which he proceeded to Lodaya and Simping, located further south (Hall 1996:113). Hall's interpretation is that, through his progress to distant ritual sites, the king of Majapahit acknowledged local practices and incorporated worship of indigenous spiritual forces into the official religion (Hall 1996:116-117). The royal patronage of local places of worship was therefore of the utmost importance for the cohesion of the kingdom. My hypothesis is that Prambanan acquired its importance due to its religious value, rather than to a political key-position, and that it played in the southern part of the kingdom the role probably played by Dieng and Gedong Songo in the north.[26]

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[24] The inscription of Panggumulan I (902 A.D., found north of Yogyakarta) mentions the existence of a forest-visitation levy, while the Rumwiga I inscription (904 A.D., discovered at Payak, southwest of Prambanan) lists a hunting official among the members of the Rumwiga community. Both indices suggests the presence of forests in the area – but they were maybe already under pressure, since officials were required to manage their resources. Forest officials are listed in the inscriptions of Tunahan (873 A.D.), Humaṇḍing (875 A.D.) Jurungan (876 A.D.) and Haliwangbang (877 A.D.), all found near Polengan, south of the Ratu Boko hill. To my knowledge, no mention of forests is found in inscriptions coming directly from Prambanan, whereas references to wet-rice cultivation are overwhelming. For translations of these inscriptions, see Sarkar 1971-1972: n° 64; Christie 1996:275-278; Wisseman Christie 2002-2004: n° 82, 88, 90 and 144.

[25] See Abhayagiriwihāra and Kelurak inscriptions (Sarkar 1971-1972: n° 6 and 6a).

[26] As will be shown later, both sites are located on grounds unsuitable for rice cultivation and are unlikely to have been associated with large settlements. Nevertheless, both count an extensive number

We should nevertheless not consider religious, population and political centres as static classification. What was initially a place of religious importance may, over the years, evolve into a major population/political centre. I have mentioned earlier that from around 820 A.D. (inscription of Sragen) and even more after 855 A.D. temple remains and inscriptions start to appear east of Prambanan, suggesting an extension to the east of the Hindu-Buddhist sphere of influence and, maybe, a modification of the status of Prambanan. It is possible that at this point, Prambanan had seen its demographic and/or political importance grow. New, major temples – namely Plaosan Lor and Loro Jonggrang – are built in Prambanan. Besides, the Śiwagṛha inscription, issued in 856 A.D. and most probably referring to the building of *candi* Loro Jonggrang (Casparis 1956:303), mentions that the king established his (new) palace at Medang in Mamrati. It is possible that the text refers to the transfer of the capital from the Muntilan area to the Prambanan area. This would explain why Prambanan began to develop its sphere of influence in four directions only after 855 A.D., while, before that date, it seems to have constituted some kind of eastern border settlement. The development of Prambanan from 855 A.D. could further be seen as the first step in the extension of the Central Javanese polity to East Java.

From 898 A.D. to 928 A.D. inscriptions of Central Javanese kings are found in East Java as well (Figure 12). Within the context of a kingdom including both Central and East Java, Prambanan now appears to be a logical location for the capital. It is still close to the cradle of the realm, but it is closer to its new geographical centre than Muntilan and, especially, it is located at the starting point of the road linking the Progo valley to the Brantas plain.[27] Inscriptions dotting the southern part of Java, from Prambanan to Malang can testify to the presence of such an axis in early times.[28]

The final stage of the eastwards extension of the kingdom is well known: it is the transfer of the capital from Central to East Java, most probably under the authority of Siṇḍok, around 928 A.D. From this time onwards, most inscriptions and monuments are found in East Java.

This is not the place to enter into a discussion about the reasons for the shift to East Java. However, I agree with Barrett Jones that this event is not the consequence of a dramatic eruption or earthquake, but rather a gradual process beginning around 855 A.D., under the influence of the growing commercial power of the eastern part of the island (Barrett Jones 1984:6, 23-45). On the one hand evidence for a natural cataclysm is missing,[29] on the other hand temple distribution and find spots of inscriptions show us that the shift from west to east was already underway well before 928 A.D.

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of buildings and were occupied during a very long period. All factors make them likely to have been ritually significant places rather than large population centres.

[27] See below, p.86-90.

[28] Inscriptions, mostly related to king Balitung, were discovered in the plains of Wonogiri, Madiun, Blitar, Malang and Mojokerto: inscriptions of Tĕlang (904 A.D.) along the Bengawan Solo near Wonogiri, of Taji (901 A.D.) near Ponorogo, of Kinĕwu (907 A.D.) near Blitar, of Sugih Manek (915 A.D.) near Singosari and , finally, the inscriptions of Kĕtanen I (904-905 A.D.) and Kaladi (909 A.D.) in the neighbourhood of Mojokerto. For these inscriptions, see respectively Sarkar 1971-1972: n° 65, 61, 75, 84; Wisseman Christie 2002-2004: n° 143; Barett Jones 1984: 178-194.

[29] My own observations of the stratigraphic history of *candi* Kedulan show that the temple was covered several times by mudflows which do not seem to have been particularly important. Given that Kedulan is located near a river – and therefore near a potential *lahar* channel, it is expected that areas located further away from river beds were less damaged – or not at all.

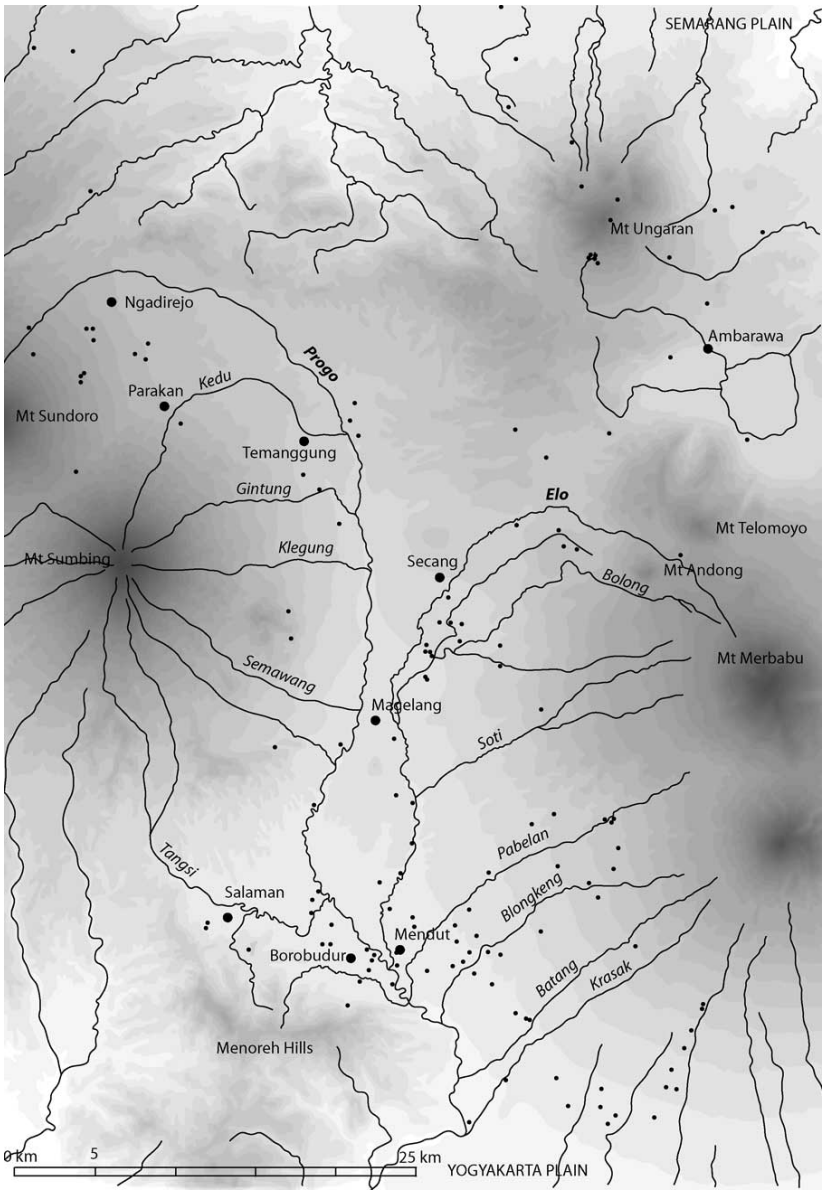

Figure 14: Progo Valley, topography and rivers

Remains in the Progo Valley

If we leave the region of Yogyakarta and head north, we reach the Progo valley. This area is the cradle of Javanese civilization. It is here, on the slopes of Mount Merbabu, that the inscription of Tuk Mas – probably the earliest epigraphic record of Central Java – was discovered. It is also from a hill overlooking the Progo River that the first inscription to mention a Javanese ruler, *narapati* Sañjaya, comes.[30]

[30] Inscription of Canggal, on the Gunung Wukir (Sarkar, 1971-1972: n° 3).

Geography of the Progo Valley

The landscape of the area is quite different from that of the Prambanan plain. The view is not open; the sight is obstructed by a barrier of high peaks and steep hills (Figure 14). The Progo valley is edged to the north by the North Serayu Ridge and Mount Ungaran (2050m). To the west are the twin peaks of Mount Sundoro and Sumbing, while to the east the valley is separated from East Java by the mountainous massif formed by Mounts Merapi, Merbabu, Andong and Telomoyo. To the south the valley is almost closed by the steep and dry Menoreh Hills.

The only easy access to the Progo valley is to the south-southeast, between the Menoreh hills and Mount Merapi. Other, more difficult, passages exist to the northeast (between Mount Ungaran and Telomoyo), the northwest (north of Parakan, through the Serayu Ridge), and to the west (through the highlands of Wonosobo or through the hilly zone around Salaman). The Progo valley itself is hilly in the north and becomes progressively wider to the south, where it transforms into a plain (in the region of Borobudur).

The topography of the whole area located to the east of the Progo River is shaped by the Merbabu-Merapi massif and its volcanic deposits. The northern peak of this massif, Mount Merbabu is a high volcano (3145m) with a heavy outline. It is not as active as its southern neighbour, the Merapi. Mount Merbabu has indeed erupted but once (in 1797 A.D.) since the year 1600.[31]

Mt Sumbing, to the west, has a similar volcanic record, with one eruption in 1730 A.D.[32] Mount Sundoro is a slightly more active volcano: its last recorded eruption dates back to 1971. Traces of a prehistoric debris avalanche are visible on the north-eastern flank of Sundoro and old (historical) pyroclastic flow deposits extend as far as 13 km from the summit.[33]

Down in the valley, between the volcanoes, flows the Progo River. Its source is located high on the slopes of Mount Sundoro. It flows to the northeast before making a large clockwise bend. From Temanggung to Borobudur it follows a roughly north-south course and there it is deviated to the southeast by the Menoreh Hills.

The main tributary of the Progo River is the Elo, a wild watercourse that originates near the summit of Mt Merbabu and merges with the Progo River in the vicinity of *candi* Mendut.

Other important tributaries of the Progo River are, from north to south, the Gintung, Klegung, Semawang and Tangsi, and, south of Mendut, the Pabelan, Blongkeng, Kedu, Batang and Krasak. The main tributaries of the Elo River are the Bolong and the Soti rivers.

Temple Distribution

The Progo valley has the second highest density of temple remains, after *kabupaten* Sleman (in D.I. Yogyakarta). However, temples are not evenly distributed over the area: Magelang has 80 temple remains, *kabupaten* Temanggung only 23. Furthermore, temple remains are far more numerous in the southern sub-districts of Magelang (around Muntilan) than anywhere else in the Progo valley (Figure 15). Two

[31] http://www.volcano.si.edu/world/volcano.cfm?vnum=0603-24=&volpage=erupt; access date: 28/04/2008.
[32] http://www.volcano.si.edu/world/volcano.cfm?vnum=0603-22=; access date: 28/04/2008.
[33] http://www.volcano.si.edu/world/volcano.cfm?vnum=0603-21=; access date: 28/04/2008.

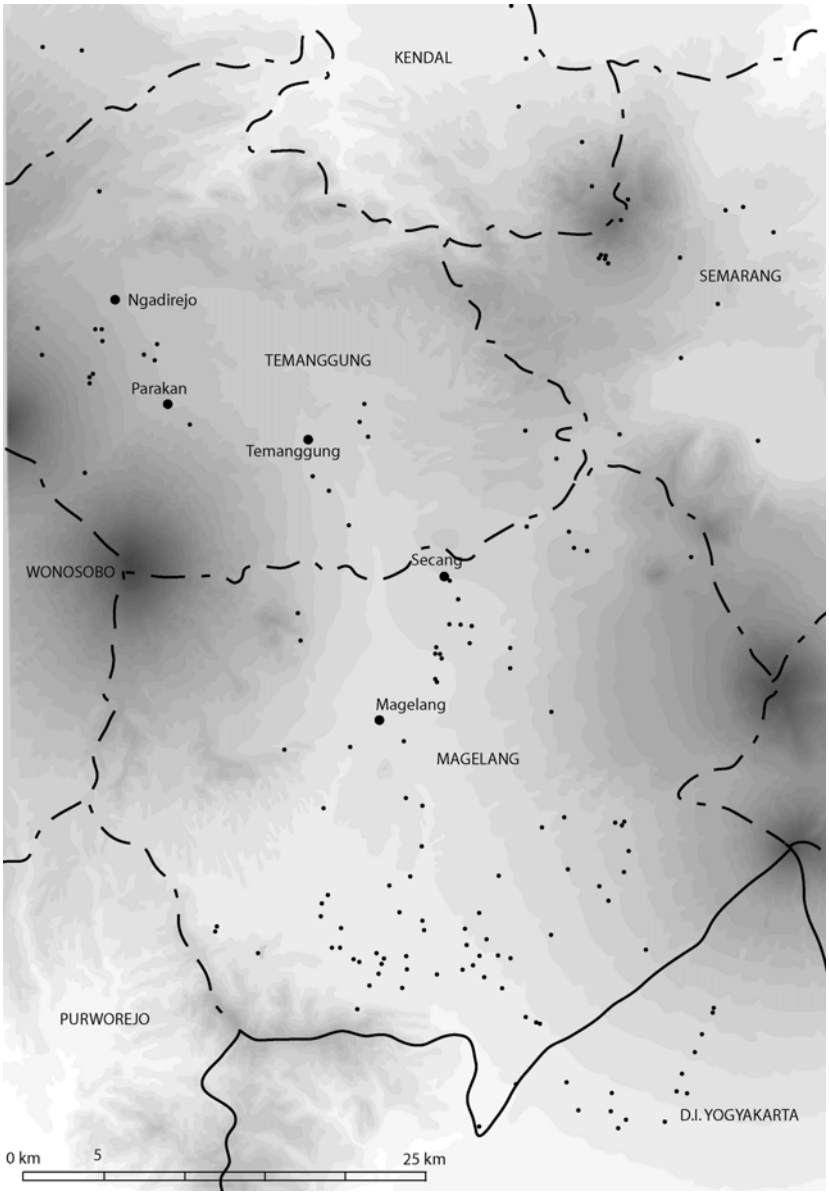

Figure 15: Temple remains in the districts of Magelang and Temanggung

other zones show (small) aggregates of remains: Secang and the area around Ngadirejo and Parakan.

While remains are numerous around Muntilan, they are not all clustered in a small area, as it is the case in Prambanan: they are dispersed, apparently at random, with no sign of clustering. The occupation of the lower Progo valley, in terms of temple remains, is less dense than that of the Prambanan plain, but more dense than the areas directly to the southeast (i.e. between Prambanan and Muntilan)[34] and to the north. In other words, temple density, relatively high around Muntilan,[35] decreases gradually when one goes away from the centre.[36] Even though it is at present not possible to

[34] The mean nearest neighbour distance is 0.8758 km in the region of Muntilan, while it is 1.4 km for *kabupaten* Sleman (excluding the Prambanan area).

[35] The centre of this high-density zone is roughly around *candi* Mendut.

[36] To the south, however, site density drops more sharply, since the plain is interrupted by the dry and

locate more precisely the main population and trading centre(s), the distribution of the sites all over the plain could fit with a central place model. Furthermore, the fact that temple density is significantly higher than in any other place in Central Java – Prambanan excepted, the Muntilan area appears as a likely place for an administrative/political centre,[37] thus possibly fitting with the Chinese annals.[38]

Not only the number but also the dimensions of the temples built around Muntilan suggest that this area was an important one. It was at least important enough for numerous noblemen, officials, members of the royal family or rulers to have a shrine built in the area, and it might thus be hypothesized that some important Central Javanese families had their stronghold in the Kedu plain. Inscriptions discovered in the Progo valley confirm that several high officials had tight relations with religious foundations located around Muntilan and Temanggung. So, the sole inscription recovered from the reign of Sañjaya,[39] the first known Central Javanese king, is from the Muntilan area, suggesting that the region might be the cradle of a part of the royalty. Furthermore, high officials bearing the titles of *sang pamgat* Tiru Raṇu,[40] *sang ra* Sbang[41] and *rake* Layuwatang,[42] who have contributed to the royal foundation at Plaosan Lor, have otherwise left inscriptions only in the Magelang-Muntilan area.[43]

Besides, the reading of the Chinese annals might suggest that the centre of Hindu-Buddhist Central Java was located in the area. The Sung annals, though dating from the Eastern Javanese period (960-1279 A.D.), give a description that corresponds

steep hills of the Menoreh chain.

37 Especially since, in Java, it does not implies a large settlement, but only a *kraton*.

38 See below p.64.

39 Inscription of Canggal (732 A.D.). See Sarkar 1971-1972: n° 3.

40 Tiru Raṇu is found in one of the minor inscriptions of *candi* Sewu. *Sang pamgat* Tiru Raṇu *pu* Langkā is one of the donors of Plaosan Lor (830-850). One of his successors, *sang pamgat* Tiru Raṇu *pu* Apus was responsible for a religious foundation at Salingsingan, according to the inscriptions of Kurambitan I-II (869 A.D.). Apus later gained the high title of *sang pamgat* Hino (inscription of Śrī Manggala II, 874 A.D.) and his foundation received gifts on behalf of king Kayuwangi (inscription of Salingsingan, 880 A.D.). Given that the Śrī Manggala II inscription was found near *candi* Asu and Pendem (Dukun, Magelang), it is possible that the inscription relates to one of these temples. Further, people from villages belonging to the *watĕk* Tiru Raṇu are cited as witnesses in the inscriptions of Palĕpangan (906 A.D., discovered near Borobudur), Sīma Bhaṭārī (907 A.D., from the Wonosobo area), Rukam (907 A.D., from Parakan) and Lintakan (919 A.D., probably from Temanggung). See Casparis 1950:115; 1958; Sarkar 1971-1972: n° 7, 28, 42, 68, 86; Wisseman Christie 2002-2004: n° 157, 158.

41 A *sang ra* Sbang *pu* Mañju is listed among the donators of Plaosan Lor (830s - 840s A.D.). A *sang pamgat* Swang is credited with the creation of a *sīma* in the Sang Pamgat Swang inscription, discovered near Mungkid, Magelang (Wisseman Christie 2002-2004: n° 114).

42 *Rakai* Layuwatang *dyah* Mahārṇnawa is referred to in one of the minor inscriptions of Plaosan Lor (830s - 840s A.D.), while *sang* Layuwatang *pu* Mananggung demarcated a *sīma* in 845-846, according to the Layuwatang inscription, found at Kadiluwih (845-846 A.D.), at the foot of the Gunung Wukir. *Sang* Layuwatang *pu* Mananggung would be either the representative or the successor of *rake* Layuwatang *dyah* Mahārṇnawa. Further, a *sang* Wiridih *si* Daṇu, resident of Skar Tān *watĕk* Layuwatang is listed in the inscription of Rukam (907 A.D., from Parakan). See Casparis 1958:25; Wisseman Christie 2002-2004: n° 46, 158.

43 The corresponding *watĕk*, however, are mentioned in (later) inscriptions from the Prambanan area. So, residents of villages belonging to *watĕk* Tiru Raṇu are mentioned as witnesses of *sīma* demarcation ceremonies in the inscriptions of Panggumulan I (902 A.D., from Sleman), Poh (905 A.D., from Klaten) and Tihang (914 A.D., from Prambanan). A *sang* Wiridih *si* Daṇu, resident of Skar Tān *watĕk* Layuwatang is referred to in the inscriptions of Panggumulan (902 A.D., from Sleman) and Poh (905 A.D., from Klaten). See Sarkar 1971-1972: n° 64, 66 and Wisseman Christie 2002-2004: n° 158, 185.

most probably with the capital of Central Java (Boechari 1997:8). They mention that the distance from the capital to the sea is 1 month to the east, 45 days to the west, 5 days to the north and 3 days to the south (Groeneveldt 1877:15).[44] As noted by Boechari, the distance to the eastern sea does not fit with an area located as far eastward as the banks of the Brantas River, while it does fit with Central Java (Boechari 1997:8).[45] Furthermore, the distance given between the capital and the southern sea, three days, is far too long for the Prambanan plain, but fits with the Muntilan area, suggesting that the capital of the ancient kingdom was closer to Borobudur than it was to Sewu or Loro Jonggrang.[46]

Some 20 km to the north of Muntilan, not far from the modern town of Secang (Figures 14 and 15), there is another, though small, concentration of remains, possibly indicative of the existence of a lower order centre. From here, remains are far less numerous. They stretch to the northeast in the direction of Ambarawa, and to the northwest to the modern towns of Parakan and Ngadirejo. Not less than 9 temple remains have been recorded around Ngadirejo and Parakan,[47] two of them, namely *candi* Perot and Gondosuli are directly associated with inscriptions. As it was already the case for the Magelang-Muntilan area, some high-ranking officials were obviously involved in gifts to temples of the area. For instance, a key figure of the construction of the Plaosan temple complex, known under the title of *śrī* Kahulunnan, might have had a stronghold in the area between Magelang and Temanggung. The title comes four times at Plaosan Lor and in one other inscription (Tru i Tĕpussan, 842 A.D.), which is said to come from the district of Magelang.[48]

Similarly, *rake* Wka is linked to the northern part of the Magelang district. An allusion to this title first appears at Plaosan Lor.[49] Nevertheless, the only inscriptions that record grants made by *rake* Wka are a series of copper plates from Ngabean. Two successive *rake* of Wka founded and endowed a religious foundation at Pastika,[50] a

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[44] History of the Sung dynasty, book 489, translated by W.P. Groeneveldt (Groeneveldt 1877:15): "Djava is situated in the southern ocean. Going from the capital to the east, one comes to the sea in a month, and from here it takes a ship half a month to go to Pulo Condore. On the west the sea is at a distance of forty five days. On the south it is three days to the sea and from there five days sailing to the Tazi. On the north the distance from the capital to the sea is five days (…)".

[45] Via Klaten, Ponorogo, Tulungagung, Blitar, Kepanjen, Lumajang and Jember, the road from the Progo valley to Banyuwangi is roughly 650km long. From the Progo River to Serang (west of Jakarta), the distance is 640km, via Purworejo, Kebumen, Banyumas, Ciamis, Bandung, Bogor and Rangkasbitung. However, the latter road passes through more numerous mountain passes than the eastern road. The given travel lengths, respectively 1 month and 45 days, seem reasonable.

[46] The distance from Prambanan to Parangtritis, on the southern coast, is 40km – via a smooth plain – while it is 120 km to Semarang and 100km to Purwodadi. If one takes 3 days to go from Prambanan to Parangtritis, then 5 days are not enough to go all the way to the northern coast, given that the road is more uphill. Muntilan is 65km from Parangtritis, 85km from Semarang and 100km from Godong, between Demak and Purwodadi. From here, 3 days to the southern sea and 5 days to the northern coast seems reasonable. Note that I give the distance to Purwodadi because, according to certain scholars, the main Central Javanese would have been located in that area (Orsoy de Flines 1941-47:66-84).

[47] *Candi* Pringapus, Perot, Gunung Pertapan, Butuh, Bongkol, Bumen, Gunung Kembang, Nglarangan and Gondosuli.

[48] Villages listed in the Tru i Tĕpussan inscription relate, as far as we can trace, to places in the area of Temanggung or Parakan. For example, Kayumwungan is mentioned in the inscriptions of Tulang Air (*candi* Perot) and Muṇḍuan (from Temanggung), while Mantyāsiḥ is listed in the inscriptions of Gaṇḍasuli I (Parakan), Muṇḍuan (Temanggung), Tulang Air (*candi* Perot) and Rukam (Parakan). See Sarkar 1971-1972: n° 16, 107 and Wisseman Christie 2002-2004: n° 158, 48.

[49] In the minor inscriptions of Plaosan Lor appears a *sang ḍa* Wka, probably a representative of the *rake* Wka (Casparis 1958: 29).

[50] *Rake* Wka *pu* Tanggal (inscription of Supit, from Ngabean, 878 A.D.) and *rakarayān* Wka *pu*

place which became the funerary temple of *śrī mahārāja rake* Kayuwangi.[51] *Rake* Wka *pu* Catura was apparently quite favoured by the king, since *śrī mahārāja rake* Kayuwangi made a donation to his religious foundation.[52] Shortly before 882, Catura was endowed with the title of *rakarayān* Halu.[53] *Rake* Wka is further listed as one of the *rakarayān mapatih*, the most important dignitaries after the king, in numerous inscriptions from Central and East Java.[54]

In the case of Patapān, data is even more convincing. Indeed, with the exception of a short inscription of Plaosan Lor,[55] epigraphic records relating donations from *rake* Patapān are found exclusively around Temanggung.[56] Furthermore, mention of *watĕk* Patapān occur also essentially in inscriptions from this area[57] – the inscription of Mantyāsiḥ I even states that *watĕk* Patapān owned land on the slopes of Mount Sumbing and Sundoro.[58] It is interesting to note that after the death of king Pikatan *dyaḥ* Salaḍū, it is *pu* Manukū, former *rake* Patapān, who will receive the title of Pikatan, suggesting this way that *rake* Patapān was important enough to receive a title formerly held by a king.

Distribution patterns in northern Central Java

The distribution of temple remains in the northern part of Central Java testifies to a Hindu-Buddhist presence along the northern coast, from Brebes to Rembang. Given that, as mentioned earlier, the northern coast of Java is a low-energy wave area and offers good anchorage places for ships, it is expected that ports were located along that coast and that, as natural cosmopolitan places, they were in contact with Hindu-Buddhist cultures. Furthermore, one can assume that as the inland road to the west was a rather difficult route, the northern coast was, for the Hindu-Buddhist kingdoms of the Progo valley and the Prambanan area, a window upon the rest of the archipelago and the world beyond.

The hypothesis that the kingdom of Mataram needed an important harbour along the northern coast is nevertheless contradicted by the first impression one gets from the distribution map. At first sight, indeed, Hindu-Buddhist remains appear scarce in the coastal regions – in comparison with the density of remains attained in the Progo valley and the Prambanan plain. A second look, however, quickly reveals that temple density increases significantly in the area of Semarang (Figures 7 and 8) and that remains of this area were in connection with the temples of the Progo valley (*via* the

Catura (Mulak I, 878 A.D.; Kwak I, 879 A.D.; both from Ngabean). See Sarkar 1971-1972: n° 38, 40 and Wisseman Christie 2002-2004: n° 91.

51 Inscription of Munggu Antan (887 A.D.). See Sarkar 1971-1972: n° 53.

52 Inscription of Ra Mwi (882 A.D.). See Sarkar 1971-1972: n° 52.

53 Inscription of Ra Mwi (882 A.D.). See Sarkar 1971-1972: n° 52.

54 For example, the inscriptions of Tulang Air (850 A.D., from *candi* Perot), Ayam Tĕas (901 A.D., from Purworejo), Taji (901 A.D., from Ponorogo, East Java) and Samalagi (902 A.D., from Bantul). See Sarkar 1971-1972: n° 16, 60; Wisseman Christie 2002-2004: n° 140.

55 It reads *anumoda sang patapān pu kutī*. See de Casparis 1958:10.

56 Inscriptions of Kayumwungan (824 A.D.), Muṇḍuan (847 A.D.) and Tulang Air (847 A.D.). See Sarkar 1971-1972: n° 10, 16, 17; Wisseman Christie 2002-2004: n° 48.

57 The only exception is the inscription of Kaṇḍangan (906 A.D.), found in the Gunung Kidul area and mentioning a grant for the benefit of a temple at Prasāja, *watĕk* Patapān. See Sarkar 1971-1972: n° 69.

58 Inscriptions of Ra Kiḍan (9th century), Mantyāsiḥ I-II-III (907 A.D.), Sangsang I (907 A.D.), Rukam (907 A.D.) and Kasugihan (907 A.D.), although the provenance of the latter one is not certain. See Sarkar 1971-1972: n° 102, 70, 71, 110, 72, 74; Wisseman Christie 2002-2004: n° 158.

secondary centre of Secang).

Five sites are located in Semarang and its direct surroundings: Candi, Duduhan, Kangkung, Ngresep and Tugurejo. At Candi, Duduhan and Ngresep only loose temple stones or bricks have been found.[59] At Tugurejo and Kangkung, however, parts of structures were discovered in place. Remains of a brick temple, including antefixes, pinnacles, one Durgā and one Gaṇeśa were once visible at Kangkung (Sujatmi Satari 1978:2). At Tugurejo, a square foundation and a 2.30m high stone pillar were brought to light (Stutterheim 1936:9; Verbeek 1891:88).

Further inland, a series of temple remains dot the landscape between Semarang and the modern town of Ambarawa, in the neighborhood of Gedong Songo: Arca Ganesa Besar,[60] Ganawerti Wetan,[61] Jumbleng,[62] Ngempon,[63] Nglimut,[64] Pengilon,[65] Sidomukti,[66] Siroto,[67] and Wujil,[68] are probably all former temple sites.

The number of Hindu-Buddhist remains in and around the modern town of Semarang might indicate the presence at this very place of an ancient port, that was incorporated into the Hindu-Buddhist sphere of influence and that was directly in relation with the inland kingdoms.

But was Semarang the main harbour of Central Java, or was there another important port around Purwodadi? R. Soekmono, and more recently C. Voûte, have elsewhere suggested that the main centre of activity of the northern coast was located around the latter city – Soekmono even states that the capital of Central Java was located near the modern town of Grobogan (Voûte 1999:10; Soekmono 1967).

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[59] Only temple stones were discovered at Candi (*Daftar inventaris Semarang* 1976: 2; ROD, 1914:531), but, in Ngresep, not only were the stone blocks numerous, but they were accompanied by a sculpture of Durgā (Krom 1914a:168). In Duduhan, along with the stones were found several sculptures, including a Gaṇeśa, a bull, 5 *lingga*-shaped boundary stones and a Durgā head (*Daftar inventaris Semarang* 1976: 1-2).

[60] A 2m high Gaṇeśa sculpture. Temple stones were once visible around the statue (Krom 1914a:177).

[61] According to Krom, there were remains of a small temple and a statue of Gaṇeśa (Krom 1914a:189)

[62] Numerous temple stones as well as fragments of a staircase, a *yoni* and part of a female figure (probably Durgā) were found in the village (*Daftar inventaris Semarang* 1976:1).

[63] A well-preserved temple complex, composed of at least 8 buildings and an enclosure wall.

[64] Around the villages of Gono and Nglimut numerous temple stones and antefixes, a *yoni* (1m x 1m x 1.15m), a *peripih* and a *lingga semu* – a *lingga*-shaped boundary stone (Tjahjono 1998:10; 2000:35-36; *Daftar inventaris Semarang* 1976: 1) were found. The place seems to have been known earlier as "Argakusuma" (Verbeek 1891:88). According to earlier scholars, the site was composed of 7 temples: two near a hot spring and five further up on two different terraces (Verbeek 1891:88; Friederich 1870:512; Krom 1914a:189). According to N.J. Krom, several sculptures were found among the remains of *candi* Argakusuma: one lion, one bull, two Gaṇeśa, one Kālī, one *ṛṣi*, one *rākṣasa* (Krom 1914a:189).

[65] Old inventories record temple remains near a spring (Verbeek 1891:89; Krom 1914a:189). According to N.J. Krom, there were remains of two buildings. A staircase led from the temple ground to a lower bathing place where a *nāga* was found. Around the temples were discovered a Gaṇeśa, a lion and an elephant (Krom 1914a:189).

[66] There once were a bathing place and a hilltop temple (Friederich 1870:505; 1876:75; Verbeek 1891:90; Krom 1914a:173).

[67] A 73cm high *yoni* was found in the village (Tjahjono 1998:9; 2000:35). This site is probably the one called "Tjandi" by N.J. Krom, as a village named "Candi" lies a few hundred meters away from Siroto (Krom 1914a:190). The Dutch archaeologist mentions, together with a *yoni*, a bull and temple stones.

[68] A Hindu temple atop a hill and an ancient bathing place (?) (Verbeek 1891:89; Friederich 1870:506-507; 1876:73; Krom 1914a:177; Krom 1923, I:222). Remains of the temples are still visible.

The theory derives from a hypothesis of W.F. Stutterheim. The Dutch scholar was convinced that Javanese temples were tombs and that southern Central Java was a sort of realm of the dead (Stutterheim 1932). To him, this was buttressed by the fact that sites of the Prambanan area had yielded very few ceramics – and, according to him, none of those that were found was for household purpose. Therefore, W.F. Stutterheim suggested that one should give serious credit to folk traditions referring to the existence of an important kingdom named Medang Kemulan, and supposedly located in the Grobogan district.[69]

Then, in the early 1940s, E.W. van Orsoy de Flines undertook an archaeological survey of northern Central Java, focusing on ceramics from the districts of Blora, Japara, Kudus, Pati, Grobogan and Rembang. Van Orsoy de Flines found out that ceramics from the 8th through 10th centuries were mainly discovered in hilly regions, while more recent ones were found in river alleys and alluvial plains as well. South of Pati and Jumono, as well as around Pecangaan (between Kudus and Jepara), no ceramics pre-dated 1700 A.D. (Orsoy de Flines 1941-1947). Van Orsoy de Flines came to the conclusion that these blank areas had remained uninhabited before the 18th century.

In 1967, R. Soekmono used geological data from a study published in 1949 by R.W. van Bemmelen to confirm the conclusion of E.W. van Orsoy de Flines – and to explain it. R.W. van Bemmelen had indeed pointed out that the alluvial plain between Semarang and Rembang had most probably been transformed into a strait by the rise of sea level in the later Quaternary (Bemmelen 1949:592-593). R. Soekmono saw a confirmation of this hypothesis in a mention of sea vessels navigating from Demak to Rembang *via* Kudus and Pati (Niermeyer 1911: 41), and this led the Indonesian scholar to conclude that

> Whatever the process of sedimentation in the Semarang-Rembang area and its effect on the development of historical centers during the second millennium, we may assume that the period prior to the 10th century saw the Muriah as an island separated from Java by a strait stretching from Semarang eastward to Rembang. (Soekmono 1967:5)

R. Soekmono went on to state that locations of ceramic finds in the areas between Semarang and Rembang which are now lower than 25m above sea level were underwater during the Hindu-Buddhist period (Soekmono 1967:5).

One should, however, handle R. Soekmono's conclusion with caution. First, it is now known that, after a period of fluctuation during the late glacial and post-glacial period, sea levels returned approximately to their present value by around 8000-6000 BP (Bellwood 1997:33; Woodroffe, Horton 2004). Limited variation may have occurred during the historical period, but within an amplitude of 2-3m (Woodroffe, Horton 2004: fig.6-7). This latter reconstruction of recent sea-level changes seems confirmed by results from excavations carried out in the 1970s in the Rembang district. One of the sites excavated by T. Asmar and B. Bronson, Patok 129, which was apparently occupied well before 900 A.D., was barely 4m above sea level and

[69] The name of Mḍang is known through several inscriptions, though none of them refers to a Medang Kemulan. The palace of Mḍang in Mamrati is mentioned in the Śiwagṛha inscription (Casparis 1956: 280-330; Sarkar 1971-1972: n° 19; Wisseman Christie 2002-2004: n° 53) , Mḍang in Poh Pitu in the Mantyāsiḥ I inscription (Sarkar 1971-1972: n° 70) and Mḍang in *bhūmi* Matarām in the Sangguran (Sarkar 1971-1972: n° 96) and Kampak inscriptions (Wisseman Christie 2002-2004: n° 211). The holy ancestor of Mḍang is listed in the Wanua Tĕngah III inscription (Kusen 1988-1989; Wisseman Christie 2001; 2002-2004: n° 161) and the holy spirits of Mḍang are called upon in the inscription of Kuṭi (Sarkar 1971-1972: n° 12).

25m away from the coastline. It is thus impossible that, during the period of occupation of the site, the sea level was more than 3m higher than it is today, otherwise it would have been underwater. T. Asmar and B. Bronson naturally came to the conclusion that the sea level cannot have been much higher during the 10th century than it is today.

Then, contrary to R. Soekmono's opinion, the understanding of the silting process of the strait becomes significant. If change in the sea level cannot explain the existence and disappearance of a Demak-Rembang strait, then the whole theory relies on the dating of the alluvial deposits. Unfortunately no scientific analysis has yet been made in order to date these sediments, and although there is no doubt that there are quaternary deposits (Bemmelen 1949:592-593), they do not necessarily date from historical times.

Besides, R. Soekmono's reconstruction of the coastline is misleading, since the 25m contour line is not correct[70] and does not correspond with the finding spot of the 8th-10th century ceramics.[71] Further, one should underline that E.W. van Orsoy de Flines did not survey the district of Demak, an area which is crucial in understand the stilting process of the supposed strait.[72]

The absence of ceramics earlier than the 18th century in some parts of the northern coastal plain might also be explained by the presence of marsh lands. Nowadays, large marshy areas are still found to the southeast of Kudus, between the Serang and Juwono rivers. I would therefore be tempted to think, together with T. Asmar and B. Bronson, that the silting process was a long one and that it was already well on its way during historical times.

Much work still needs to be done before we can get a clear idea of the physical geography of the northern coast of Central Java – and before we can safely determine the position of the coastline during the early Hindu-Buddhist period. Nevertheless, for the time being and on the basis of temple distribution, I suggest one should look for the main harbour of Hindu-Buddhist Central Java in the Semarang area.

In any case, the northern coast of Central Java was not abandoned after 928 A.D., when the centre of power was transferred to the east. A significant number of finds testifies indeed to an occupation of the area during the East Javanese period. One may mention the *lingga-yoni* of Tlagapakis (Petungkriyono, Kendal), with its typically East Javanese *nāga* with horns and open jaw, a *mahākāla* with bulky head and goggle eyes from Boja (Kendal), a so-called polynesian statue, also from Kendal (Sujatmi Satari 1977: Figures 8, 28 and 33; 1978:4-5) and East Javanese terracottas from the Kudus area (Sujatmi Satari 1981). According to Krom, the temple remains of Ngresep were of Majapahit style as well (Krom 1914a:168).

Furthermore, East Javanese period inscriptions found in the districts of Semarang and Rembang prove that the region was still an area of Hindu-Buddhist culture during the 14th and 15th centuries.[73] Unfortunately, inscriptions and sculptures alone cannot

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[70] Both Blora and Purwodadi are located below the 25m contour line on R. Soekmono's map, while the elevation of Blora is around 140m and that of Purwodadi around 40m above sea level.

[71] E.W. van Orsoy de Flines reported finds of 8th -10th century ceramics south of Kudus.

[72] Demak was already on firm ground in the early 16th century, since it developed then as an important sultanate.

[73] Several short inscriptions dating from the early 14th to the mid 15th centuries were discovered in *kabupaten* Rembang and Semarang. In Semarang, these are the inscriptions of Adoman I (1338 A.D.), Adoman III (1340 A.D.), Gedong Songo (1382 A.D.), Tajuk I and II (1447 A.D.) and Palmaran/Andoman II (1449 A.D.). In Rembang, inscriptions of Bitingan (1308 A.D.), Daramukti (1311 A.D.), Bandung (1356 A.D.), Ngluyu (1391 A.D.), Ngesa (1418 A.D.) and Getas (1452 A.D.).

tell us if the occupancy had been a continuous one or if the region was re-occupied in the 14th century, after a gap of several centuries.[74] Only a large-scale archaeological exploration of the area around Semarang, Demak and Kudus could help us to clarify the question of the location of the coastline and the patterns of occupancy of the coastal region during the classical period.

What kind of relationship did the northern coast entertain with the rest of Central Java? Was it included in the kingdom of Mataram or did it form an independent sea-seafaring polity, similar to the cities of Śrīwijaya or the *pasisir* states of the Muslim period? In the opinion of J. Wisseman Christie, the area between Semarang and Pekalongan was the centre of a Malay/Sundanese maritime state as early as the 7th century (Wisseman Christie 1994:28).

The earliest inscription in a local language found in the region (inscription of Sojomerto, 800-825 A.D.)[75] is indeed written in a dialect related to Old Malay (Wisseman Christie 2002-2004: n° 13). Nevertheless, the situation is not as simple as it sounds. First, the most ancient epigraphic records of northern Central Java are in Sanskrit and do not tell much about ethnic identity or state organization.[76] Secondly the use of Old Malay is not limited to the coastal area: two inscriptions in that language have also been discovered in the Prambanan plain.[77]

It is nevertheless true that the majority of the Old Malay inscriptions have been found in the northern part of the island (but not specifically along the coast).[78] Besides, inscriptions from northern Central Java (Dieng, Temanggung and the coastal region) do not often make reference to known officials and kings. In the inscriptions originating from the north, the earliest mention of a king ruling also in south Central Java is, to my knowledge, to be found in the inscription of Kayumwungan (824 A.D.), where there is a reference to the Śailendra.[79] There is apparently no evidence from the inscriptions that the districts to the north of Temanggung were part of the kingdom of Mataram previous to 824 A.D. Unfortunately, there are not enough grounds to state that northern Central Java formed an independent Malay seafaring state until 824 A.D. nor that it was, at that date, incorporated into the Javanese kingdom of Mataram.

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[74] The last inscription dating from the Central Javanese period and found along the northern coast of Central Java is the inscription of Wutit. It seems to belong to the late 9th - early 10th century (Wisseman Christie, 2002-2004: n°174). The earliest dated inscription from the East Javanese period is the inscription of Bitingan (1308 A.D.), discovered in *kabupaten* Rembang. There is thus a gap of nearly four centuries. Nevertheless, two inscriptions may fill this gap. An illegible inscription from Mount Murya (but, according to its script, maybe from the 11th century), and the inscription of Pupus, which is a 1100 A.D. copy of an earlier text, most probably from the early 10th century (Wisseman Christie 2002-2004, n° 180 and n° 180, remark 2).

[75] The Sojomerto inscription was first dated to the 7th century by Boechari, but it was later reconsidered by L.C. Damais who, on palaeographical grounds, re-ascribed it to the early 9th century (Boechari 1966; Damais 1970:44).

[76] Inscriptions of Tuk Mas (mid 7th century, from north Magelang), Hampran (750 A.D., from Salatiga), Blado (mid 8th century, from Batang) (Sarkar 1971-1972: n° 2; Wisseman Christie 2002-2004: n° 3 and 4).

[77] Inscriptions in "a coastal dialect similar to Old Malay" found in the Prambanan area are Mañjuśrīgṛha (792 A.D.) and Payangan (early 9th century) (Wisseman Christie 2002-2004: n° 9 and 17).

[78] They were actually found in the district of Temanggung and on the Dieng plateau: inscriptions of Gaṇḍasuli II (810 A.D.), Gaṇḍasuli I (827 A.D.), Dang Manangan (early 9th century) and "temple inventory" (815-845 A.D.) (Wisseman Christie 2002-2004: n° 15, 18, 31 and 38).

[79] Unfortunately, the find spot is uncertain. It was reported to have been found in Karangtengah, north of Parakan (Verbeek 1891:138), but J.G. de Casparis was of the opinion that it came probably from the Magelang area (Casparis 1950:24-25).

We should nevertheless keep these hypotheses in mind when considering the material culture of the northern regions. It is indeed possible that the stylistic peculiarities of Gedong Songo and Sanjaya cannot be understood as products of a peripheral society, but as expressions of a different cultural sphere.

Conclusion

In the course of this chapter, we have started to understand how the Central Javanese territory was structured. Its a core area occupied the Progo valley and the south-western slope of Mount Merapi. Its political centre was probably first located in the Muntilan area, while its main religious centre was at the eastern periphery (Prambanan). The main access to the sea was in the region of the modern town of Semarang. Further, two zones of relatively high temple density – Secang and Ngadirejo – could indicate the existence of secondary centres further north[80]. Before the mid 9th century this polity appears to have extended little beyond Prambanan. The development of this area seems to go together with a shift of the political/economic centre from the Borobudur area to the Yogyakarta plain, a shift that would foreshadow the transfer of the political centre from Central to East Java.

Besides, we have raised the delicate problem of the relationship between temple and settlement patterns, showing with the case of Prambanan that a high site density is not always indicative of high population density. Before going on, I shall here remind that the reverse is also not true: the absence of temple remains does not mean that the area was uninhabited. First, it is not known whether the entire population adopted Hinduism and Buddhism. It is not impossible that villages preserving traditional beliefs co-existed with communities converted to the imported religions – and local cults might leave very few monumental traces. Secondly, it is said nowhere that every village had to have its own stone or brick temple. On the other hand, wooden shelters or sculptures were very likely considered proper places of worship, as it is nowadays the case in Hindu and Buddhist countries. Furthermore, numerous inscriptions mention that one temple could collect income from several village authorities[81] – in which case different hamlets shared a place of worship. Thirdly and finally, there were many kinds of temples, belonging to different religious communities, some of which probably established themselves on purpose away from populations centres. Hermitages (*kabikuan*) are mentioned, for example, in the inscriptions of Jurungan (876 A.D.) and Haliwangbang (877 A.D.)[82], both found in the Prambanan area. Similarly, a meditation monastery occupies a large part of the Ratu Boko hill, just south of Prambanan. It is therefore obvious that several temple remains of the area were certainly not built within villages.

In this chapter, I have attracted much the attention on the clustered distribution of certain remains, principally around Prambanan. Nevertheless, we have noticed that distribution of temple remains could follow three spatial patterns: not only clustered, but also dispersed and linear. In the following chapter, I will try to correlate these

[80] Since there are few remains between Ngadirejo and Secang, one could wonder if Ngadirejo did not evolved from an originally independent polity.

[81] Numerous inscriptions mention that a single temple could have received income from pieces of land located in several villages (see for example the inscriptions of Kamalagi and Muṇḍuan; Christie 2002-2004: n° 33, 48; Sarkar 1971-1972: n° 9). This suggests that if those villages were endowed with their own local shrine, it was most probably not a costly structure. It also leads to the hypothesis that several villages could share a temple.

[82] See respectively Christie 1996:275-278 and Sarkar 1971-1972: n°36.

distribution patterns with features of the natural environment and show how it can give more insight into the function of certain remains and the mechanisms that lead to the formation of the Central Javanese religious landscape as we know it.