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

Degroot, V.M.Y.

CHAPTER 5

Temple remains and natural environment: some aspects of a complex relationship

In the first part of the present chapter, I will present statistical data on temple location according to regional environmental features – in this case altitude, regional topography, water availability and soil geology –, discuss the possible correlation between environmental zones and the distribution patterns observed in the preceding chapter and specify the nature of the relationship between temples, wet-rice cultivation and settlement. In the second part, I will discuss the temples that do not seem to have been primarily associated with wet-rice cultivation and explore possible correlations with ancient routes of communication. Finally, in the third part, I will consider temple remains in the light of local landscape markers (hills and rivers) and try to understand how shrines insert themselves into local topographies.

Distribution patterns of Central Javanese temple remains and regional environmental features.

Temple remains per altitude range

In the area of interest to us, the ground altitude increases as one moves away from the Indian Ocean to the upper Progo valley, and the localization of archaeological sites reflects this geographical reality: temples are located at higher altitudes in Temanggung than in Yogyakarta. It must nevertheless be emphasised that, apart from a few exceptions, temples are usually located below 1000m (Figure 16, tables 8, 9, 10 and 11). Given the variety of the landscape, these absolute numbers do not have the same implications across the whole region.

Among the 110 temple sites of the DIY and *kabupaten* Klaten, 78 are located in lowlands (0-199m), 31 in lower mid-altitude lands (200-499) and one in upper mid-altitude land (500-1499m). The highest remains are to be found in *dusun* Candi (*desa* Purwobinangun, *kecamatan* Pakem, *kabupaten* Sleman, DIY), at an altitude of 565m.

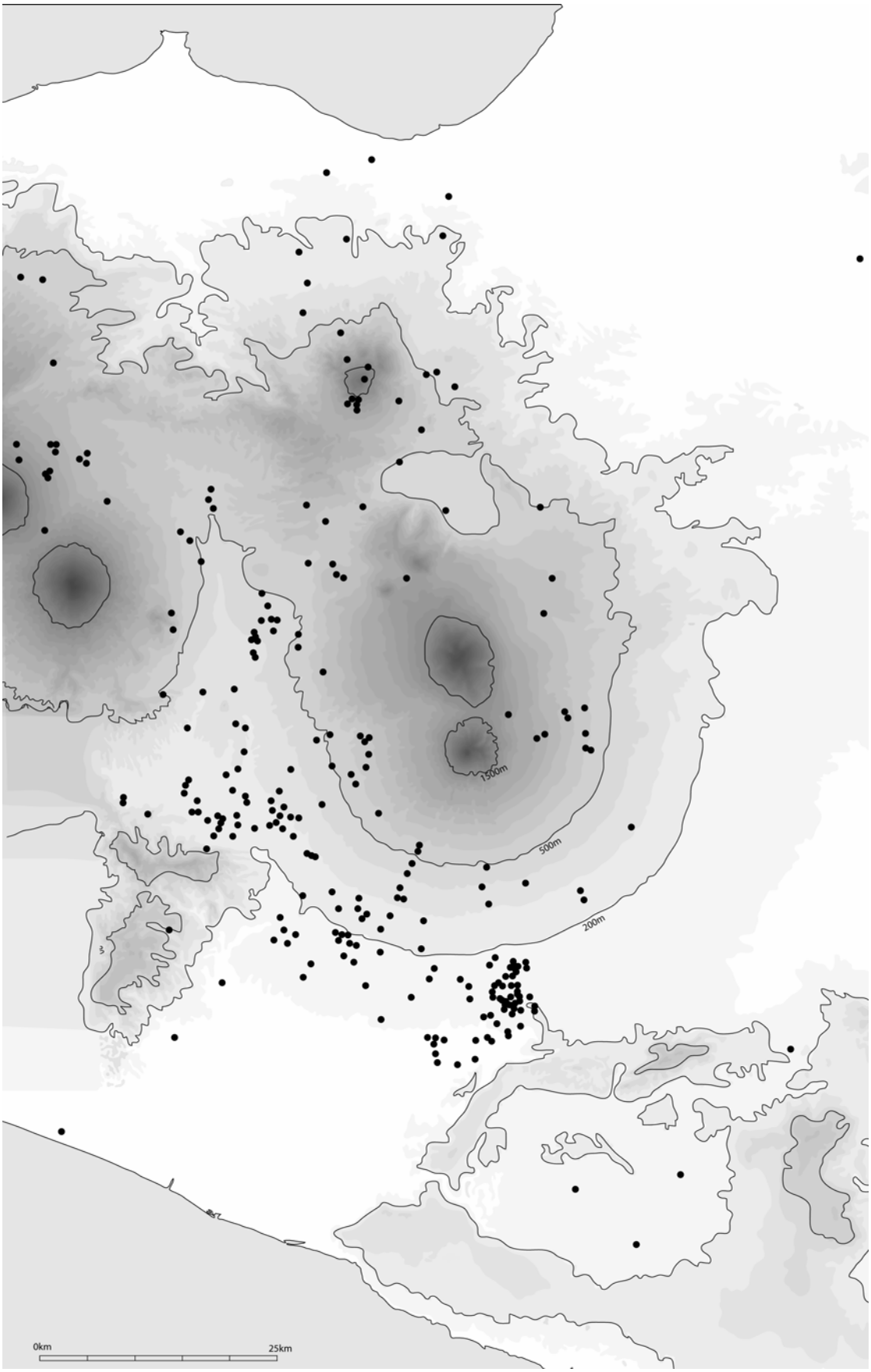
Although it might appear from the above numbers that lowlands and lower mid-altitude lands are equally favoured as temple locations[1], a detailed examination of the distribution leads us to a different conclusion. Mundarjito has already noted that, in the DIY, archaeological remains were mainly located below 200m (Mundarjito 2002:368). As far as temple remains are concerned, we may specify his observation: the majority are situated between 75m and 200m above sea level (Table 8). Actually 64 sites out of the 110, i.e. 58%, are located in that zone.[2] Only one site, namely Glagah (*desa* Sidorejo, *kecamatan* Temon, *kabupaten* Kulon Progo), lies under 50m.

In the middle Progo valley, where the average altitude is higher – around 200m, all the sites but one[3] are located in mid-altitude lands (59 sites in lower middle land, 42 in upper middle land) (Table 9). In the upper Progo valley, sites are located still

[1] Low lands represent roughly 60 % of the territory and 70 % of the temple remains, lower middle lands 30% and 29% of the remains, upper middle land and highlands the remaining 10% of the territory and 1% of the remains (these numbers do not include *kabupaten* Gunung Kidul).

[2] Whereas it corresponds to less than one-third of the territory.

[3] Namely Blaburan, which is located at the border between *kabupaten* Magelang and the DIY.



higher: **Figure 16: Temple remains per altitude range**

Table 8: Altitude of the temple remains in the Yogyakarta-Prambanan plain

	Altitude	*Sites*	*Names*
Lowland	0-49m	1	Glagah.
	50-74m	2	Sambiroto, Tangkisan.
	75-99m	11	Candirejo, Condrowangsan, Gampingan, Jatiwangi, Klodangan, Krapyak, Mantup, Payak, Sampangan, Tegalsari, Watugilang.
	100-199m	64	Abang, Balangan, Banyunibo, Blaburan, Bogem, Bubrah, Bugisan, Burikan, Candi (Mlati), Cebongan, Cupuwatu, Dawangsari, Dengok, Gajah, Gana, Gatak, Gebang, Grembyangan, Grogol, Gunung Mijil, Jetis (Nglempak), Jumeneng, Kadisoka, Kalasan, Kalongan, Karang Tengah, Keblak, Kedulan, Klaci, Konteng, Kulon, Lor, Loro Jonggrang, Lumbung, Mulungan Wetan, Ngaglik, Nogosari, Pendem, Planggak, Plaosan (Mlati), Plaosan Kidul, Plaosan Lor, Plembutan, Polangan, Polengan, Pondok, Puren, Ratu Boko, Sambisari, Sanan, Sari, Sawo, Semarangan, Sentono, Sewu, Singo, Sojiwan, Sosrokusuman, Susukan, Tanjungtirto, Warak, Watugudig, Wiladeg.
Lower Middle Land	200-299m	20	Arca Ganeca, Barong, Candi (Ngaglik), Gupolo, Jetis (Pendowoharjo), Karangnongko, Karangtanjung, Kepitu, Lengkong, Malang, Merak, Miri, Miring, Palgading, Panggeran, Plumbon, Risan, Sumberwatu, Tinjon, Wadas.
	300-399m	7	Candirejo, Ijo, Jetis (Cangkringan), Kaliworo, Maron, Morangan, Ngepos, Sumur Bandung.
	400-499m	5	Besalen, Cepet, Pringtali, Wringinrejo.
Upper Middle Land and Highland	500-3000m	1	Candi (Pakem).

all temples are situated in the upper middle land and 8 are higher than 1000m above sea level (Table 9). Although the average altitudes in *kabupaten* Boyolali (Table 11) and Semarang (Table 10) are slightly lower, most of the sites are also located in the upper mid-altitude lands, with the exceptions of Dukuh (496m), Ngempon (405m) and Candirejo (310m).

The general picture that emerges is that, on the western flank of Mount Merapi, temples are rarely located above 600m. This state of affairs most likely has a very pragmatic origin. Although their soil is rich, high areas have indeed serious disadvantages, such as the scarcity of watercourses and the danger implied by the proximity of Mount Merapi.[4] On the south-western and southern flanks of Mount Merapi, the area above 550m is classified as 'Hazard Zone II' by the Merapi Volcano Observatory and risks of *lahar* and pyroclastic flows are serious.[5] By contrast, the eastern flank of Mount Merapi, as well as the slopes of Mounts Sumbing, Sundoro, Telomoyo and Ungaran are slightly safer;[6] villagers could settle higher and still be reasonably protected from volcanic hazards. Remains seem to follow this pattern: on

[4] See below, p.52.

[5] http://merapi.vsi.esdm.go.id/?static/volcano/merapi/bahaya.html, access date: 24/05/2008. The summit is classified as 'Hazard Zone III' or 'Forbidden Zone'. The Hazard zone II is the area most frequently touched by *lahar*, especially along rivers, while pyroclastic flows sometimes reach down to the area around 900m. In November 1994, the village of Turgo (950m), near Kaliurang, was burned down by such a hot cloud.

[6] The eastern flank of Mount Merapi is protected by the remains of the Batu Lawang volcano, which form a rim on the eastern site of the summit and divert possible lava flow; Mounts Sumbing, Sundoro, Telomoyo and Ungaran are less active than Mt Merapi, see p.51 and 61.

Table 9: Altitude of the temple remains in the Progo valley[7]

	Altitude	*Sites*	*Names*
Lowland	100-199m	1	Blaburan.
LowerMiddle Land	200-299m	29	Banon, Barepan, Bobosan, Borobudur, Bowongan, Brangkal, Dimajar, Dipan, Gedongan, Gejagan, Jomboran, Jowahan, Karangrejo, Kendal, Mendut, Nganten Kidul, Ngawen, Ngrajek, Pawon, Plandi, Progowati, Rambeanak, Salakan, Samberan, Semawe, Sidikan, Sigentan, Tempurrejo, Tiban; /.
	300-399m	15	Dampit, Gombong, Gunung, Gunung Pring, Gunung Sari, Gunung Wukir, Jlegong, Kalimalang, Kanggan, Ketoran, Mantingan, Mulosari, Nambangan, Pringapus, Wurung; /.
	400-499m	15	Bengkung, Bringin, Candi (Secang), Cetokan, Gunung Lemah, Jeronboto, Mungkidan, Pakem, Pirikan, Pucanggunung, Retno, Setan, Singabarong, Tidaran, Tumbu; /.
Upper Middle Land and Highland	500-599m	14	Batu Rong, Gunung Gono, Krincing, Ngampel, Seketi, Sorobojo, Umbul, Wates; Brongkol, Kedunglo, Ngabean, Plikon, Pikatan, Wonokerso.
	600-799m	15	Asu, Batur, Gedungan, Giombon, Kalangan, Kaponan, Kemiren, Lumbung, Pendem, Plumbon, Selogriyo, Sumber; Karangbendo, Ngepoh, Piatak.
	800-999m	6	/ ; Argapura, Gondosuli, Gunung Pertapan, Perot, Pringapus, Traji.
	>1000m	8	/ ; Bongkol, Bumen, Butuh, Candi (Parakan), Gunung Kembang, Jamus, Nglarangan, Tlahab.

Table 10: Altitude of the temple remains in the area of Semarang and Ambarawa

	Altitude	*Sites*	*Names*
Lowland	0-199m	3	Candi, Kangkung, Tugurejo.
LowerMiddle Land	200-399m	6	Arca Ganeca Besar, Duduhan, Dukuh, Ngampin, Ngempon, Ngresep.
Upper Middle Land and Highland	500-999m	6	Bedono, Kaliklotok, Plimpungan, Sanjaya, Sidomukti, Wujil.
	>1000m	4	Butak Wetan, Gedong Songo, Gentong, Renteng.

Table 11: Altitude of the temple remains in Boyolali district

	Altitude	*Sites*	*Names*
Lowland	0-199m	0	
LowerMiddle Land	200-399m	0	
Upper Middle Land and Highland	500-999m	7	Cabean Kunti, Kuwarigan, Lawang, Manggis, Pahingan, Sumur Songo, Tampir.
	>1000m	2	Candipetak, Sari.

[7] Sites listed before the semicolon are located in the district of Magelang. Those listed after are in *kabupaten* Temanggung. The sign / signifies that there are no remains within this altitude range for the district.

Table 12: Temple remains and regional topography in southern Central Java

Local topography	*Sites*	*Names*	%
Slopes of Mount Merapi	9	Besalen, Candi (Pakem), Cepet, Jetis (Cangkringan), Kaliworo, Maron, Morangan, Ngepos, Wringinrejo.	8.2
Area of (steep) hills	13	Arca Ganeca, Barong, Dawangsari, Gupolo, Ijo, Miri, Pringtali, Ratu Boko, Risan, Sambiroto, Sumberwatu, Sumur Bandung, Tinjon.	12.7
Plain	88	Abang,[8] Balangan, Banyunibo, Blaburan, Bogem, Bubrah, Bugisan, Burikan, Candi (Mlati), Candi (Nglaglik), Candirejo, Cebongan, Condrowangsan, Cupuwatu, Dengok, Gajah, Gampingan, Gana, Gatak, Gebang, Glagah, Grembyangan, Grogol, Gunung Mijil,[9] Jatiwangi, Jetis (Nglempak), Jetis (Sleman), Jumeneng, Kadisoka, Kalasan, Kalongan, Karangnongko, Karangtanjung, Karang Tengah, Keblak, Kedulan, Kepitu, Klaci, Klodangan, Konteng, Krapyak, Kulon, Lengkong, Lor, Loro Jonggrang, Lumbung, Malang, Mantup, Merak, Miring, Mulungan Wetan, Ngaglik (Mlati), Ngaglik (Prambanan), Nogosari, Palgading, Panggeran, Payak, Pendem, Planggak, Plaosan, Plaosan Kidul, Plaosan Lor, Plembutan, Plumbon, Polangan, Polengan, Pondok, Puren, Sambisari, Sampangan, Sanan,[10] Sari, Sawo, Semarangan, Sentono, Sewu, Singo, Sojiwan, Sosrokusuman, Susukan, Tangkisan, Tanjungtirto, Tegalsari, Wadas, Warak, Watugilang, Watugudig, Wiladeg.	79.1

the southern and western flanks of Mount Merapi the highest temple ever reported, *candi* Pendem, is located at an altitude of 675m a.s.l., while on the eastern flank of Mount Merapi and on the slopes of Mounts Sundoro, Merbabu and Ungaran, some remains are situated above 1000m.[11]

Temple remains and regional topography

To be meaningful, these observations must further be analysed in the light of local topography (Table 12). In south Central Java (DIY and Klaten), most of the temples are located on the plain at the foot of Mount Merapi, between 75m and 300m (where the slope is roughly between 1% and 3.5%). The number of sites decreases as one climbs up Mount Merapi.[12] The regions of Gunung Kidul and the Menoreh hills have however yielded remains as well, though in smaller number: 11 sites are located in the Gunung Kidul – mostly around Ratu Boko – and 3 sites in the Menoreh hills – namely Pringtali, Sambiroto and Tangkisan.

In the middle Progo valley (*kabupaten* Magelang), temple remains are concentrated in the Kedu plain and the lower slopes of the volcanoes[13] (67 sites out of 80 are located below 600m above sea level) (Tables 9 and 13). Remains are also present in the more hilly area around Secang (to the northeast), but almost absent from

8 Atop on an 50m high, isolated hill rising above the Sorogeduk plain.
9 Atop of a low hill raising above the Prambanan plain.
10 On slightly elevated ground.
11 It is however not easy to determine whether no temple was ever built high on the southern or western slope of Mount Merapi or if remains were destroyed or buried by the volcano.
12 The slope is already of 4% at Morangan and 6% at Candi (*desa* Purwobinangun, *kecamatan* Pakem, *kabupaten* Sleman).
13 Essentially Mount Merapi and, to a lesser degree, Mount Sumbing.

Table 13: Temple remains and local topography in the middle Progo Valley

Local topography	*Sites*	*Names*	%
Volcano slopes			
Mount Merapi-Merbabu	11	Asu, Gedongan, Giombon, Gunung Gono,[14] Gunung Lemah,[15] Lumbung, Pendem, Seketi, Sumber, Wates.	14
Mount Sumbing	3	Batur, Batu Rong, Selogriyo.	3.75
Hilly area	18	Bengkung, Candi, Cetokan, Jeronboto, Kalangan, Kaponan, Krincing, Nambangan, Pakem, Pirikan, Plumbon, Pucanggung, Retno, Setan, Soborojo, Tidaran, Tumbu, Umbul.	21.25
Plain	49	Banon, Barepan, Blaburan, Bobosan,[16] Borobudur,[17] Bowongan, Brangkal, Bringin, Dampit, Dimajar, Dipan, Gedongan, Gejagan, Gombong, Gunung, Gunung Pring,[18] Gunung Sari,[19] Gunung Wukir,[20] Jlegong, Jomboran, Jowahan, Kalimalang, Kanggan, Karangrejo, Kemiren, Kendal, Ketoran, Mantingan, Mendut, Mulosari, Mungkidan, Ngampel, Nganten Kidul, Ngawen, Ngrajek, Pawon, Plandi, Pringapus, Progowati, Rambeanak, Salakan, Samberan, Semawe, Sidikan, Sigentan, Singabarong,[21] Tempurrejo, Tiban, Wurung.	60

Table 14: Temple remains and local topography in Semarang and Boyolali

Local topography	*Sites*	*Names*	%
Volcano slopes	15		65
Mt Merapi-Merbabu	10	Cabean Kunti, Candipetak, Candirejo, Kuwarigan, Lawang, Mangis, Pahingan, Sari,[22] Sumur Songo, Tampir.	
Mt Ungaran	5	Butak Wetan, Gedong Songo, Gentong, Gunung Wujil,[23] Sidomukti.	
Hilly area	7	Arca Ganesa, Bedono, Ngampin, Ngempon, Ngentak, Plimpungan, Sanjaya.	30.5
Plain	1	Dukuh.[24]	4.5

the Menoreh hills and the south-eastern slope of Mt Sumbing – which is area of step hills as well.

In Boyolali the remains are all located on the flank of Mount Merapi-Merbabu, while in the northernmost part of Central Java, they are divided mainly between the slope of Mount Ungaran, the hilly at its foot and, from there, stretch to the Java Sea (Table 14).

To summarize, temple remains are mainly found on gently sloping grounds, i.e. on the plains (of Borobudur and Prambanan principally) and on the lower slopes of Mount Merapi. A series of remains, however, distance themselves from this schema: 1) remains located in the Menoreh and Gunung Kidul hills, 2) temples situated on

14 Atop a small, isolated hill.
15 Atop a small, isolated hill.
16 Atop a small isolated hill rising above the surrounding plain.
17 Atop a 15m high, isolated hill rising above the surrounding plain.
18 Atop a small hill.
19 Atop Gunung Sari, near the Gendong hills.
20 Atop Gunung Wukir, near the Gendong hills.
21 Atop a low hill.
22 Atop a low, isolated hill.
23 Atop a small, isolated hill.
24 Atop a small hill overlooking the Lake Rawa Pening.

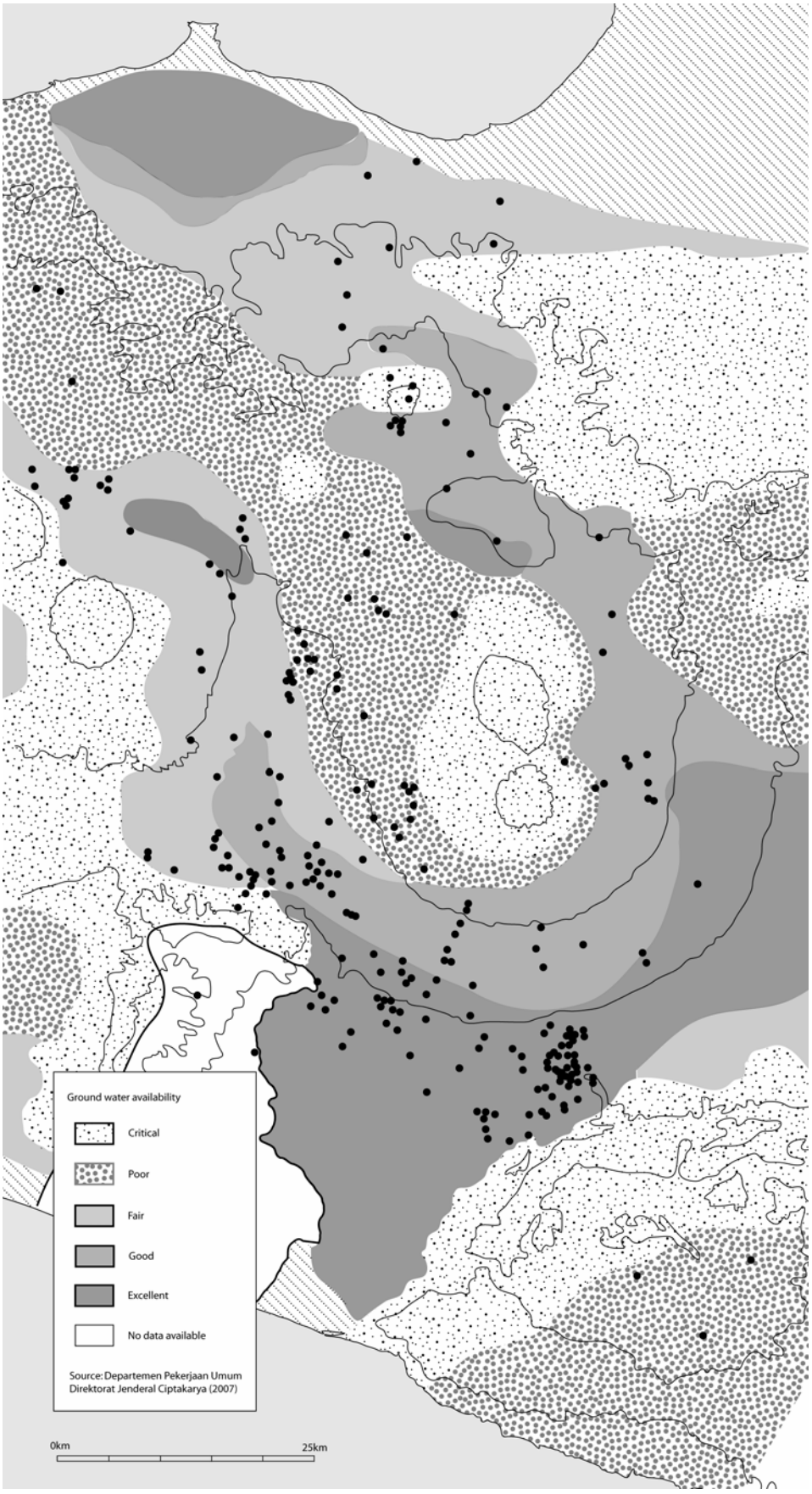


Figure 17: Temple remains and groundwater

undulating terrain around Secang and higher in the Progo valley, 3) remains located in the hilly area between the modern towns of Secang and Ambarawa, 4) temple remains situated on high, sloping ground around Mount Ungaran and on the eastern flank of Mount Merapi.

Temple remains, ground water availability and soil geology

An important element to characterize a natural environment is water availability. A map showing ground water capability and temples quickly reveals that the large majority of remains (203 out of the 246 for which the information is known) are located in areas with a good to high potential of ground water (Figure 17). Few are situated in zones poor in ground water (36 sites) and even fewer in areas which are extremely poor in ground water (7 remains out of 246). Whereas it seems from the above that there is a link between temple location and ground water potential, no temple remains have been reported in the plains of Bantul (between Yogyakarta and the Ocean) and Solo, where ground water is yet abundant.

As ground water availability is dependent – though not exclusively – of the type of soil, the preference for water-rich areas accompanies a preference for volcanoes and volcanic terraces, to the detriment of other soil types – alluvium (essentially in the north) and sediments (tuff and limestone) (Figure 18).

Correlations between temple remains, environmental zones and wet-rice cultivation

On the base of altitude, regional topography, water availability and geology, we may divide central Java in several environmental zones (Figure 19, table 15). Let us now compare these zones with temple distribution.

Generally speaking sediment zones, volcano peaks and upper slopes are dry (scarce ground water and limited amount of rivers), unfertile, unsuitable for wet-rice cultivation, and have yielded extremely few remains (Table 15: IVa-c, IIa-b). Hilly areas have scarcely yielded more remains (Table 15: III). We shall go back to temple remains of these regions later, but, for now, I would like to focus on the location of the large majority of the temples. Actually, most of the remains are concentrated in 4 zones, all of them volcanic terrains relatively rich in water, gently sloping or undulating, crossed by numerous small rivers and perfectly suited for wet-rice cultivation (Table 15: Ib, Ic, IIc, Id). Remains are more numerous and more evenly dispersed over larger areas at low altitudes, whereas they tend to decrease in number and to cluster on higher grounds.

On ground of these observations, we may formulate the hypothesis that a vast majority of Central Javanese shrines were somehow related to wet-rice cultivation and, thus, to settlements. The main sign in favour of this hypothesis is that there is a direct relation between temple remains density and suitability for wet-rice cultivation, even though it might not immediately jump out at the reader (Table 15). Nine environmental zones are described as suitable for wet-rice cultivation (Table 15: Ia-e, IIc-d, Va-b). Nevertheless, wet-rice cultivation cannot be implemented in all these areas with the same ease. Two important elements in this implementation are indeed the slope of the terrain and the presence of rivers.

Where rivers are numerous and the slope gentle, *sawah*-fields are easy to create: irrigation works are barely required and can be handled by local communities, even families. Irrigation can be planned without significant problems, diverting water from the numerous small rivers without the need for large irrigation canals or equipment for lifting water. North of Magelang, where the natural environment becomes hilly and

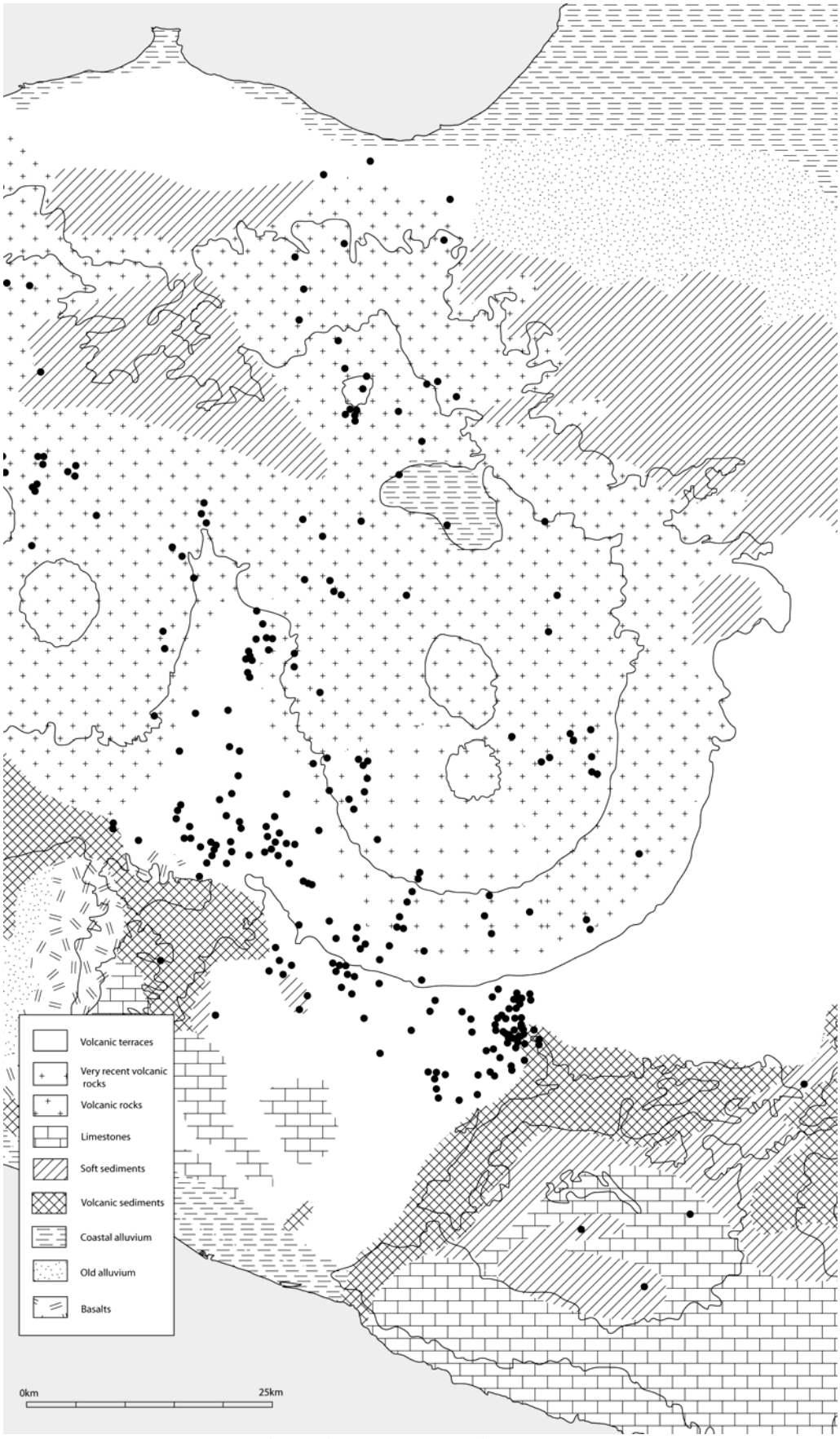


Figure 18: Temple remains and geology

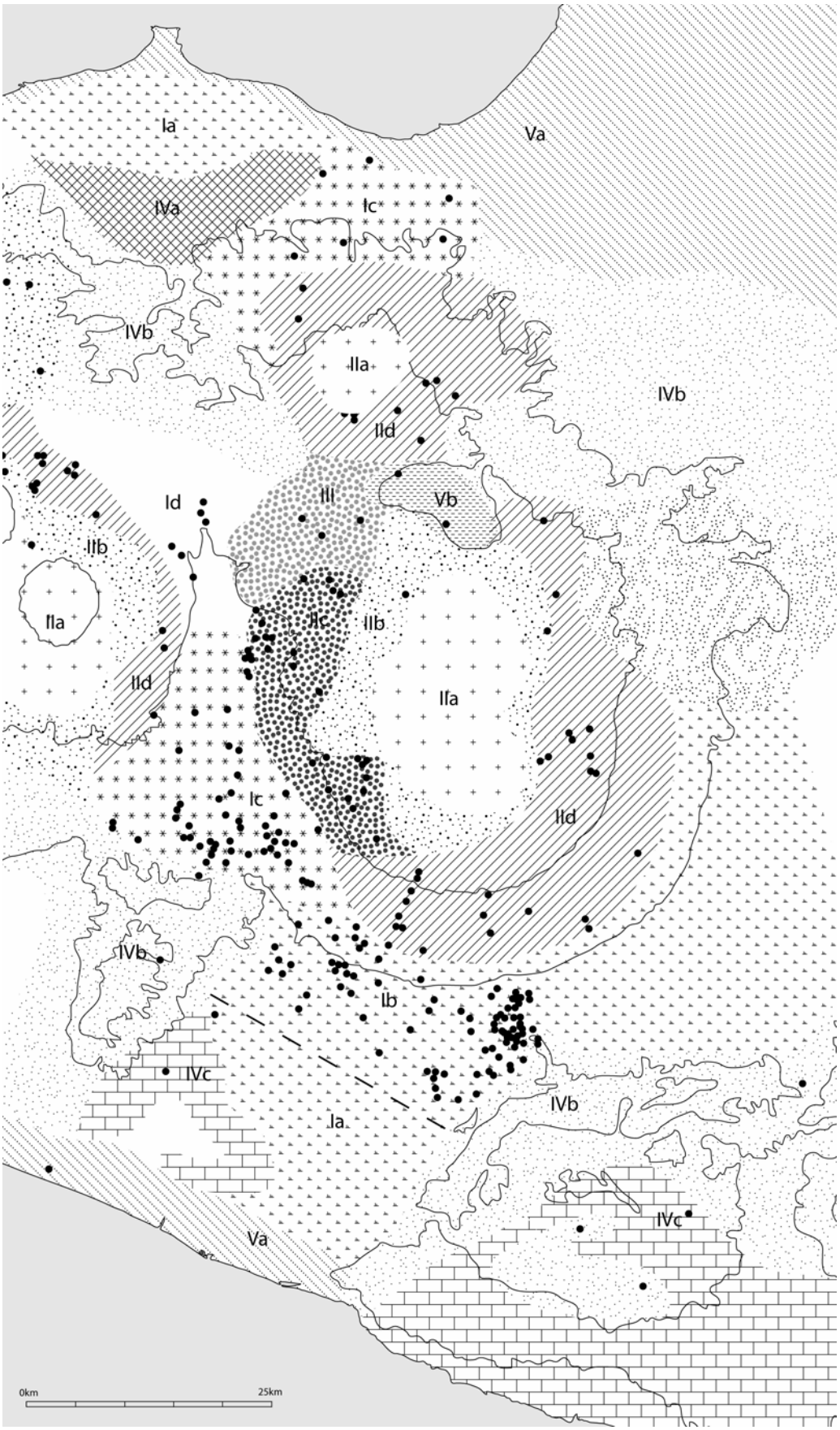


Figure 19: Temple remains and ecological zones

Table 15: Central Javanese temple remains and environmental zones.

		Suitable for wet-rice?	Sites	Distribution Pattern
Volcanic formations				
Plains and terraces				
Ia	Flat volcanic plain with high ground water potential, crossed by a few, large rivers.	Yes	0	/
Ib	Volcanic plain, sloping gradually to flat plain, with high ground water potential and numerous – though mainly small – rivers.	Yes	85	Dispersed (regular)
Ic	Gently undulating volcanic terrace, gradually flattening, with good ground water potential and numerous rivers.	Yes	57	Dispersed (random)
Id	Undulating volcanic terrace, dotted with hills, with good ground water potential and numerous rivers.	Yes	6	/
Ie	Volcanic terrace interrupted by a sediment formation, gradually sloping down, with limited ground water and numerous, small rivers.	Yes	0	/
Mountainous areas				
IIa	Volcanic peaks, with extremely limited ground water potential and almost no permanent watercourse.	No	0	/
IIb	Steep volcano slopes, with limited ground water and a few, small rivers.	No	8	/
IIc	Volcano slopes of medium steepness, with limited ground water and numerous, small rivers.	Yes	24	Clustered
IId	Volcano slopes of medium steepness, with good ground water potential and numerous, small rivers.	Yes (depending on altitude)	50	Linear/ clustered
Hilly areas				
III	Dissected, hilly area between two volcanic massifs, with limited ground water and few, small rivers.	No	3	/
Sediments				
Hilly areas				
IVa	Undulating terrain made of volcanic sediments	Moderately	0	/
IVb	Steep hills made of volcanic sediments (tuff and other soft rocks), with very limited ground water potential, dissected by small, often intermittent rivers.	No	6	Clustered
IVc	Limestone (rounded) hills and cliffs, with limited ground water and very few, small rivers.	No	3	/
Alluvium				
VIa	Flat coastal alluvial plain with salty ground water.	Yes	2	/
VIb	Inland alluvial area, with good ground water potential	Yes	1	/

more intricate, rivers are often found flowing in small canyons between the hills. Irrigation requires more planning skills and the upper slopes of the hills are often occupied by dry fields. At higher altitudes, on the volcano slopes, even if ground water is still abundant, rivers are smaller, less numerous and the climate may even become cooler, rendering these areas less suitable for wet-rice cultivation. On the upper slopes of Mount Merapi, above 400-500m, watercourses are not plentiful and mainly drain water from the summit, where clouds are caught, provoking frequent rainfalls, even outside the rainy season. At about 400-500m, the cone of Mount Merapi is encircled by a spring belt: it is at that altitude that most rivers of the DIY – Klaten area commence. As they flow down Mount Merapi, rivers gather together and join *kali* Glagah, Progo and Opak.

At first sight, the low plain stretching from the south of Yogyakarta to the Indian Ocean[25] seems to have everything to become a rich agricultural zone: fertile volcanic soil, high ground water potential, large rivers (Progo, Opak) and a uniform, flat topography. Nevertheless, the latter two elements mentioned, when associated with one another, may constitute a handicap rather than a blessing. In the region of Bantul, indeed, the landscape is almost completely flat and rivers, though large, are not numerous actually making wet-rice more complicated than, for example, in the Prambanan plain. The scarcity of watercourses would have necessitated the digging of irrigation canals to bring water to the fields from the farther apart, large rivers – and the flat topography is not helping. If, as stated by J. Wisseman Christie, population was low and farmers were not under pressure to intensify rice production (Wisseman Christie 1992:11), then there was no reason to settle in such an area, especially since land was still available in zones more suitable for rice cultivation. Furthermore, large waterworks would probably have required the court to play a practical role in their construction and upkeep. That sort of royal involvement was apparently lacking in Central Java (Wisseman Christie 1992:17). Furthermore, if we accept that fluvial water flow was more voluminous in early times,[26] then we may conclude that the area south of Yogyakarta, with its wide rivers and slopes of less than 1%, might have known regular floodings, at least in the areas bordering waterways.

If one integrates the easiness of implementation into the equation, then the areas the most suitable for wet-rice cultivation are (in decreasing order): 1) the gently volcanic plains and terraces situated around Mount Merapi (Figure 19; table 15: Ib, Ic); 2) the southern and eastern slopes of Mount Merapi, Mount Ungaran and parts of the eastern slope of the Sundoro-Sumbing massif (Figure 19; table 15: IId); 3) the plain of Bantul; 4) the western slope of Mount Merapi (Figure 19; table 15: IIc) and the undulating terrace forming the upper Progo valley (Figure 19; Table 15: Id). This classification corresponds almost perfectly with a classification of ecological zone according to site density.[27]

---

[25] The same remark is valid for the plain to the east of Semarang (between Semarang and Grobongan) and for the plain of Demak.

[26] See above, p.15.

[27] The only exception is the plain of Bantul where one would have expected to find remains at least at medium distance along main rivers. Their absence is thus still puzzling. Nevertheless, after completion of my own fieldwork, it has come to my knowledge that Mundarjito has reported the existence of at least 9 brick structures in the plain around the modern town of Bantul: Bintaran, Cepit, Janggan, Jonggalan, Kauman, Kedaton, Melikan, Tajeman, and Watugedog. He has identified two of them as temples (*candi*), namely Bintaran (Bintaran, Srimulyo, Piyungan) and Kauman (Kauman, Plered, Plered) – the last one is most probably Payak. At Melikan Tajeman and Watugedog, *yoni* were discovered as well. Unfortunately, no further description of the sites is available. Since I have not

We have thus shown that there is a direct correlation between temple density and suitability for wet-rice cultivation. Since it would be a non-sense to maintain that the most fertile terrains of Central Java were free of cultivation, we must conclude that the plains of Prambanan and Muntilan, as well as the lower slopes of Mount Merapi, were actually cultivated and that most of the temples stood in the vicinity of rice fields.

The association between temples and rice is well documented in inscriptions. In early times, *sawah* were probably the most important sources of wealth, and temples were dependent on benefits from wet-rice fields (Wisseman Christie 1992:11). As testified by the inscriptions, temples relied heavily on levies on certain *sawah* for their upkeep and maintenance. In the epigraphical record ample measure is given to the transfer of taxes on *sawah* in favour of a religious foundation.[28]

However, the relation between the temple and the cultivated land seems to have been a complex one. Temples were not always built in the middle of existing *sawah* land; they were apparently also used to stimulate wet-rice cultivation. Several inscriptions clearly mention that tax authority was given to a temple at the condition that the land was transformed into *sawah*. In the inscription of Kwak I, for example, one can read that: "(…) on a palm-leaf was written a confirmation [of the grant status] of the tgal (dry-field) land at Kwak, to be marked out for the creation of wet rice fields to become sīma of the tower-temple of Kwak" (Wisseman Christie 2002: nº 98).[29]

Temple remains and settlement patterns: a possible correlation

The corollary of the close association between temples and rice-fields is the relationship between temples and settlements. Rice-fields require a work force, i.e. village communities. If we accept the hypothesis that the vast majority of the temples located in highly fertile areas were built in the vicinity of rice-fields, then we must admit that these shrines were also built in the vicinity of settlements. This does not however mean, as we have seen in the case of Prambanan, that temple distribution perfectly renders settlement patterns. Temples are a clue to understand settlement, but this clue is not precise enough to allow us to pinpoint ancient villages on a map. Dense, clustered distribution patterns, especially, should raise our suspicion, as they might indicate a religious centre rather than a population centre. It is nevertheless striking that, in the zones that have the highest density of temple remains – the most suited for wet-rice cultivation –, temples, though close to one another, are scattered

visited them yet, I cannot assert that these remains date back to the Central Javanese period: brick structures from the early islamic period and collections of artefacts are known to exist in the area.

[28] *Sīma* (freehold) including *sawah* transfered to a temple are mentioned in the following Central Javanese inscriptions: Kamalagi (821 A.D.), Kayumwungan (824 A.D.), Abhayānanda (826 A.D.), Tru I Tepussan I & II (842 A.D.), Wayuku (854 A.D.), Śiwagṛha (856 A.D.), Lintakan, Talaga Tanjung (862 A.D.), Wanua Tengah I, II and III (863 A.D.), Kurambitan I & II (869 A.D.), Śrī Manggala I & II (874 A.D.), Humaṇḍing (875 A.D.), Laṇḍa A & B (c. 879 A.D.), Kurungan (885 A.D.) and Lintakan (919 A.D.). See Stutterheim 1940b: 29-32; Casparis 1956: 280-330; Boechari 1959; Soekarto 1969:18-21; Sarkar 1971-1972: nº 7, 9, 10, 13, 14, 18, 19, 24, 26, 27, 28, 32, 108, 136; Suhadi, Soekarto 1986: n°2.7.2; Wisseman Christie 2002-2004: nº 53, 71, 72, 100.

[29] Central Javanese inscriptions making reference to *sīma* grants to be transformed into wet rice fields are : Mamali (878 A.D.), Kwak I & II (879 A.D.), Ra Tawun I & II (881 A.D.) and Ra Mwi (882 A.D.). In the inscription of Taragal (881 A.D.), the granted land had to be transformed in house land. See Sarkar 1971-1972: nr 40, 41, 49, 52; Suhadi, Soekarto 1986: n° 2.7.5, 2.7.6; Wisseman Christie 2002-2004: nº 112.

rather than clustered. Such a distribution pattern is precisely what would theoretically be expected for settlements in a highly fertile area: a high population density, but spread all over the area in order to maximize the exploitation of the agricultural resources of the land. We may thus reasonably suggest that distribution patterns of temple remains in the Yogyakarta and Mutilan plains have direct relationship with settlement patterns. Within this context, the slight tendency towards regularity of temple distribution in the Yogyakarta plain could be interpreted as the sign of a particularly high population density and the existence of a competition for land – villages then tend to settle as far as possible from one another, but still on fertile ground, which leads to a regular distribution of settlements.[30] If this is true, it might help to explain the growing interest of Central Javanese rulers for East Java: an increase in population density, the subsequent pressure on cultivable land and the need to find new land equally suitable for wet-rice cultivation.

Besides, temples may also render the existence of a growing manufacturing sector. In order to comply with the needs of the cult, temples certainly required fine products (cloth, jewellery, ceramics, sculptures) and sustained the development of a local industry (within or outside their *sīma*).

The interest of the person – *mahārāja*, *rake* or *samgat* – transferring his tax authority to a temple is difficult to evaluate. No Central Javanese inscription provides us with a definition of the term *sīma*, so that it is impossible to determine the exact tax status of a *sīma*, and the loss it represented for the person previously holding fiscal authority over that piece of land. It is not obvious from epigraphical data that all the taxes were automatically transferred to the religious authorities. Barrett Jones notes that exemption of levies on craftsmanship and other secondary sector activities are specifically mentioned in a number of inscriptions. This would suggest that these exemptions were exceptional – and were not part of the basic privileges of a *sīma* (Barrett Jones 1984:61).[31]

---

[30] The relation between increased in population, high site density, greater competition between sites for land, and greater uniformity in spacing has been shown by Hudson (1969). See also Hodder and Orton 1976:73.

[31] Inscriptions do not tell us exactly that the *sīma* was exempted from taxes, but that the *mangilala dṛwya haji* ("those claiming the king's property") were forbidden to enter the *sīma* – and that the religious foundation had the sole authority over the taxes. According to Barrett Jones, those "royal tax collectors" probably bought from the king the right to collect taxes on certain activities, possibly by giving away a fixed amount of money once or twice a year (Barrett Jones 1984:14). When they went to collect the taxes, they certainly pressured the villagers as much as possible in order to increase their own benefits. However, that the *mangilala dṛwya haji* are forbidden from entering a *sīma* does not have to mean that the taxes are not paid, or are paid to the sole benefit of the religious foundation. It could as well signify that the institution having authority over the *sīma* was directly in charge of collecting them, with at least a part of the profits still due to the lay administration.
This was certainly the case with the *sīma* of the inscriptions of Telang II, Sugih Manek, Palebuhan and Sangguran. In these four cases, the *mangilala dṛwya haji* are forbidden from entering the *sīma*, but the surplus of certain trade and craft activities are still paid to them. Furthermore, profits from making black paints, purple-red paints, spinning, making bed-covers and pillows, etc. is to be divided into three parts: one for the religious foundation, one for the protector of the freehold and one for the collectors of royal taxes. In other words, the king or the *rake* still had a share in the most lucrative activities of the *sīma*.
Central Javanese inscriptions mentioning the ban for the tax collectors on entering a *sīma* are those of: Munduan (847 A.D.), Kancana (860 A.D.), Ra Mwi (882 A.D.), Er Hangat A & B (885 A.D.), Telang II (904 AD.), Sangsang (907 A.D.), Taji Gunung (910 A.D), Timbanan Wungkal (913), Sugih Manek (915 A.D.), Palebuhan (927 A.D.) and Sangguran (928 A.D). See Kern 1917: II, 17-53; Sarkar 1971-1972: nº 22, 52, 65, 72, 80, 82, 84, 93, 96, 106; Wisseman Christie, 2002-2004: nº 48, 124.

Although temple building resulted in a loss of revenue in *sawah* taxes (at least when the temple was associated with a *sīma* that already included wet-rice fields), it could also support local economy and help to develop more lucrative activities, activities on which the king or *rake* usually collected taxes.

Outside the fertile plains: temples and ancient routes of communication

The density of temples, as we have seen, is particularly significant in the Prambanan area and, to a lesser degree, in the Borobudur-Muntilan zone, in both zones, temples are directly related to wet-rice cultivation and, most probably, to settlements. Numerous temples, however, exist outside these rich agricultural plains, in areas moderately suited – or not suited at all – for wet-rice field cultivation. Temples located on or in the direct vicinity of mountain peaks clearly form a case apart – on which I will come back in the last part of the chapter – and for the time being, I would like to attract the attention to temples located on the undulating terrains of the upper Progo valley, in the hilly area between Mounts Merbabu and Ungaran, and on the eastern slope of Mount Merapi.

Small aggregates of temple remains occur, as we have seen in the previous chapter, near the modern towns of Secang and Parakan. A smaller cluster of temples is located slightly to the east of Boyolali, on the eastern flank of Mount Merapi. In these three cases, temples are located on relatively fertile land, but not highly suitable for wet-rice cultivation. The area of Secang is made of a multitude of small hills and has a limited ground-water potential, the remains around Parakan are located at the upper limit of modern wet-rice fields, while temples around Boyolali are situated at an altitude which is not favourable for wet-rice cultivation. It is thus very unlikely that this type of cultivation played an important role in the development of those sites.

Secang is relatively close to Muntilan and temples seem to form a string between both areas. In the cases of Parakan and Boyolali, however, the physical link with the plains is quite tight. Seven temples, scattered along the Progo River, link Parakan to Secang (and further to the Muntilan area), while only a couple of remains have been reported between Prambanan and Boyolali.

Are these aggregates of temple remains secondary centres? The location of Secang, at a distance but nevertheless in the direct periphery of the core region would suggest so. Are Boyolali and Parakan remains of originally independent polities relatively lately integrated into the Central Javanese kingdom? It would at least explain why the territory between these centres and the agricultural plains has yielded so few remains. In the present state of our knowledge, it is unfortunately impossible to give a definitive answer to those questions. Rather than focusing on how and when these different centres develop, I will try to understand why these places were important for a Hindu-Buddhist polity centred in the plains of Muntilan and southern Central Java. My own hypothesis – which does not exclude that other factors may have participated in the appearance of these clusters of sites – is that Secang, Parakan and Boyolali are knots along a network of communication routes.

Since Secang, Parakan and Boyolali are not places of interest for wet-rice cultivation, their importance must lie elsewhere – and since this book is dealing with the relationship between temples and their natural environment, I propose to observe more closely the landscape around these three clusters of remains. Secang is located in the Progo valley, but in a transitional zone between the valley itself and the hilly region that separates Mount Ungaran from Mount Merapi. Parakan is the northernmost point of the valley, at the foot of Mount Sundoro and of the hills that

link Mount Ungaran to the Prahu massif and the Dieng Plateau. Boyolali, however, does not seem to be located in a transitional zone.

Let us now consider the distribution of the remains around Secang, Parakan and Boyolali. We can notice that, around Secang, remains are found mainly in three directions: to the south (along the Elo River, in direction of Muntilan), to the northwest (along the Progo River, in the direction of Parakan) and to the northeast (across the hills, towards the modern town of Ambarawa). Around Parakan, most of the remains are to be found to the southeast (along the Progo River), but at least three are located to the north, across the hills. The case of Boyolali is less clear: no remains are found in its direct neighbourhood, but more distant ones are visible to the north and south. Now, it happens that this description fits almost perfectly with a map of the modern road network – and this network has superimposed over a road system already in use for centuries.

That the roads heading east from the Prambanan area and north through the Kedu plain were already well-known before the introduction of modern transportation is demonstrated by sources dating back to the 17th and 18th centuries. This is not the place to analyse in detail the testimonies of Dutch travellers about the road system in the kingdom of Mataram; for such a study, I refer the reader to the work of Schrieke (Schrieke 1957a). I will only mention here those facts that are significant for the Prambanan and Magelang areas and that may throw some light on transport routes of the Hindu-Buddhist period.

In the report of his journey to Mataram (i.e. the Yogyakarta-Prambanan area) in the year 1656, van Goens mentions that there were only three roads leading out of Mataram: 1) a road going north to Semarang *via* Prambanan, 2) a road going west to Tegal *via* Muntilan, 3) a road going east to Blambangan *via* the Solo plain (van Goens 1856:348)[32] (Figure 20).

From additional sources, it can be determined that the first road, the one going from Mataram to the northern coast, passed through Prambanan, Ampel, Tengaran and Tingkir. From there, one route led to Semarang *via* Ungaran, while the other headed directly north to Demak (Goens 1856: 307-312; Jonge 1869, IV:88-95; 1870, V: 40-46; Fruin-Mees 1926:409-413).[33]

---

[32] "De groote populeuse hooftplaets Matâram heeft 3 wegen om uit deselve te vertrecken ende anders geen, te weten: de eerste hier vooren beschreeven, als den gemeijnsten, gaet uijt de Matarâm Noordwaerts nae Samârangh, welcken wech als den gemackelijxten ende cortsten door de poort Tadie meest bewandelt ende ordinair bereijst wert; de 2de wegh gaet nae 't Westen, ende compt uijt omtrent Tagal, doch is seer moeijelijck; de principaelste poort is hier genaemt Tourajan; de 3de wegh gaet nae 't Oosten en compt uijt omtrent Balambanghan (…)" (Goens 1856:348).

[33] This road was described in 1618 by van Maseyck (Jonge 1869, IV:88-95), in 1624 by de Vos (Jonge 1870, V:40-54), in 1630 by Franssen (Fruin-Mees 1926) and in 1656 by van Goens (Goens 1856). The most complete account is given by Franssen, who gives the names of the following localities: Samarangh (Semarang), Jaty Diejar (Jatijajar, between Ungaran and Bawen), Tongtang (Tuntang), Sasanga (Kesongo), T'sandy (Candi), Pamelouttas (Puluhan? – the three latter villages are between Tuntang and Salatiga), Sallatyga (Salatiga), Caelytiaetsingh (Kalicacing), Tallaga (Tlogo), Inckir (Tingkir, SSE of Salatiga), Caeli Gandou (Kaliganu, near Klero), Tangaran (Tengaran), Calyloo (?), Ingampel (Ampel), Sallandacka (Selodoko), Pangack ieran (Payungan?), Ingamboir (Ngambuh), Sallamby (Slembi, S of Boyolali), Lomboen (?), Mandalangou (Mondolangu, between Boyolali and Jatinom), Poelou Waetou (Puluh Watu), Lousa (Lusah, WSW of Klaten), Tagkijsan (Tangkisan), Pammaloon (Plembon?) and Taedzy (Taji, just east of Prambanan). We can see here that the route corresponds roughly with the modern Solo-Boyolali highway. South of Boyolali, it is close to the Boyolali-Jatinom-Klaten road, although it did not end in Klaten, but further to the west, closer to Prambanan. Temple remains are found all along the route, from Prambanan to Semarang. It is more than probable, therefore, that the road was already in use in early times.

The road going west *via* Muntilan, considered "very difficult to travel" by Van Goens (van Goens 1856:348), was described by de Haan in 1622 (Jonge 1869, IV:284-300). The route crossed the Kedu plain up to Jumo, then headed north through the mountains and met the coastal road around Subah. From Subah, the road led west to Tegal *via* Batang, Pekalongan and Pemalang.[34] Another road heading west to Tegal

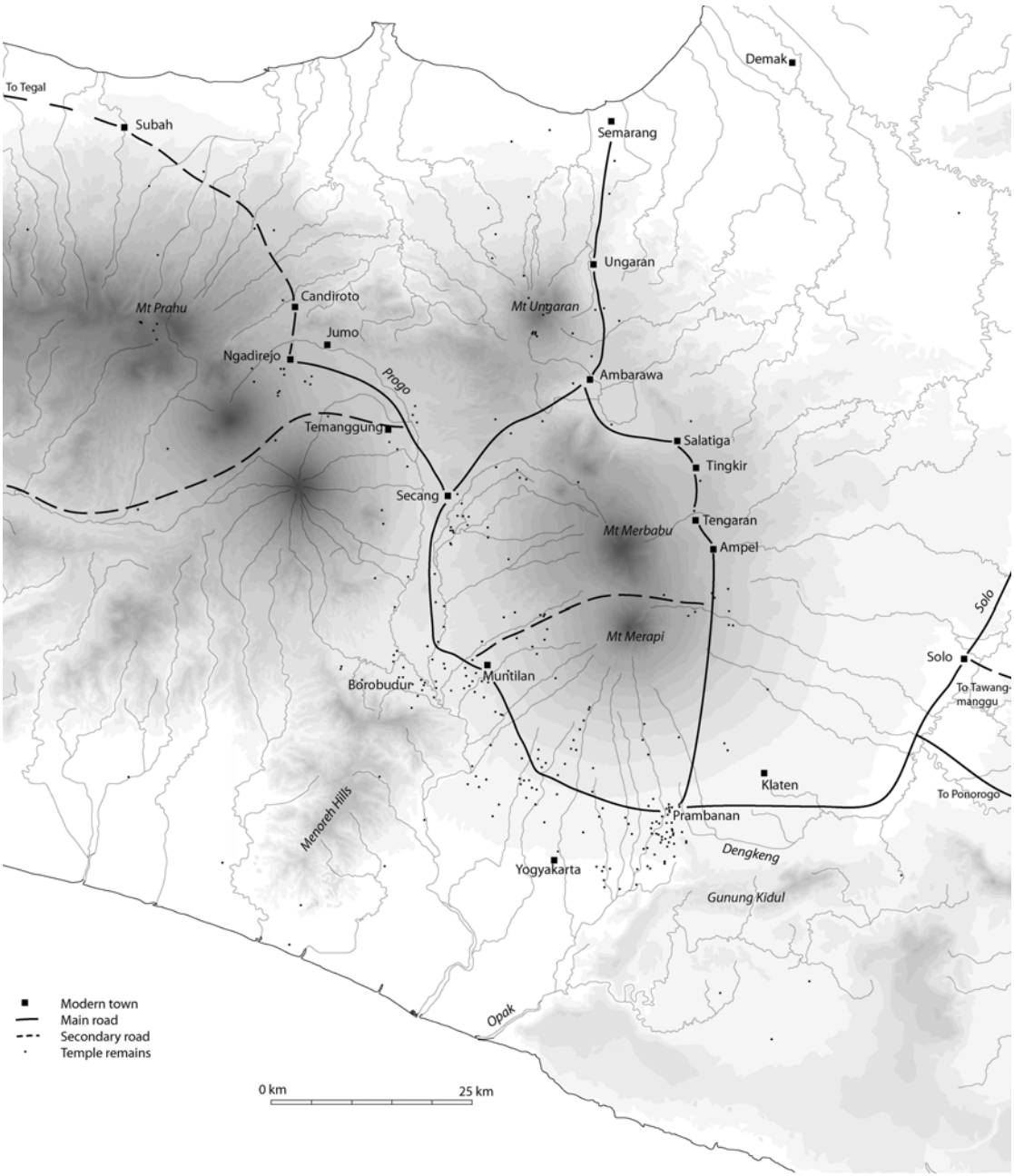


Figure 20: Tentative sketch of Central Javanese routes

[34] De Haan describes the road from Tegal and mentions the following places: Tegal, Somber, Pamalangh (Pemalang), Wiradeça (Wiradesa), Pecalongangh (Pekalongan), Batangh (Batang), Suba (Subah), Pakis (SE of Subah), Tragalangong (?), Tatiam (Tajem, near Ngadirejo), Juma (Jumo), Pakiswieringh (Pakisan, near Temanggung?), Piaman (Payaman, N of Magelang), Tidar (Magelang), Sukerbe (Srikuwe, near Blondo) and Touraian (Trayem, near Muntilan) (Jonge 1869, IV:284-299).

– *via* the southern coast – was mentioned by W. van Imhoff in 1746. It passed through Ambal, Karanganyar, Banyumas and Purwokerto (Imhoff 1853:406-413).

Three roads leading east are mentioned in documents of the 17th and 18th centuries. The most commonly used route from Mataram to the eastern sea headed from Prambanan to Pasuruan *via* the southern foot of Mount Lawu (Schrieke 1957a:109). Two secondary itineraries are possible, one through Solo and Tawangmangu (described by Theling in 1742) (Gijsberti Hodenpijl 1918:601-608; Schrieke 1957:108), the other *via* the northern slope of Mount Lawu (Schrieke 1957:108).

If we base ourselves on these descriptions and on the distribution of both temple remains and inscriptions, it appears that the three major roads leading out of Prambanan were already in use during the Central Javanese period. The road going from Prambanan to the northern coast through the Kedu plain is obvious. Distribution of temple remains suggest that, as nowadays, the road split in two in the area of Secang. The western part headed to Ngadirejo and the eastern one to Ambarawa, from where it headed further to the coast. A couple of remains located in the northern part of the *kabupaten* Temanggung and in the southern part of the Kendal district lead to the hypothesis that the western road also continued to the coast, through the region of the high hills separating Mount Prahu from Mount Ungaran.

The inscription of Mantyāsiḥ I (907 A.D) and the presence of remains in the Serayu valley suggest that there was another branch of the northern road connecting the Progo valley to the Wonosobo area. The copper plates are said to come from the Temanggung area. The text explains that a grant had been conferred upon the *patih*-officials of two local communities, partly because they were in charge of protecting a high road in the region of Mount Sumbing and Sundoro.[35]

Temple remains and inscriptions on the eastern slope of Mount Merapi, from Klaten to Salatiga, suggest that this route too was known during Central Javanese times.[36] As for the road heading east *via* the southern slope of Mount Lawu and Ponorogo, the locations at which the inscriptions of Taji (Ponorogo), Telang I and Telang II (Wonogiri) were found testify to its existence already in the early 10th century.[37] The inscription of Telang II, issued by king Balitung,[38] is a particularly interesting piece of evidence. Given that it commemorates the marking off of a freehold to maintain a free ferry-service on the Begawan Solo, it may be assumed that the traffic on this river was important enough for the king to take care of it. The absence of a tollgate must have greatly facilitated communication and trade between Central and East Java.

Traces of a road heading west *via* the southern coast are not so clear, although several *yoni* discovered in *kabupaten* Kebumen suggest that the Hindu-Buddhist culture also spread in some way along the southern coast.

It is possible that a secondary road linked the Progo valley directly to the Solo

---

35 See Sarkar 1971-1972: n° 70.

36 Temple remains found close to this route are: Sanjaya (near Tingkir, south of Salatiga), Ngentak (near Klero and Tengaran), Sumur Songo (between Ampel and Boyolali), Manggis, Tampir and Pahingan (these three sites are west of Boyolali, in the area of Musuk), Candirejo (south of Boyolali, near Mondolangu) and Merak/Karangnongko (northwest of Klaten). Four inscriptions are reported to have been found in the Boyolali area, namely the inscriptions of Boyolali, Garung, Upit and *candi* Lawang (Sarkar 1971-1972: n° 8; Soekarto 1975: 247-253; Nakada 1982: n° 34; Wisseman Christie 2002-2004: n° 6).

37 Taji is dated 901 A.D., Telang I 904 A.D. and Telang II 904-905 A.D. See Sarkar 1971-1972: n°61, 65, 70; Nakada 1982: nº 80, 86, 87.

38 *Śrī mahārāja rakai Watukura dyaḥ Balitung śrī Dharmmodayamahāśambhu*.

plain, passing between the peaks of Mounts Merbabu and Merapi. The positions of *candi* Asu, Pendem and Lumbung, Sari and Lawang show that important religious sites were located high on the slope of the Merapi-Merbabu massif, at each end of the high pass running between the two peaks. Traces of a temple were once visible along this pass, at more than 1300m above sea level, as reported by Van der Vlis (quoted by Krom 1925a:181ff). This Dutchman, who was told the temple had been destroyed by a mud flow, was still able to identify several sculptures and temple stones.

Epigraphic records and comparisons with 17th or 18th century documents show clearly that temples were in close correlation with communication routes. Temples not only benefited from the roads, they also contributed to their maintenance. Roads established connections between the rice-producing areas of the south Kedu plain and the Prambanan area, the harbours of the northern coast and East Java. It is only natural that agricultural estates developed along these routes, taking advantage of the access they offered to developed local economies, thereby taking an active part in regional trade and, finally, increasing the wealth of local communities. On the other hand, temples were not always a side-product of the integration of provincial centres into the larger network. As stated in a couple of inscriptions, religious foundations and freeholds were sometimes created with the purpose of securing roads.[39] This happened especially in more remote areas, like Temanggung, or the southern side of Gunung Lawu, where forest patches probably outnumbered rice fields and settled lands.

To summarize, the clusters of temple remains around Secang, Parakan and Boyolali can thus be, at least partly, explained by their position within a network of communication roads. Secang is at the junction of the route linking the plain of Muntilan to the upper Progo valley and the northern coast (*via* Ambarawa). Parakan/Ngadirejo is at the beginning of two mountain roads, one climbing to the Dieng plateau, the other other crossing the hills to the north to reach the coast. As for Boyolali, it is at mid-way along a route leading from Prambanan to the north coast *via* Salatiga. The fact that remains along this road tend to be more distant and of a later date further suggest that it developed after the other and was maybe not yet entirely secured when the political centre of the kingdom was transferred to East Java.

Temples remains and local landscape markers

Up to now, we have considered the distribution patterns of Hindu-Buddhist temple remains and have confronted them to the general environmental features of Central Java (ecological zones, regional morphology). We have thus shown that zones where temples are dense but scattered corresponds to the agricultural core of the kingdom, that clusters of temples mark important communication crossroads and that temples located in the hilly areas of north Central Java and on the eastern flank of Mount Merapi stretch along the road linking the core region to the northern coast. But we have not yet approach the question of the location of particular temples – or sets of temples. Within a given environmental zone or along a given communication road do local landscape markers influence the choice of a building site? In the following paragraphs, I will focus on the possible role played by relief (hills, mountains) and

[39] The inscription of Canggal (732 A.D.) praises king Sañjaya, underlining that while he was ruling on earth people could sleep on the roadside without being startled by thieves (Sarkar 1971-1972: n° 3). Although this might be a literary *topos*, it might as well reflect a real concern in securing roads since the very birth of the Central Javanese kingdoms.

water (rivers, springs).

Temples on isolated hilltops

Even when they are located within plains and valleys, temples are not always built on flat ground. Actually, there is a whole set of shrines that are clearly associated with topographical markers – namely hills and mountains: temples built on small, isolated hilltops and temples located in high, remote areas.

In the area we focus on (DIY, Klaten, Magelang, Semarang and Boyolali), 16 temples belong to the first group.[40] Built at the top of a hill, they convey a different impression than temples built in the shadow of high volcanoes. They fuse with the hill and form a summit to be reached by visitors. They organize the natural landscape and re-shape the hill, so that it fits with cosmological principles. The presence of a temple at its top transforms the hill into a replica of Mount Meru, the axis of the universe. Although the temple may itself represent Mount Meru, locating it on a hilltop makes the association even more obvious.[41]

In Hindu and Buddhist thought, the symbolism of Mount Meru is inextricably, though not exclusively, linked with royal power. Mount Meru is not only the pivot of the universe, it is the abode of Indra, who presides over the gods and is presented as a model of the Hindu/Buddhist king. The inscription of Canggal, commemorating the erection of a *lingga*, probably at *candi* Gunung Wukir, states that Sañjaya was like Mount Meru and that his head was upraised like a mountain peak.[42] It is thus not surprising that, given their cosmological and royal implications, hilltops were considered appropriate building sites for Hindu-Buddhist shrines.

It must however be noted that hills were not systematically exploited for temple building. In the Sorogeduk/Gawe plain, there is a temple only on the Abang hill, while no traces of archaeological remains have ever been found on the surrounding hills, such as the Bangkel and Curu hills. In *kabupten* Magelang, no remains have been found on the eastern Gendol hills or atop the Tidar hill[43] – although these hills are found in zones that do not otherwise lack remains. This would suggests that other factors, at least as important as local topography, played a role in the choice of the site.

---

[40] Namely Abang, Gunung Mijil and Sanan (in southern Central Java), Bobosan, Borobudur, Candi, Gunung Gono, Gunung Lemah, Gunung Pring, Gunung Sari, Gunung Wukir, Singabarong and Soborojo (in *kabupaten* Magelang), Dukuh, Sari and Wujil (in *kabupaten* Semarang and Boyolali). In other areas of Central Java, hilltop temples have been reported at Ganawerti Wetan and Pengilon (Kendal), Candinegara (Banyumas), Wonokerso, Gunung Pertapan and Argapura (Temanggung).

[41] Locating a temple atop a hill is by no means unique to Java. It is also a well-known tradition in the Angkor region, where temples crown almost all the hills. When all the natural hills had already been endowed with temples, Khmer architects started to build temples in the plain, on artificially raised land. A similar process may be observed at Loro Jonggrang and Sambisari, although Javanese temples never reached the heights attained by Khmer temple-mountains. Both Loro Jonggrang and Sambisari are built on raised terraces, so they actually rise above the surrounding plain, as if built on a (small) artificial hill.

[42] Sarkar 1971-1972: nº 3.

[43] The Tidar is a small hill now located in the southern suburb of Magelang. Local belief names it 'the nail of Java', for it is thought that this small hill pins Java to the earth. It is considered as supernatural terrain and is not built on.

Temples in high, remote areas

The second group of temples is clearly related to topographical features consists of shrines built outside the wet-rice cultivation areas, away from communication routes, in (relatively) high and remote areas. This includes the remains at the northernmost tip of the Gunung Kidul hills, Batur, Gedong Songo and Selogriyo.[44]

The buildings erected on the northernmost tip of the Gunung Kidul have been built on dry hills and overlook either the Prambanan or the Yogyakarta plains. These are Arca Ganeça, Barong, Dawangsari, Gupolo, Ijo, Miri, Ratu Boko, Sumberwatu and Tinjon. With the exception of Ratu Boko, they do not compensate for the dryness of their soil with systems of pools and water tanks.

A striking feature of these sites is that, in contrast to Abang and Gunung Mijil, they are not located on hilltops. This characteristic is particularly visible at Miri and Ijo, and, to a lesser degree, at Barong. Miri and Ijo are not built on hilltops, but just below them, so that the summit is clearly visible behind the temple. Therefore, they convey an impression quite distinct from the hilltop temples. *Candi* Ijo is not the summit of Mount Meru, nor does it suggest the pivot of the universe. The real summit of Mount Ijo is a hundred meters behind the temple, and is markedly higher. The temple is no longer the central element. It is only the path that leads to the sacred location, materialised here in the form of the mountain. This impression is strengthened by the distribution of the buildings. The various shrines are spread over a series of terraces clinging to the mountain slope and organized along an east-west axis.[45] Nothing here brings to mind the concentric representations of the Mount Meru found in Hindu-Buddhist cosmology. This form of organization and its implication, i.e. that the mountain is the true object of worship,[46] prefigures what was to happen in East Java. While in Central Java, both systems co-exist, in East Java the mountain is the religious point of focus and one can find there the development of large mountain-oriented complexes, such as Mount Penanggungan or Panataran (Patt 1979; Klokke 1995).

Architectural and epigraphic data suggest that at least some of the sites located on the Pegat-Ijo hills were related to ascetic practices. This is obviously the case with the religious complex of Ratu Boko. The presence of meditation caves in the northern part of the compound already suggested that the place was used by hermits or ascetics. This vision is confirmed by the Abhayagiriwihāra inscription (Sarkar 1971-1972: n° 6a). The inscription, which was found near the *pendopo* terrace, begins with a reference to meditation caves said not to be 'ruffled by the strong winds of popular cults'. It goes on to make references to an important Sri Lankan monastery named Abhayagiri-*vihāra*. This monastery was closely related to the meditation monasteries built in the hills overhanging the Sri Lankan capital of Anurādhapura. In these

---

[44] One may add to this list the Dieng temple complex, which is located in *kabupaten* Wonosobo and therefore outside the main research area of the present study, and temples on the northern flank of Mount Ungaran (*kabupaten* Kendal).

[45] About spatial organization of *candi* Ijo, see below, p.132.

[46] The inscription of Blado might be related to mountain worship, according to Wisseman Christie (Wisseman Chrisite 2002-2004: nº 4). The copper plates of Kuṭi are the most explicit, as they invoke "the spirits of Marapvi, Humalung, Karuṇḍungan, the Mount Sumbi, the sacred (spirits of) Susuṇḍara (..)" (Sarkar 1971-1972: n° 12), all of these spirits being mountains of Central Java. However, the inscription is difficult to date with precision: it is a late copy of an inscription dated 840 A.D., but that inscription was apparently revised under the reign of Balitung (898-910 A.D.) (Wisseman Christie 2002-2004: n° 168).

monasteries meditation and ascetism constituted an essential part of religious practices (Wijesurya 1998:22-23). The relationship between Ratu Boko, the Abhayagiriwihāra inscription and the Sri Lankan Abhayagiri-*vihāra* has been underlined by several authors (Casparis 1956; Sundberg2004), but this link is not restricted to a mention in one inscription; it is also architectural (Miksic 1993-1994; Degroot 2006). Actually, the whole southeastern compound of Ratu Boko appears to have been conceived as a replica of Anurādhapura. Furthermore, the meditation platform, the most typical building in the meditation monasteries of Sri Lanka, was used as a model for the third building stage of the *pendopo* (Degroot 2006). There are therefore good reasons to believe that Ratu Boko was the dwelling of Buddhist hermits.

But there are other references to ascetic practices from the *gunung* Pejat-Ijo hills. An inscription found in the village of Dawangsari (due east of Ratu Boko) near a large Gaṇeśa statue deals with the worship of the god by *sādhu*, indicating that the place was also used by Hindu ascetics (Setianingsih 1989: n° BG 355). Similarly, the inscribed golden plate found within the temple pit of *candi* Ijo refers to Jaṭila (Śiwa the Ascetic) (Casparis 1956:174; Wisseman Christie 2002-2004: n° 28).[47]

Although epigraphic records are missing to clarify the cases of Dieng and Gedong Songo, there are nevertheless good reasons to believe that, like the images of Ratu Boko or *candi* Ijo, they also were not standing in the middle of large settlements. First of all, in both cases, these two sites occupy a large area and are composed of numerous buildings. Although the shrines are quite small, their number place Dieng and Gedong Songo among the largest temple complexes of Central Java. Secondly, their natural environments, high and therefore relatively cold, are not suitable for rice cultivation.[48] It is thus not probable that the dimensions of these sites reflect the size and richness of local communities. Thirdly, Dieng and Gedong Songo have both known several building phases, showing early as well as late features.[49] A 14th-century inscription furthermore testifies that Gedong Songo was still in use by that time (Nakada 1982: 154-155). All these indications suggest that the importance of Dieng and Gedong Songo outshone that of the surrounding villages, and that the worship performed on the Dieng plateau or beneath the summit of Mount Ungaran had a wider signification.

---

47 Figures of ascetics are also part of the decoration of the lowermost building of the Ijo temple complex.

48 It is not suitable for rice or other cereal cultivation, but it is favourable for market gardenings.

49 Dieng (Dihyang) is also one of the very few archaeological sites the name of which is mentioned in numerous inscriptions. The religious foundation at Dihyang receives gifts in the inscriptions of Gunung Wule (861 A.D.), Bhaṭāra Dihyang (mid-late 9th c. A.D.), Ra Kiḍan (mid-late 9th c. A.D.), Indrokilo (882 A.D.) and Taji Gunung (910 A.D.). The name further appears in the inscriptions of Kapuhunan (878 A.D.), Panggumulan I (902 A.D.), Lintakan (919 A.D.) and Wintang Mas B (919 A.D.). In the inscription of Kuṭi, an East Javanese copy of an original document dated 840 A.D., the holy spirits of Dihyang are called upon in the curse formula to portect the *sīma*. See Sarkar 1971-1972: nº 12, 23, 37, 64, 80, 86, 88, 102; Wisseman Christie 2002-2004: nº 70.

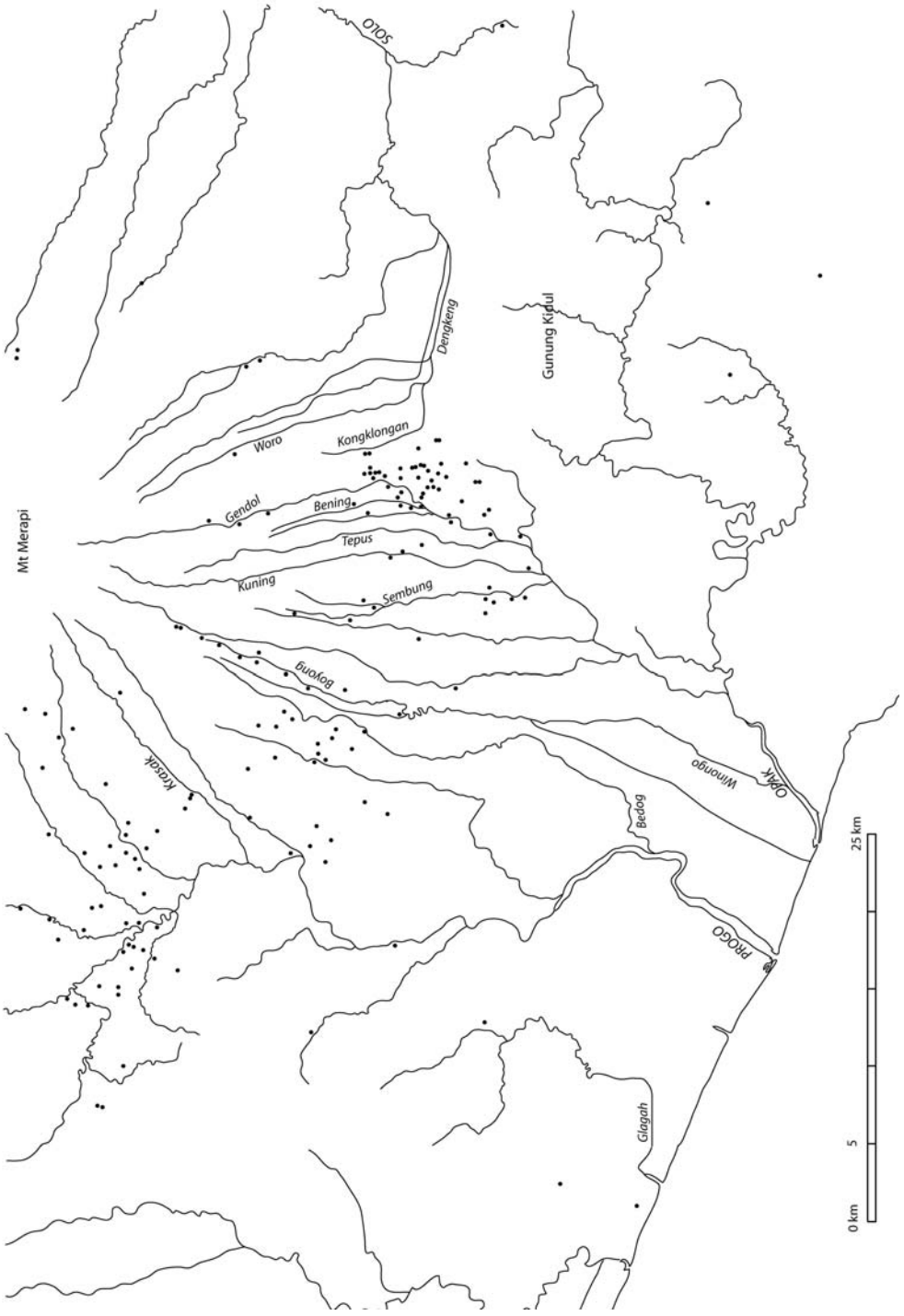


Figure 21: Temples and rivers in southern Central Java

Temples and rivers

Temples are not only found in well-watered areas: they are often built along rivers, wich explains the linear distribution patterns sometimes observed in the preceding chapter. In terms of distance between temple remains and rivers, the present study again confirms for Central Java the findings made by Mundarjito for the district of Sleman (2002:372): ancient religious sites follow rivers closely (Figure 21-23). In southern Central Java (Table 16), as well as in the rest of the area under enquiry (Table 17), the large majority of temple remains is indeed located less than 600m from a river.

There does not seem to have been a preference for the east or west bank,[50] but some rivers were undoubtedly favoured. Numerous rivers are indeed bordered by a couple of sites, but nine waterways link at least 4 temple sites (Table 18). [51] In southern Central Java, those rivers are the Gendol/Opak, Kladuan, Bening and Winongo. In the Progo valley, temples are mainly located along the beds of the two main rivers of the area, the Progo and Elo, and along their more important tributaries (Pabelan, Pucang and Blongkeng) (Table 18). Finally, a series of remains are scattered quite high on the northeastern slope of Mount Sumbing, among the dozens of streamlets from which emerges the Progo River.

Table 16: Distance temple-river in the South Central Java

Distance temple-river	*Number of sites*	*%*
0-599m	80	72.7
600-899m	7	6.4
>900	23	20.9[52]

Table 17: Distance temple-river in Magelang, Temanggung, Semarang and Boyolali

Distance temple-river	*Number of sites*	*%*
0-599m	116[53]	92.8
600-899m	4	3.2
>900	5	5

[50] 39 sites are located along the western bank of a river, 24 along the eastern one, while 9 are roughly at equal distance from two rivers, one is on the northern bank and we have no information for the remaining 5 sites (they are not visible anymore and their exact locations are not known with a sufficient degree of precision).

[51] Data might be biased for *kali* Woro, Kuning and Krasak. The three rivers are indeed subject to frequent *lahar* and it is indeed possible that more archaeological sites in their neighbourhoods are now buried under a thick layer of volcanic mud. Traces of mudflows are visible at quite low altitudes in the three cases. Besides, a few sites have already been discovered in the riverbeds, completely covered by volcanic deposits; namely Lengkong (along *kali* Krasak), Kaliworo (along the Woro River) and Kadisoka and Sambisari (along *kali* Kuning).

[52] These sites correspond to the temple remains located outside the plain, in the Menoreh hills and Gunung Kidul. They are mainly gathered on the northern tip of the Gunung Kidul hill, close to Prambanan. To these "hill temples" must be added temple ruins of the Sorogeduk-Gawe plain, south of Prambanan.

[53] 11 sites are located near seasonal waterways.

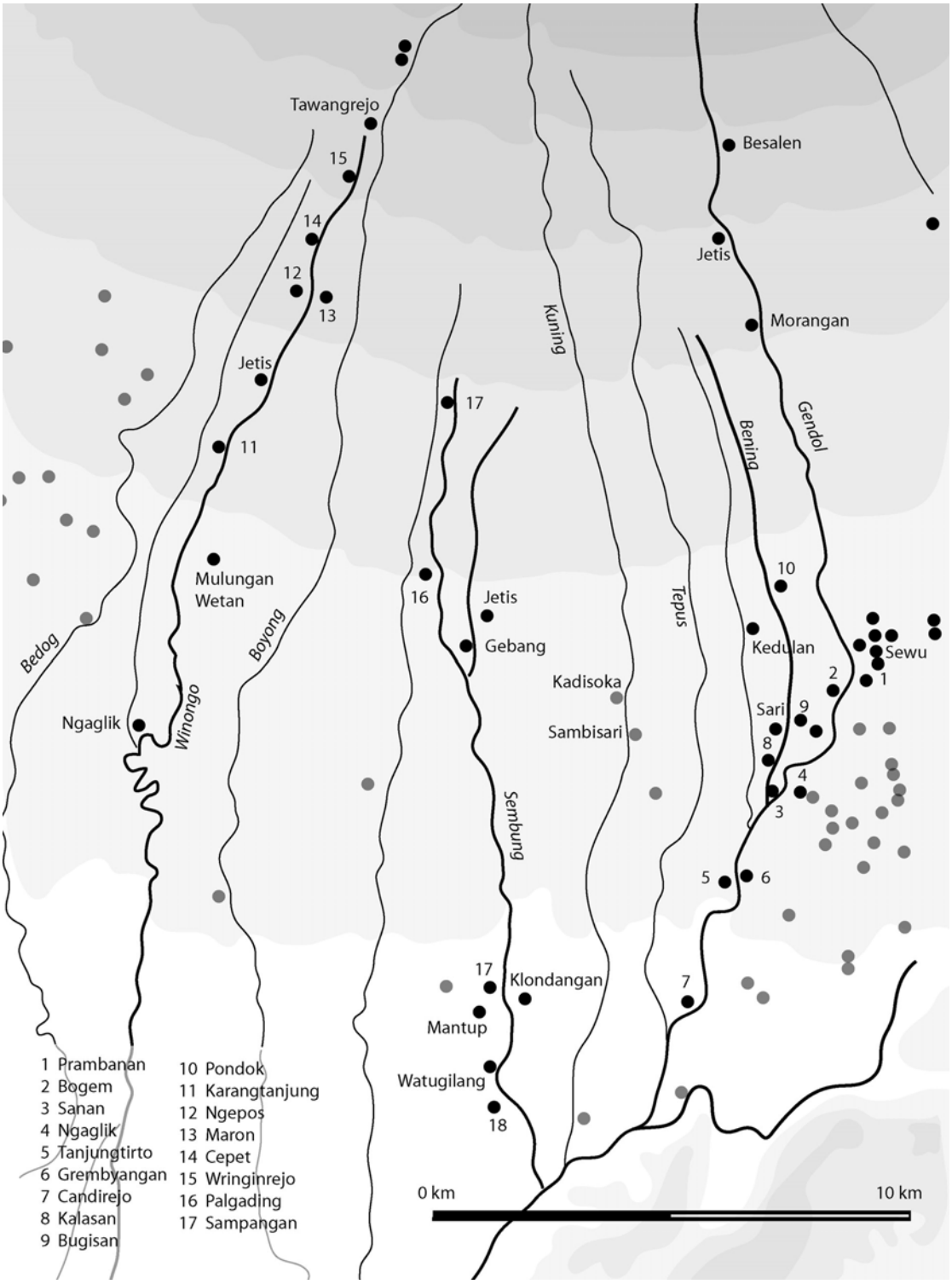


Figure 22: Temples and rivers around Prambanan and Kalasan

Table 18: Main Central Javanese rivers in terms of number of temple remains

River	*Number of sites*	*Site names*
Gendol/ Opak	15	Besalen, Bogem, Bubrah, Candirejo, Gatak, Grembyangan, Jetis (Cangkringan), Kulon, Loro Jonggrang, Lumbung, Morangan, Ngaglik (Prambanan), Sanan,[54] Sewu, Tanjungtirto.
Winongo	9	Cepet, Jetis (Sleman), Karangtanjung, Maron, Mulungan Wetan, Ngaglik (Mlati), Ngepos, Tawangrejo, Wringinrejo.
Kladuan/Blotan	8	Candi (Ngaglik), Condrowangsan, Gebang,[55] Klodangan, Mantup, Palgading, Sampangan, Watugilang.
Bening	6	Bugisan, Kalasan, Kedulan, Pondok, Sanan, Sari.
Elo	11	Bengkung, Candi, Gedongan, Kalimalang, Mendut, Nambangan, Progowati,[56] Rambeanak, Renteng, Tiban, Umbul.
Progo	9	Banon, Brangkal, Dimajar, Gunung, Jamus, Pawon, Plikon, Progowati, Tempurrejo.
Pucang	7	Cetokan, Jeronboto, Pucanggunung, Retno, Setan, Tidaran, Tumbu.
Blongkeng	6	Gejagan, Gunung Sari, Ngampel, Nganten Kidul, Ngawen, Wates.
Pabelan	4	Asu, Gunung Lemah, Ketoran, Lumbung, Pendem.

Besides being situated along a river, 17 sites are located in the direct vicinity of a confluence.[57] A well-known example is that of Mendut and Pawon,[58] located a few hundred meters to the north of the confluence of the Progo and Elo rivers. It is also the case for *candi* Asu, Lumbung and Pendem, standing about 250m from the confluence of the Pabelan and Tlising Rivers. Other sites located near confluences are Ngaglik (Winongo and Degung rivers), Gebang (Sembung and Krandowan), Sanan (Opak and Bening), Candi (Elo and Malang), Samberan (Merawu and Tangsi), Ngabean (Tingal and Kedungsidi), Plikon (Progo and Tingal), Pikatan (Bendoperi and Jambe), Wonokerso (Progo and Jambe), Ngempon (Lulung and Wonoboyo) and Dimajar (Progo and Merawu).

The association temple-river can be explained by two main factors: settlement patterns and religious concepts. After all, it is quite logical for a village to develop near fresh water – and rivers remain the most obvious source of fresh water. In Central Java, we can notice that temples located on the upper slopes of Mount Merapi, where ground water is less readily available, tend to cluster along rivers more closely than remains in the lower plain – where lots of shrines are found in areas between rivers. This clearly reflects expected settlement patterns: where ground water is scarcer, villages tend to turn to rivers – not wells – as their water supply. Nevertheless, the great proximity between certain temples and the neighbouring river makes us suspect that religious factors were also at work. Temples such as Loro Jonggrang, Lumbung (Magelang), Gebang or Mendut are indeed so close to the river that a village could not possibly have been located between the temple and the watercourse. In other words, even though they might have been associated with a settlement, those temples were voluntarily built as close to the river as possible.

To understand the possible religious background of this association, I would like

54 At the confluence of *kali* Progo and *kali* Bening.

55 On the western bank of *kali* Srembung, although close to the confluence with the Blotan River.

56 At the confluence of *kali* Progo and Elo.

57 This occurence is more frequent in the Progo valley than in southern Central Java.

58 Progowati is actually the archaeological site the closest to the confluence, but it has now completely disappeared. According to the Balai Arkeologi, temple stones were still found in the hamlet some years ago (Tjahjono 2002: table 1).

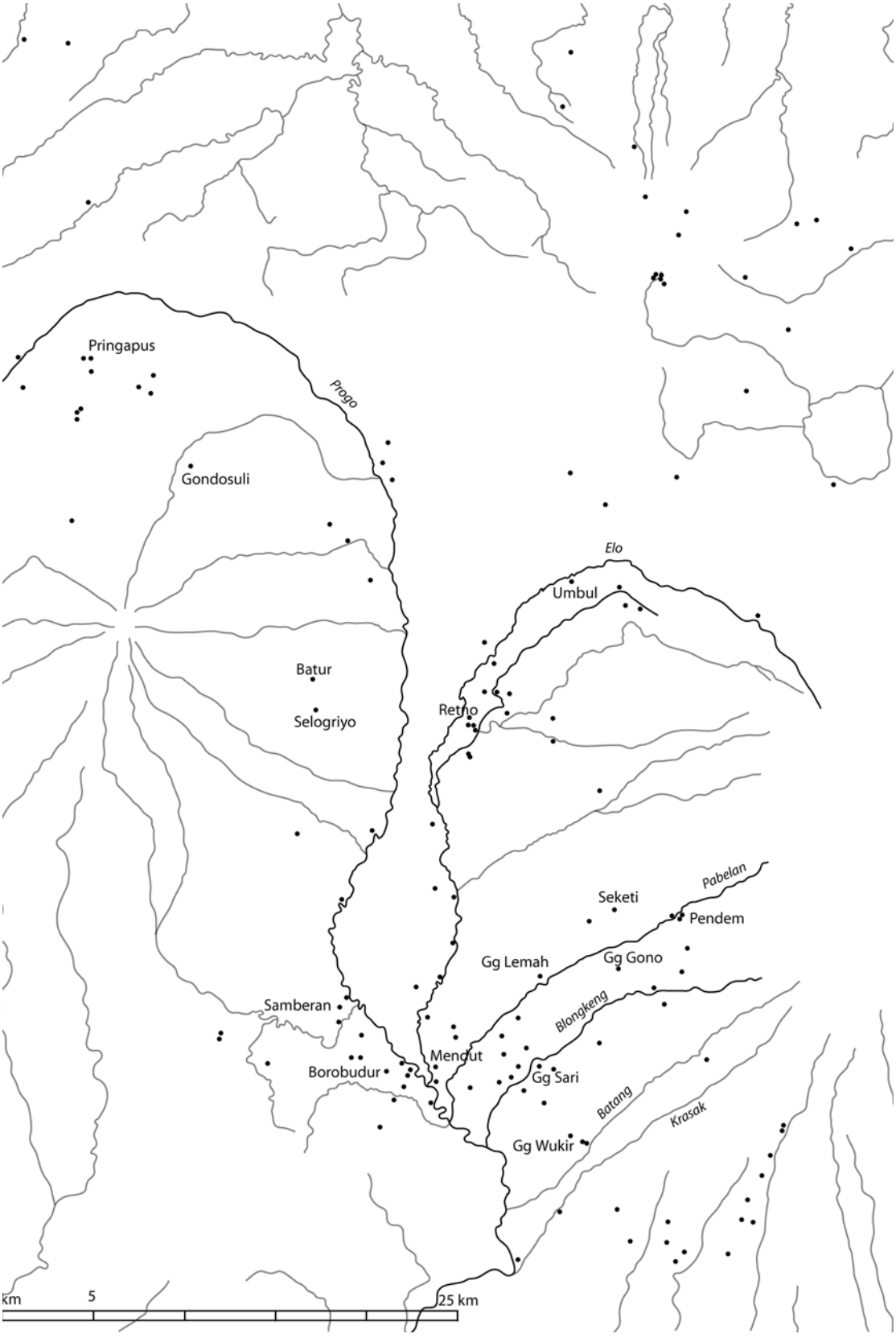


Figure 23: Temples and rivers in the Progo valley

to consider briefly the significance of temple building in Central Java, the ritual importance of water, and the prescriptions made in the Indian treatises on architecture regarding water.

Temple building was certainly a way for kings, *rake* or *pamgat* to add to their status, to increase their political influence and to acquire religious merit (together with confirming their legitimacy). The fact that *sīma* are sometimes offered as a royal favour to *rake* shows that the creation of a *sīma* was considered as highly rewarding (Barrett Jones 1984:67). In Buddhist inscriptions, this reward is explicitly mentioned: temple building is considered an effective way to acquire merit and, finally, reach Buddhahood. The merit is not inevitably limited to the king only, but might be extended to his lineage and his people. The inscription of Kayumwungan gives a fine example:

> (…) With the merit that he (the king) acquired by founding the abode of the Jina which is given the name Illustrious Veṇuvana, may he attain Sugatahood tenfold (?). That stage – invisible, immediate, extremely difficult to attain – is for his sons together with myself (the king's daughter), which I may attain soon. (Wisseman Christie 2002-2004: nº 35)[59]

Hindu inscriptions found in Java do not mention temple building as a source of religious merit. Indian treatises on Hindu architecture are however clear about it and often underline that the doors of Indra's heaven open for the patron of such a construction (*Bṛhatsaṃhitā* LVI; *Bhaviṣya-purāṇa* VIII; *Agni-purāṇa* XXXVIII). According to the *Agni-purāṇa*, building a temple "frees from sins incurred in thousands births (…), destroys sins such as the killing of a brahmin" (*Agni-purāṇa* XXXVIII).

Nevertheless, beyond the religious merit and its implications in the after-life, the building of a temple was also supposed to insure earthly wealth for the king and for the realm. References to prosperity occur in both Hindu and Buddhist inscriptions. The inscription of Kelurak, for example, states: "this Mañjuśrī image is present here to protect his own region and also to preserve carefully the properties of others, thus increasing the welfare and prosperity of both" (Sarkar 1971-1972: nº 46). In the inscription of Lintakan, one can read that "the owner of the *sīma* shall be happy and long living" (Sarkar 1971-1972: nº 162) while the inscription of Sugih Manek starts with the injunction "Let there be welfare for all the worlds!" (Sarkar 1971-1972: nº 145, 150). Being the expression of the economical resources of a king, a *rake* or a *pamgat*, the temple was also the confirmation of political power, the symbol that the king was fulfilling his mission of bringing wealth to his land, as an earthly Indra – and the very fact that the king succeeded in this mission was the sign that he was supported by the gods. In a world greatly dependant on wet-rice cultivation, wealth was indubitably linked to water flow. There is not much difference between saying that and building temples near rivers.

The relationship between temple and water is an intimate one and goes further

---

[59] Kandahjaya, in his recent dissertation, gives a different translation of the same passage, in which the links between the merit acquired by the king and that of his daughter is not so obvious:

> Whatever merit has been obtained by building the temple of Jina, which is similar to the famous Veṇuvana, by means of this [merit] may one attain Sugatahood which is tenfold.
> May I quickly obtain the place of the sons of the Buddha (Buddhists), which is extremely difficult to obtain, unsurpassable, and beyond perception (i.e. *nirvāṇa*). (Kandahjaya 2004:127)

than the simple economical dependence on *sawah* land. Water is indeed an essential element of the Hindu cult. Not only is water used for the offerings, but priests and pilgrims also need it to purify themselves before they may worship the divinity and access the divine realm.

The most powerful purifying water is that of the Ganga River. References to the Ganga are found in Central Javanese inscriptions and certain local rivers were clearly considered as the equivalent of the great Indian river. In the Tuk Mas inscription (mid 7th century?), found near a spring northeast of the modern town of Magelang, one can read that the streamlet of Tuk Mas is "as purifying as the Ganges" (Chhabra 1965:44). The inscription of Canggal (732 A.D.), associated with *candi* Gunung Wukir, states that "there is a great island called Yava (…) where there is a wonderful place dedicated to Sambhu, a heaven of heavens, surrounded by the Ganges (…)" (Sarkar 1971-1972: nº 20). Although no similar inscription has survived for the area of DIY – *kabupaten* Klaten, the number of temples located along Opak/Gendol River should make us consider the possibility of its association with the Ganga River.

The relationship temple/river is two-fold. A temple can benefit from the presence of purifying water, but a river can acquire religious effectiveness through the presence of a shrine along its bank. Such a situation is expressed in the short inscription of Pabaikan (early to mid 9th century?), found near Ungaran, *kabupaten* Semarang. The text reads: "the hermitage of Pabaikan shall bubble forth well-being into the rivers" (Wisseman Christie 2002-2004: nº 29). Through this intimate relationship, natural and built landscape mutually strengthen their religious power.

The dichotomy between civilization and wilderness is indeed not really present in epigraphical data. Although temples often have enclosures that firmly separate the inner, sacred space from the outer sphere, it is obvious from the inscriptions that the natural environment remains within the religious realm and follows the rules of the gods. Not only do we find a few traces of worship of natural elements,[60] but nature is called upon to protect the temples – and make sure that the wishes of the founders of the *sīma* are respected. In the curse formula at the end of numerous *sīma* commemorative inscriptions, it is stated that the one who violates the charter undergoes the punishment of wild animals: if he goes into the river he is eaten by crocodiles, and if he goes into the forest he is devoured by tigers or bitten by snakes.[61] It is striking that wild animals are there to assure that human beings obey the deity's will. Natural environment is not a mere setting, but an active supporter of *dharma* – while men themselves are perceived as possible wrong-doers and perturbators of the world order.

Soil fertility and water availability, important for Central Javanese temples, are also two main criteria for the selection of a temple site in Indian manuals. For most early Indian treatises on architecture indeed, the only site suited for a temple is a site where all sorts of cultivated seeds can grow and bear fruits (*Mānasāra* IV; *Bhaviṣya-purāṇa* VIII; *Mayamata* III; *Matsya-purāṇa* CCLIII; *Bṛhat-saṃhitā* LIII). Soil humidity is also given as a prerequisite by the Indian texts (*Mānasāra* IV; *Mayamata*

[60] In the inscription of Mantyasiḥ I (907 A.D.), the allusion to river worship is clear, as its curse formula exhorts "(…) you deities *taṇḍang*-s of the rivers, you deities snakes, you deities (over) the axes!" (Sarkar 1971-1972: II, n° 70). For mountain worship, see above, p. 82 n.25.

[61] Curse formulae including wild animals occur in the inscriptions of: Tru i Tpussan II (842 A.D.), Kañcana (860 A.D.), Wuatan Tija (880 A.D.), Mantyasiḥ I (907 A.D.), Sangsang (907 A.D.) and Sangguran (928 A.D.). See Sarkar 1971-1972: nr 14, 46, 70, 72, 96; Wisseman Christie 2002-2004: nº 64.

III; *Matsya-purāṇa* CCLIII; *Bṛhat-saṃhitā* LIII). According to the *Bṛhat-saṃhitā* (*Bṛhat-saṃhitā* LVI):

> "Gods dwell with pleasure near lakes, where the rays of the sun are warded off by the parasol of lotus (…) Likewise they dwell in places where the rivers have large girdles of curlews (…) They rejoice always in the vicinity of forests, rivers, mountains and waterfalls (…)" (Ramakrishna 1981:537)

However, if there are neither natural rivers nor lakes, artificial pools are sufficient for the gods to be pleased (*Bṛhat-saṃhitā* LVI).

Temples and springs

Along with volcanoes, hills and rivers, springs are a characteristic element of the Central Javanese landscape, especially in the northern regions, where they are more numerous. The Dieng plateau and Mount Ungaran are dotted with sulfurous springs and temples are set in a landscape of both mountain and (hot) water. The relationship between temple remains and sulfurous water is particularly strong at Gedong Songo, where the temple complex is literally cut by a small canyon sheltering a hot spring. On the northern and eastern slopes of *gunung* Ungaran too, small hot springs are numerous and come up in the rice fields, tainting the vegetation with the characteristic yellow colour of sulphur.[62] Cold springs are also found in or near temple grounds, as in Gunung Gono, Kuwarigan, Pengilon, Sanjaya, Seketi, Sidomukti, Umbul and Wujil.[63]

Candi Ngempon, although by no way a grandiose sanctuary, is nevertheless a stunning example of the care given to the choice of a temple site. This small temple complex, composed of 8 shrines and a rough enclosure wall, is located in a small, relatively steep valley. The temples were built on flattened ground, overlooking *kali* Lulung. The choice of the site, however, is not anodyne. It is also only about 150m to the northeast of the confluence of *kali* Lulung and Wonoboyo, and also just in front of a hot spring, exuding from the opposite bank.[64] To the north of the enclosure wall there is a small, square structure, probably the remains of a well.[65]

Most of the time, the temple and the spring or river are simply juxtaposed. The original settings of the spring are barely touched; they are left un-built. Sometimes, however, the natural environment is actively re-shaped. The spring or the river is then built upon and re-organized by architecture. The latter development is well-known in East Java, where bathing pools are numerous, but it must be underlined that bathing places were also part of the architectural landscape of Central Java. Unfortunately, the state of preservation of many of these supposed bathing places is so poor that one

---

[62] Reco is such a spring. In the water, one can still see a couple of ornamented pediments, all that is left of the site of Kaliklotok, described by Verbeek and Krom (Verbeek 1891:93; Krom 1914a:173; 1923, I:223). Dutch inventories further mention a temple complex nearby a hot spring on the northern flank of Mount Ungaran, namely *candi* Argakusuma (Friederich 1870:512; Verbeek 1891:88; Krom 1914a:189).

[63] *Candi* Dukuh, Gunung Gono, Sidomukti and Wujil are not only situated near springs; they are also located atop small hills.

[64] The spring has been transformed into a sort of bathtub with the help of river stones. It is used by local villagers who say it cures skin diseases.

[65] It would not be the only case of a well excavated right next to a river. A similar thing is to be seen at Sumur Songo (Boyolali). A series of wells was dug along a river running in a small canyon. Some of the wells are several meters above the level of the watercourse. Under the pressure, water from the river goes up in the well, much higher than the level of the river. Villagers say that these wells never dry. Most of them are made of re-used temple stones, but one is still in its original state.

cannot tell anymore whether it was just a shrine near a spring or whether there used to be a built tank.[66] Only four sites definitely are bathing pools, namely Sidomukti (Semarang), Umbul (Magelang), Cabean Kunti (Boyolali) and Payak (DIY), and only the two latter ones are in a fair state of preservation.

According to ancient inventories, Sidomukti possessed a bathing place at the foot of the hill and a temple on its top (Friederich 1870:505; 1876:75). As for the bathing place itself, it was made out of two pools, water flowing from the smaller one into the larger one (Krom 1923: I, 224). A two-pool bathing place is still visible nowadays at *candi* Umbul. Here, water flows from the large pool into the small one.[67]

Cabean Kunti and Payak, on the other hand, present a different system. Cabean Kunti is a bathing complex composed of five rectangular pools. Each pool is closed on three sides by a wall. One of them also has a niche carved in the middle of the inner face of the rear wall. Architecturally speaking, Payak is quite similar, except that it is a single pool rather than a bathing complex.

The difference between Sidomukti and Umbul, on the one hand, and Cabean Kunti and Payak, on the other, is not limited to architecture. Indeed, while the two first are built on springs, at Cabean Kunti and Payak water comes from a nearby river.[68] That both Sidomukti and Umbul were places of worship is beyond doubt. The sites have yielded enough religious sculptures and ornamented stones to show that a temple once stood in their neighbourhood. For Payak and Cabean Kunti, this is less obvious, although the discovery of a *peripih* casket in Payak and a *lingga* boundary stone in Cabean Kunti seems to suggest a religious function. So far, however, no sign of a shrine has been discovered near Payak or Cabean Kunti.

The close association of a certain number of Central Javanese temples with springs and the existence of built bathing places confirm the hypothesis that water symbolism, so important in East Java (Patt 1979:48), was already an important feature of Javanese religious thought during the Central Javanese period.

As mentioned earlier, a couple of inscriptions clearly associate rivers of Central Java with the Ganga River. It is nevertheless more difficult to assess whether the theme of the *amṛta*, the life-giving elixir, is expressed here as it was commonly the case in East Java. At Belahan and Jolotundo, for example, a richer iconography help to get a more precise understanding of the symbolism attached to bathing places (Patt 1979).

The topmost bathing place of Belahan was referred to in the inscription of Suci as related to Mt Pāwitra (or Penanggungan), which, in later legend, is nothing else than the top of Mt Meru, transported to Java. Within this context, the presence, in the same pool, of a statue of Wiṣṇu on Garuḍa[69] inevitably makes one suspect an allusion to the myth of the churning of *amṛta*, when, under the supervision of Wiṣṇu, the mountain was used as churning stick (Patt 1979:164-165).

---

[66] It is the case of several sites associating a temple atop a hill with a spring at its foot, such as Argakusuma (Kendal), Pengilon (Kendal) or Wujil (Semarang). There is no doubt that there was an architectural connection between the two elements (bathing place and shrine), but there are not enough elements to prove the existence of an ancient tank.

[67] The two pools are still in use and are part of a modern bathing place and pleasure ground. They have obviously been partly rebuilt and it is difficult to say how they looked like in their original state. The small pool especially shows signs of recent rebuilding.

[68] Payak is now dry but the nearby *kali* Petir probably functioned as water supply. It is maybe a change in the river course that ceased the water supply.

[69] In a recent communication, P. Lunsingh Scheurleer has cast some doubt on the origin of this Wiṣṇu, suggesting it could actually have come from *candi* Kidal rather than from Belahan.

The Garuḍa and the *nāga* from the side basins of Jolotundo would similarly refer to the theme of *amṛta*. They would allude to a story told in the Ādiparwa, according to which Garuḍa stole the *amṛta* from the gods in order to give it as ransom to the *nāga* who had abducted his mother (Patt 1979: 234-236).

Unfortunately, none of the bathing places of Central Java have such a rich iconography, let alone a panel depicting *amṛta*. Strangely enough, though, small *nāga* are visible in a few places, almost hidden among the usual ornamentation. At Pringapus, a coiled *nāga* lies behind the *makara* of the entrance door, between the latter and the temple wall. At Gedong Songo I, two tiny snakes emerge from the *kāla* head above the northern niche. While at Umbul, the upper border of a *kāla* pediment transforms on one side into a *nāga*.

The *nāga* being often related, in Hindu mythology, with *amṛta*,[70] it is possible that the snakes of Pringapus, Gedong Songo and Umbul are an attempt to equate local springs with the source of *amṛta*. However, they might as well be a more general reference to water or relate to Indonesian myths about magic water sources that are thought to pre-date Indian influence.[71]

Note on the natural environment of Borobudur and Prambanan

Before conlcuding the present chapter, a brief note must be added concerning the natural environment around the most famous sites of Central Java, i.e. Borobudur and Prambanan. The area of Muntilan, where stands Borobudur, forms a transitional zone between the closed geography of the Progo valley and the more open scenery of the Yogyakarta plain. In the Progo valley, in whatever direction one looks, the view is obstructed by a mountain: Merbabu-Merapi to the east, Ungaran to the north, Sundoro-Sumbing to the west and Menoreh to the south. In contrast, in the Yogyakarta area, the plain stretches to the sea without any obstacle. Within this landscape, Borobudur occupies a peculiar position. It is located in the southwestern part of the Progo valley, almost at the foot of the Menoreh hills, not far from the confluence of the two main rivers of Central Java, the Progo and the Elo. To the observer standing at its top, Borobudur appears to be surrounded by mountains. The Menoreh hills run along the southern and western sides of the monument, continuing to the north in the form of the Sumbing-Sundoro massif. The Menoreh hills, with their steep slopes and cliffs, are particularly impressive; they look impregnable, which compensates for their relatively low elevation in comparison to Mount Sumbing and Merapi. Borobudur seems surrounded by the mythical circular mountain ridge which, according to Hindu-Buddhist representations of the universe, encloses the world[72]. The landscape in which Borobudur is located appears to reaffirm the cosmological aspects of Buddhism, placing the Buddha as Mount Meru at the centre of the universe. This aspect of Buddhism is also a major concern of the Gaṇḍavyūha – one of the texts illustrated on the monument – and a key-feature for understanding Borobudur (Klokke 1996:206-207).

The location of Prambanan is probably even more striking. From a topographical point of view, the Prambanan area distinguishes itself by its contrasting landscape. It includes a fertile plain on the one hand, and dry steep hills on the other. It is also the

[70] Apart from the above-mentioned episode including *nāga* and Garuḍa, a snake play also a role in the churning of the Sea of Milk, since a *nāga* was then used as churning rope.

[71] See for example Bosch 1961b.

[72] Ancient river beds possibly contemporaneous with the monument have been identified. They would have almost entirely surrounded the *candi*, reminding the circular seas described in Indian texts.

place where the plain is at its narrowest, delimited by the presence of Mount Merapi to the north and the northern tip of the Gunung Kidul hills to the south. A person passing from the plain of Yogyakarta to the plain of Solo has to pass by Prambanan. But Prambanan is not only a crossroads for the Yogyakarta-Solo route; it is also a gateway to the northern coast, as well as to East Java. Prambanan is above all a significant place in terms of hydrography. Being at the northwest tip of the Gunung Kidul hills, Prambanan lies on the border between the Yogyakarta plain and the Solo plain or, in other words, between the Opak/Progo water system and the basin of the Bengawan Solo. A few hundred meters west of Prambanan, the rivers are tributaries of *kali* Opak and their waters drain into the Indian Ocean. But directly to the east of Prambanan, rivers join up with the Solo River, crossing the eastern part of the island and reaching the Java Sea near Gresik. Prambanan therefore appears to have been a strategic point, and not only from a symbolical point of view. Its proximity to the Solo basin is of the highest commercial importance: the Solo River could easily be used to ship goods from the east to the Prambanan area (and the other way round) and constituted an interesting alternative to road travel. In ancient times, the river seems to have been navigable even for large ships. In the 18th century, the Solo River was indeed the main trade route between Mataram and the coast. It was because of its location at the mouth of that river that Gresik developed into an important trading post (de Jonge 1878: X, 90)

Conclusion

In this chapter, we have shown that there are a certain number of correlations between temple distribution and environmental features, both regional and local. The areas characterized by dense though dispersed distribution patterns correspond to the terrains the most suitable for wet-rice cultivation and render thus more or less directly settlement patterns. We have further come to the conclusion that small clusters of temples located in the vicinity of the modern towns of Secang, Parakan and Boyolali were key-centres within an ancient road network linking the agricultural plains to the northern coast.

We have then abandon the regional approach to zoom in on correlations between individual temples and local landscape markers. By doing so, we have demonstrated that temples tended to be located on isolated hilltops, along rivers, at confluences and close to springs.

In the next chapter, I will go on examining individual features, since I will present data on temple orientation and try to determine if and how orientation create a link between the built landscape and its natural environment.