

ARCHAEOLOGICAL EVIDENCE OF KHMER STATE POLITICAL AND ECONOMIC ORGANISATION

David J. Welch

International Archaeological Research Institute, 949 McCully St., Suite 5, Honolulu, Hawaii 96826, USA

ABSTRACT

Knowledge of the Khmer state has, in the past, been based on historical data and on the study of the major temple complexes. This paper suggests approaches to a more comprehensive archaeological study of the organisation of the Khmer state and the structure of society within it. The approach is based on archaeological survey work in the Phimai region of northeast Thailand.

INTRODUCTION

In the ninth century AD the Khmer began to lay the foundations of what would be one of the primary early states in Southeast Asia. The origins of this new state lay near the shores of the Tonle Sap, the productive great lake that lies in the heart of present-day Cambodia. The centre of power came to reside at Angkor northwest of Tonle Sap. This state expanded to take in all of Cambodia and by the eleventh century included much of Thailand. This paper is intended as a preliminary examination and discussion of the potential of the archaeological record to provide information concerning the structure, organisation and development of this Angkorian Khmer state.

HISTORICAL STUDIES

Historical data, which have been the main source of information on the Khmer polity, provide a glimpse, but not a detailed view, of the organisation and functioning of the state and government. Our understanding has been largely shaped by the writings of Chinese visitors to Angkor and by the Khmer stone inscriptions, both these sources as translated and interpreted by Western scholars.

These have been supplemented by information from the work of French architectural historians at the Khmer temples in Cambodia. Archaeologists and architectural historians such as Stern (1927), Parmentier (1939), Coral-Remusat (1940) and Groslier (1966) have produced excellent studies describing the patterning of élite sites and structures, their design and the stylistic change in structural elements and architectural decorations over time.

Among the Chinese accounts, especially valuable are the descriptions of Zhou Daguan (Chou Ta Kuan) whose work was translated by Pelliot and published in 1902. Zhou's descriptions of Angkor and nearby areas as they existed in 1295 and 1296 contain numerous small pieces of evidence suggestive of what could be sought in the archaeological record. At that time the empire was contracting but still retained much of the form and structure of its days of power. He concentrates on Angkor but also describes the provincial capitals and villages he saw, saying "Each province has its mandarins and in each one is a citadel fortified with wooden palisades." (Zhou 1987: Part 33) and "Each village has its temple, or at least a pagoda....Along the highways, there are resting places like our post halts; these are called *sen-mu* (Khmer, *sam-nak*)." (Zhou 1987: Part 34). He discusses how the size and form of construction of houses was correlated with the wealth and status of the owner. He describes markets and the resources collected for trade.

George Coedès' monumental epigraphic work of editing and translating the stone inscriptions from Khmer sites has provided a vast body of work for historians to research and interpret. From these materials, historians (e.g. Sahai 1970; Sedov 1978; Hajesteijn 1987) have tried to construct models of the structure of Khmer social and political organisation. These range from the carefully researched to some that seem quite fanciful, but the range

of interpretation perhaps reflects more than anything else the problems inherent in the limited evidence at our disposal. In most of this work the focus is on the élite segment of the society, not on the society as a whole.

Coedès' own writings are a prime illustration of this propensity. Coedès focuses on the Khmer civilisation as a culture of the élite, a result of their "Indianisation". He referred to the first to fourteenth century states of Southeast Asia as "cultural colonies" of India (Coedès 1968: 252), whose religion, literature, arts and law all derived from Indian influence. The evidence he drew upon, the Khmer inscriptions and the archaeological and architectural studies of Khmer monuments, could support such a view and, unless fleshed out, did in fact limit the information available on other aspects of the Khmer civilisation. His history of Southeast Asia (Coedès 1968) is an account of these cultural influences and the political changes of those centuries, changes which he frequently sees as reactions to changes in political power in China and India.

Paul Wheatley (1975, 1979, 1983) and Kenneth Hall have recently attempted to expand upon these traditional views by concentrating particularly on interpreting the economic basis of early complex societies in Southeast Asia. Hall (1975, 1979, 1985) has developed a model of the economic organisation of the Khmer state that is especially germane to this discussion. Numerous inscriptions record the granting of land by Khmer rulers to their followers, the donations presented to temples and the provisioning of the 102 hospitals constructed by Jayavarman VII. Drawing on such inscriptions, Hall interprets the evidence as indicating the presence of a three-tier hierarchy of temples—central, regional, and village—functioning to integrate the Khmer empire. The central temple was associated with the royal cult but the regional and village temples, often pre-Angkorian in origin, provided the horizontal linkages binding dispersed agricultural communities together.

Khmer leaders legitimised their rule by guaranteeing the prosperity of the society and they saw the construction and endowment of temples as the foremost means of ensuring such prosperity (Wolters 1982). Khmer kings rewarded their followers by giving them lands that had been newly conquered, a practice that dates at least from the founding of the Angkor state in the reign of Jayavarman II (Wolters 1973). The provisioning of temples with endowments of land, labour and resources made possible the development of an economic system centred on these temples. Temples became local storage and redistribution centres and provided a societally sanctioned means by which resources and capital could be accumulated and

labour mobilised, permitting the development of underutilised lands and thus expanding production to abundant unfarmed but potentially cultivable lands.

An inscription from Trapaen Don On, written by a nobleman who had just been granted land by the king, succinctly describes the process. The author of the inscription writes "...I have built a temple, I have purchased 'slaves', I have bought lands, I have purchased pawned lands, established boundaries, built fences, built walls, dug ditches and reservoirs" (Coedès 1951: 190).

ARCHAEOLOGICAL IMPLICATIONS

This last statement, as do many of Zhou Dagan's descriptions, sets forth clearly the material correlates of the social behaviour that is described and suggests the potential for recovering archaeological evidence of that behaviour. These descriptions can suggest predictions and testable hypotheses about the expectable patterning of temples, temple sites and other structures. For example, Zhou Dagan's descriptions indicate that archaeologists could expect to find the remains of defensive walls and moats around provincial capitals, a temple at all Khmer village and town sites and rest houses along roads. There is also an implication that the size of a structure is an accurate reflection of importance, wealth and status.

Models of Khmer economic and political organisation derived from the historical data also have implications which are testable in the archaeological record. Hermann Kulke (1986), for example, argues that the pre-Angkorian local chiefdoms, which he calls the Early Kingdoms, had temples at their centres. However, major temples were established at holy places. The Angkorian Khmer state represents a transformation in statecraft. With this change, temples were increasingly constructed at the political centres and became the focal point for magico-political forces emanating from the centre. Religious policy became a permanent and major aspect of kingship and this had its effect on what he calls the topography of the temples. If temples were closely associated with the centre and with the level of political power, the structure of the state should be reflected in the patterning of temples.

Hall's interpretations take us a step further, because he sees the temples as the focus of not only the religious and administrative life of the Khmer state but also of the economy. Hall's model can be tested with the archaeological evidence. Predictions about the distribution of temples and about the patterning of settlements in relation to temples could be derived from the model. The present study is not such a test, but a summary of some

evidence now at hand that might potentially be used to conduct a controlled test of these hypotheses.

THE ARCHAEOLOGICAL EVIDENCE

Northeast Thailand as Part of the Khmer State

It would perhaps be best to test these models in the region of Angkor and the Tonle Sap, the heartland of the Khmer state. Unfortunately the events of the past 20 years have largely precluded the archaeological surveys that would yield the data needed.

For this reason I will turn to northeast Thailand, and in particular the Phimai region, where recent archaeological investigations provide more data on the general settlement patterns which characterised the Khmer state. Surveys by the Khorat Basin Archaeological Project (KBAP) in 1979-80 and 1989 (Welch and McNeill 1991), supplemented with work by the Thailand Fine Arts Department, furnish the data on which an analysis of Khmer political and economic organisation can be based. An additional survey in 1994 by the KBAP following the IPPA conference provided new data concerning Khmer period sites which have been integrated into the present paper. This paper examines three areas of archaeological evidence that bear upon the interpretation of the Khmer political and economic organisation:

- 1) The distribution of Khmer temples and other permanent structures
- 2) The spatial distributions and relations among all Khmer period sites, referred to archaeologically as Lopburi phase sites
- 3) The material evidence in the form of artifacts and midden remains from Lopburi phase deposits at village sites.

The Phimai region of northeast Thailand was not integrated into the Khmer state until approximately AD 1000 under Suryavarman I, 200 years after Jayavarman II established the Angkorian Khmer state. However for the next 300 years Phimai served as a major regional administrative centre and it is likely that the dynasty which ruled from Angkor for 200 of those 300 years originated in the upper Mun River valley at or near Phimai (Briggs 1951). In selecting the Phimai region we are not choosing a peripheral area, merely one which was integrated late into the Khmer state. The process of its integration was almost certainly not much different from that of the various regions in Cambodia that were earlier absorbed into the Khmer state (Wolters 1973, Vickery 1986). Prior to integration the Phimai region, like all of Cambodia in pre-Angkorian times, was probably dominated by numerous small polities organised as *mandala*, to use Wol-

ters' term. Sometimes the leaders of these polities were able to extend their power beyond their local domains and incorporate other polities but these large regional "kingdoms" did not endure for long. Large settlements surrounded by circular or irregular earth walls and moats probably were the centres of these small political units. Most of the population lived in cluster villages of 1 to 15 hectares, some surrounded by moats, most unmoated.

After AD 1000 and the establishment of Angkorian hegemony, there was a change to construction of rectangular walled and moated sites, of rectangular reservoirs or *baray* and of rectangular temple enclosures. Laterite, brick and stone structures enclosed within rectangular walls were built. It is the distribution of this last type of site that will be examined first.

Distribution of Temples and Other Permanent Structures

Figure 1, showing the distribution of Khmer sites with inscriptions or permanent structures, is drawn primarily from the late nineteenth century surveys conducted by the French scholars Etienne Aymonier (1901) and Lunet de Lajonquière (1907). It is clear from the map that the distribution of known Khmer temples and other permanent structures is neither uniform nor random across the landscape.

A few structures were still clearly being built at locations considered sacred, which Kulke (1986) suggests would be a prime pre-Angkorian practice. They were built for the purpose of promoting worship at these sacred places and not as political centres. The temple at Khao Phanom Rung, a volcanic cone rising above the Buriram plain, is the most outstanding and obvious example of this in our study area.

One thing that stands out is the relative scarcity of temples in the Mun River alluvial plain, the area that contained the densest population in the Phimai region from prehistoric times (see Welch and McNeill 1991). Only two temple complexes, Phimai and Phanom Wan, are present, although these are each among the most important and largest of Khmer monuments on the Khorat Plateau. Each includes a major temple group, surrounded by several smaller temple groups, reservoirs and possibly gardens. Eleventh and early twelfth century inscriptions are found at each site. The clear implication is that these are major administrative and religious centres. What we see is evidence of the imposition of strong centralised control by these regional centres. There were no doubt other smaller temples in the alluvial plain villages; for example, a badly looted brick structure with a *linga* base at Ban Prasat, excavated in 1993 by the Fine Arts Department. This structure appears to date to the ninth cen-

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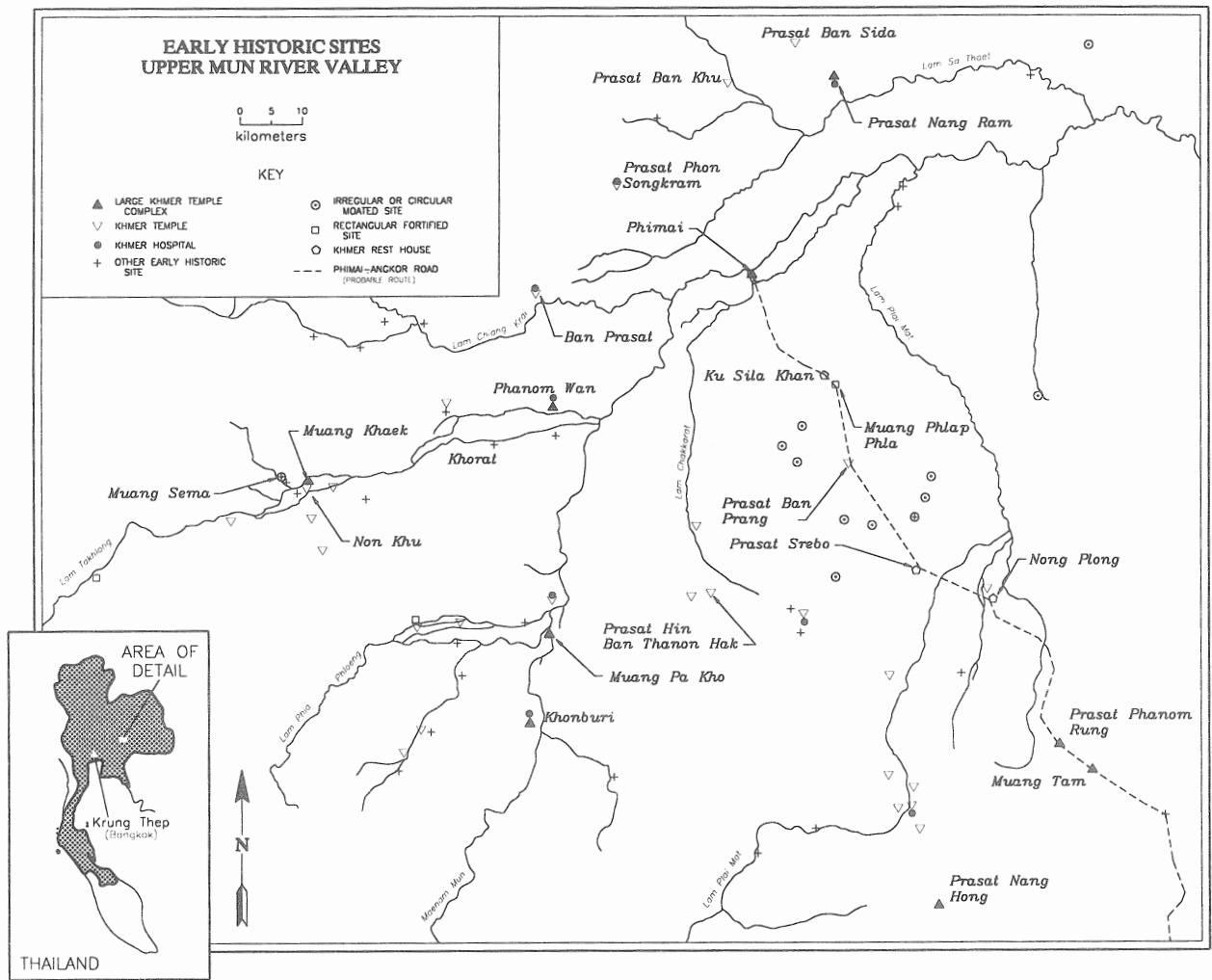


Figure 1: Location of recorded early historic sites in the upper Mun River valley

ture but continued in use during the Khmer period. The villagers of Ban Tamyae pointed out the location of one area said to be that of a Khmer village temple, although no surface evidence that would confirm this was noted during survey of the area. These village temples were probably small, perhaps frequently built of perishable material, and did not survive in a form likely to be recorded by Lunet or Aymeron during their surveys.

The majority of temples are instead either concentrated along upper tributaries of the Mun River or dispersed across the older alluvial terraces away from the major streams and rivers. North of Phimai temples such as Prasat Nang Ram, Ku Ban Ku and Prasat Ban Sida are

located in areas of poor quality sandy, saline soils in which suitable wet rice land is widely dispersed and the prehistoric site density was rather low. In addition to these temples, KBAP surveys recorded other locations with lateritic stone alignments which may be foundations of temple sites that have not survived into the modern period.

While unexpected, this distribution can be explained in terms of the models drawn from the historical records. Khmer inscriptions show that loyal followers of the ruler, rewarded with land grants, would construct a temple on their new land, dedicating it in honour of their leader and endowing it with people and goods. The servants of the

temple in turn provided a labour force to clear land, plant crops and to exploit other resources within the nobles' land grant. This process provided a means of developing marginal, unexploited lands using the capital given to the temple and the labour of the servants of the temple.

Within this historic context the distribution of Khmer temples is explicable. The majority of known medium and small temples built of permanent building materials are located in peripheral areas when considered from the point of view of a wet rice farmer. The areas rich in land suitable for wet rice cultivation had been settled since late prehistoric times and continued to be well populated into Khmer times. The archaeological evidence relating to this point will be discussed below. In the marginal areas the resources to be developed may not have been agricultural land, but salt deposits and iron ore sources. Iron smelting and salt processing sites are in fact quite common in the vicinity of these temples. Some of the salt processing sites probably date back to the prehistoric period but there are other iron mining and smelting sites that may date to the Khmer period.

In addition to temples, Khmer structures found on the Khorat Plateau include hospitals and rest houses. In 1925 Louis Finot pointed out a group of structures previously recorded by Lunet de Lanjonquière and Aymonier that are nearly all built to a set rectangular plan with a very similar set of dimensions, approximately 15 by 4 m, with window openings along the south side. Tracing out the distribution of these structures, Finot was able to show that they lay along routes of several major roads radiating from Angkor, one of which ran from Angkor to Phimai. The structures lay about 10 to 15 km from one another, perhaps one day's journey, although there were sections separated by much greater distances. Finot called the structures *Dharmaçalas* or rest houses and suggested that their primary function was as resting places for pilgrims making journeys to sacred places, either to Angkor or perhaps from Angkor to the temples at Phimai and Phanom Rung (Finot 1925).

Along with the structures noted by Finot, another probable rest house, Ku Sila Khan, not recorded by Lunet, is located approximately 15 km southeast of Phimai and probably marked the end of a day's journey from Phimai. This site would fill in one of the long gaps in Finot's route. While not perfectly matching the type as described by Finot, the structure is similar in many ways and some of the missing features may be the result of more recent deterioration and vandalism of the structure. The structure is about 20 by 7 m, built entirely of sandstone. The remains of what appear to be door and window frames lie scattered about but none are still in

place. Nearby is the village of Ban Phlap Phla, whose name suggests a place of rest. From here the road continued southward probably passing Ban Prang, a small Khmer temple, before reaching Non Srebo, the next known rest house. On the way to Angkor the road passed two other major Khmer temple complexes, Khao Phanom Rung and Muang Tam, and several major kiln sites at which the distinctive Khmer glazed pottery was made.

This route probably served more than just pilgrims, connecting Phimai with Angkor both administratively and for trade. Exotic goods which enhanced the status of the Khmer regional élites probably flowed north, while tribute to the royal ruler at Angkor moved south. We know that imported goods from China were carried inland as Song celadons are found at a few Phimai region sites. Forest products were carried to Angkor for export. The route also served internal trade networks. Given the location of many Khmer pottery kiln sites, the road probably served as a major route for the distribution of Khmer stoneware pottery both toward Angkor and toward Phimai. In addition salt from the Mun River valley may have been carried to Tonle Sap and in return salted fish carried back to the Khorat Plateau (McNeill and Welch 1991). This trade, carried on actively during the first half of this century, may date back to Angkorian Khmer or earlier times.

The distribution of Khmer temples and permanent structures is thus the result of a number of factors: centralisation of political power, development of marginal areas and placement along major trade routes.

General Site Distribution

The second set of evidence to be examined is the distribution of the entire range of Lopburi phase sites in the Phimai region. The KBAP has conducted surveys of sample blocks in each of the three major environmental zones: alluvial plain, terrace and uplands around Phimai. The most common evidence of Khmer occupation encountered during these surveys has not been the sherds recovered during surface collections, but items curated in villagers' collections, such as stoneware glazed vessels, effigy pots and stone objects. For the smaller pots especially, but even for the other items, there is of course the danger that these curated items have been moved since Khmer times and may not be evidence of Khmer period occupation at the sites at which they are kept today. The survey team always attempted to confirm what was seen in villagers' collections through surface collections of sherds from the sites.

The KBAP surveys have identified 83 Lopburi phase sites in the sample survey blocks (Figure 2) which cover

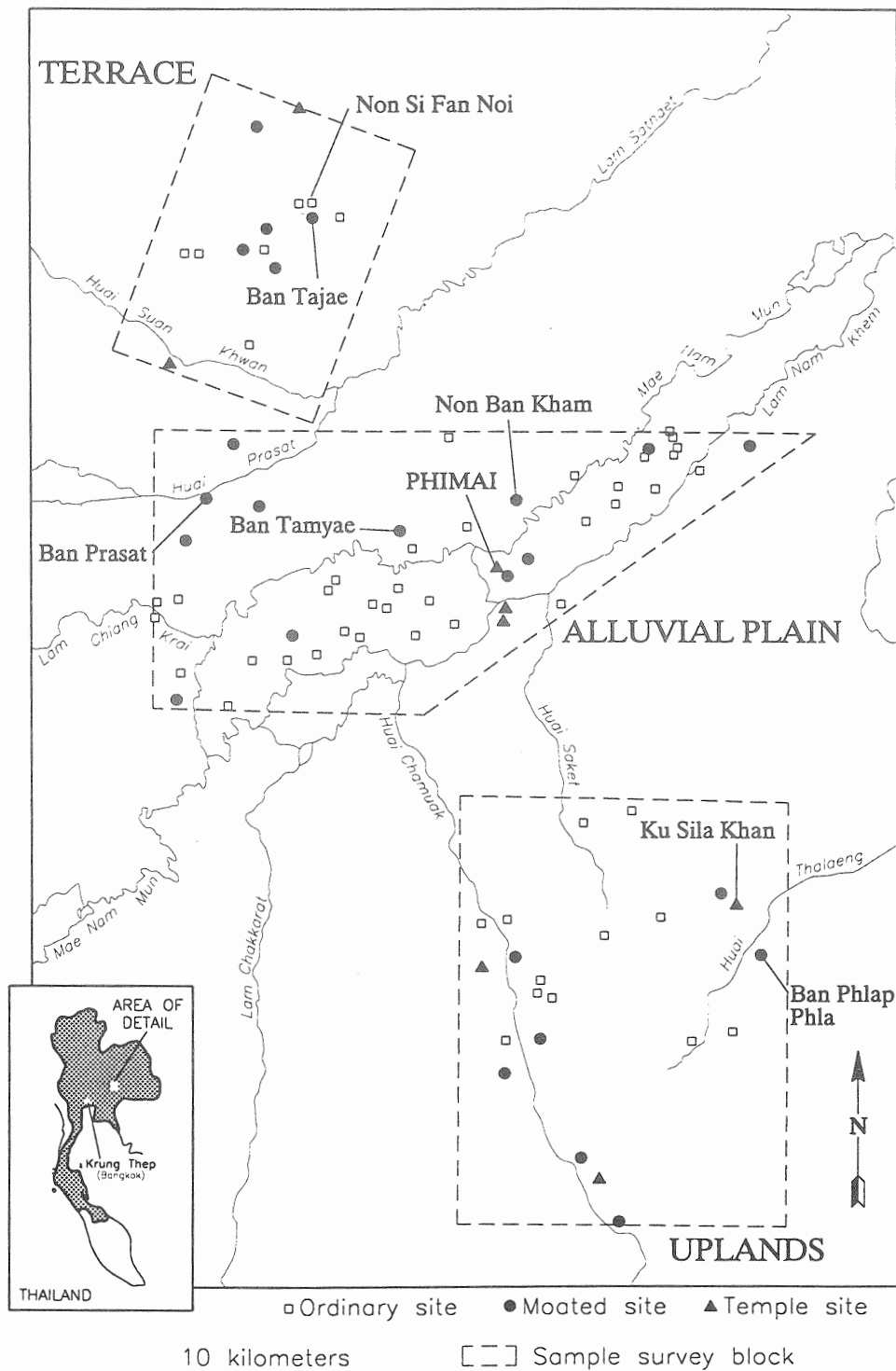


Figure 2: Location of Khmer Period archaeological sites in the Phimai region sample survey blocks

Table 1: Site size and density figures for Phimai region sites. Khmer period Lopburi phase sites compared with late prehistoric Phimai phase sites.

	Survey Area Size ha	Number of Sites #	Site Density #/km ²	Site Area ha	Area Density ha/km ²	Average Site Size ha	EPD #/km ²
PHIMAI PHASE							
Alluvial Plain	270	47	.17	421	1.56	9.0	78
Terrace	130	14	.11	72	.55	5.1	28
Uplands	300	11	.04	110	.37	10.0	18
All Survey Blocks	700	72	.10	603	.86	8.4	43
LOPBURI PHASE							
Alluvial Plain	270	47	.17	292	1.08	6.2	54
Terrace	130	12	.09	48	.37	4.0	18
Uplands	300	20	.07	113	.37	5.7	19
All Survey Blocks	700	79	.11	453	.65	5.7	32

Site Area = Total area of habitation sites

Area Density = Total habitation site area/sample block size

EPD: Estimated Population Density = (site area X 50)/sample block area

an area of 700 sq km., plus a number of additional sites outside the controlled survey areas. On the alluvial plain 47 sites have been located with a density of one site per 6 sq km area. In spite of this relatively high density of sites, only two Khmer temple centres are present on the alluvial plain: Phimai and Phanom Wan. In the terrace zone, 12 habitation sites are present, a site density of one habitation site per 11 sq km area. In the upland sample block 20 sites were identified, an average of one site per 14 sq km. Two temple sites are present in the terrace zone, three temples in the uplands.

Compared with the late prehistoric Phimai phase, the number of Lopburi phase sites in the Phimai region remained almost unchanged (Table 1). Only in the uplands is there a significant increase in the number of sites, with 20 Lopburi phase sites identified compared with 11 Phimai phase sites. Sites are however significantly smaller with an average site size of 6 ha on the alluvial plain, 4 ha in the terrace zone and 6 ha in the uplands. This compares with average site sizes of 9 ha on the alluvial plain, 5 ha in the terrace zone and 10 ha in the uplands during the Phimai phase. On the alluvial plain the population density may have been as high as 75 individuals per sq km during the Phimai phase but appears likely to have been no more than about 50 persons per sq km during the Khmer period (Welch and McNeill 1991: 213).

This change in site size is accompanied by a change in site type from high circular, oval, and irregular mounds to low rectangular mounds. In the salt dome area to the northeast of Phimai (outside the sample blocks), several new sites show up. These include a few new habitation sites and several new industrial sites, particularly sites involved in the mining and smelting of iron.

Although a number of sites had been abandoned and new ones established, overall the patterning of habitation settlements across the landscape remains little changed from earlier phases. There developed a continuing slight tendency toward clustering, a pattern probably mostly related to the preferential selection of certain land forms and soil types for placing residences. Proximity to suitable wet rice soils and protection from flooding appear to remain the primary determinants of site location. Sites in the alluvial plain are placed on the higher ground, in the terrace zone on or near the suitable rice growing soils and in the uplands along the streams.

Where new temples have been established in remote, formerly uninhabited areas, new habitation and industrial sites are sometimes found clustered around these temples. However in the areas of long established settlement on the alluvial plain and in the terrace zone, there is no detectable clustering of sites around temples, nor any

uniform spacing of sites in a central place type of pattern around central sites.

The data pose several problems. At many of the large sites with deep deposits at which we find evidence of intensive prehistoric occupation, Khmer material tends to be rather sparse. Either material from these sites has been differentially eroded or these sites had many fewer inhabitants during the Lopburi phase. There is usually sufficient evidence to indicate that the sites were not completely abandoned and, as discussed above, there are indications that village temples existed in at least a few of these sites. In addition oral tradition in the form of local legends relates these still occupied villages back to the Khmer period.

Khmer ceramics are most in evidence at small sites which take the form of low mounds, rectangular in shape, possessing no evidence of use during other periods of time. However because these sites lack the build-up of midden over generations that characterise many prehistoric sites, they were easily cut down to create new rice paddies when population began to grow in the past century. As a result these sites are difficult to recognise. Many were found only with the aid of local informants whose fathers or grandfathers had found these sites as they destroyed them to create new rice fields. Consequently their former size can only be roughly estimated. Many more of these sites may have once existed than we have been able to find. Thus our estimates of the number and density of sites for the Lopburi phase may be low. On the other hand, the prehistoric sites with high mounds built up over a longer period from debris and midden are both more evident in archaeological survey and less likely to have been destroyed.

While the data do not reveal a tendency toward regularity in site spacing or the emergence of a central place network, there is a straightening of the rank-size curve. The curve is notably convex for late prehistoric sites, probably because the sample incorporates a number of independent centres. However by the Khmer period, the growth of Phimai to twice the size of any other sites, the apparent abandonment of some large sites, and the establishment of numerous small villages results in a curve that is less convex than during the prehistoric period. This at least is suggestive of the establishment of a single site hierarchy.

Reviewing the data suggests that the Khmer period did in fact produce more changes in settlement patterning than I suggested 10 years ago at the end of our first year's research in Thailand (Welch 1984). However there still remains a strong thread of continuity and certainly nothing which suggests a major change in subsistence prac-

tices between late prehistoric and Khmer times. The major change that we see, the movement from large village sites frequently protected by walls and moats to small exposed hamlets, may reflect the establishment of a single political authority and the end of frequent warfare within the Phimai region. Smaller settlements possessed the advantage of allowing farmers to be nearer their fields.

Small Settlements of the Khmer Kingdom

One reason for selecting the topic for this paper was the opportunity to look more closely at the data from the early historic pre-Angkorian and Angkorian periods recovered during the excavations of the KBAP. The research has proven frustrating. Our excavations in the villages of the Phimai region have in fact been less productive in this regard than expected. Several excavated sites have produced little or no evidence dating to the period in which the Phimai region formed a part of the Khmer state. Ban Tamyae produced limited evidence from this period. Both Muang Phet and Non Tajae appear to have been abandoned before the Khmer period. Two small sites, each approximately 2 ha in size, have produced deposits which appear to date to the Khmer period. These are Non Ban Kham, located about 3 km from Phimai, and Non Si Fan Noi, a terrace zone site about 20 km northwest of Phimai. However, even at these sites the data are limited and their interpretation problematic.

One problem is determining what defines a Khmer period deposit. The glazed stonewares made at kilns in this region and also found in abundance at Angkor serve as an excellent horizon marker but the durability of the vessels and their curation in villagers' collections means that they continue to be used, broken and deposited long after they ceased to be made. This becomes a problem at village sites where such sherds never make up more than 1 to 3 percent of the sherds from any deposit. We have assigned to the Lopburi phase layers and features which contain Khmer stoneware sherds but which contain very few or no sherds that are known to date from Ayutthaya or later periods.

Non Si Fan Noi was in fact selected for excavation because of the abundant remains of early historic sherds on the surface of the ploughed gardens found on the mound today. Non Si Fan Noi proved to be a deeply stratified site with cultural deposits over 3 m deep. However, only Layers II and III produced remains from the Lopburi phase. Layer III contains numerous sherds dating from the early historic pre-Khmer period as well. The Khmer sherds included two dark brown glazed stoneware sherds, 18 unglazed stoneware sherds and two sgraffito

glazed stoneware sherds. Associated with these diagnostic wares was a much greater number of plain sherds, the most common of which were completely oxidised sherds, pink or close to pink in colour, with sand or sand and grog temper. Some of these were very well fired for earthenwares. Poorly fired chaff-tempered wares, commonly found in the pre-Khmer early historic deposits, continue to be common although less abundant in the upper layer (II) than in the lower layer. Evidence relating to subsistence practices is scarce. The faunal evidence is restricted to one mammal bone and four gastropod shells, hardly a basis for discussing subsistence strategies, diet or environmental modifications from human use.

At Non Ban Kham one layer in TP-1 and two in TP-2 could be defined as probable Khmer layers. The associated pottery includes well-fired sand tempered earthenwares but instead of the pinkish wares found at Non Si Fan Noi, a grey grog-tempered ware is quite common. As at the latter site, the faunal evidence is limited. There are a few bones from vertebrates and mammals, not identifiable at a lower taxonomic level and shell remains of 19 fresh water snails. Most common were bivalves of a type probably collected from flowing streams. This paucity of faunal remains in Khmer layers is in stark contrast to the richer prehistoric layers at these sites. The reasons for this lack of evidence are not clear.

SUMMARY

The inscriptional evidence has been used by several authors to interpret the structure of the Khmer state organisation, to try and understand how the administration of the state was organised and to a lesser extent how the society itself was organised. However the results have tended to focus on the élite and to treat the entire Angkorian period as a single time unit. In many ways this of necessity has been a somewhat static view. The limited inscriptional evidence extending over a long period of time has to be marshalled together to provide a glimpse of how the Khmer state was organised. Sahai (1970), for example, provides an excellent study of Khmer administrative organisation, but it is one which largely treats the entire Angkorian period as a unit. Here detailed archaeological study of Khmer period sites might provide a means of developing a more diachronic perspective on the development of and change in the Khmer state. This would entail careful stratigraphic excavation of Khmer temple sites and perhaps particularly the habitation areas connected with these temples. The historical data and models drawn from it do have the potential for developing hypotheses which can be tested with the archaeological record. The archaeological record

can help illuminate, modify and demonstrate the validity of these models.

REFERENCES

- Aymonier, Etienne 1901. *Le Cambodge*, Vol. 2: Siam. Paris: Leroux.
- Briggs, Lawrence P. 1951. The ancient Khmer empire. *Transactions of the American Philosophical Society* 41(1): 1-295.
- Coedès, George 1951 *Inscriptions du Cambodge*, Vol. 3. Paris: École Française d'Extrême Orient.
- 1968. *The Indianized States of Southeast Asia*. Translated by Susan Brown Cowing, edited by Walter F. Vella. Honolulu: The University Press of Hawaii.
- Coral Remusat, Gilberte de 1940. *L'Art Khmer: Les Grandes Etapes de Son Evolution*. Paris: Vanoest.
- Finot, Louis 1925. Inscriptions d'Angkor. *Bulletin de l'École Française d'Extrême Orient* 25: 289-407.
- Groslier, Bernard P. 1966. *Angkor: Art and Civilization*. New York: Praeger.
- Hall, Kenneth R. 1975. Khmer commercial development and foreign contacts under Suryavarman I. *Journal of the Economic and Social History of the Orient* 18: 318-336.
- 1979. Eleventh century commercial developments in Angkor and Champa. *Journal of Southeast Asian Studies* 10: 420-434.
- 1985. *Maritime Trade and State Development in Early Southeast Asia*. Honolulu: University of Hawaii Press.
- Hajesteijn, Renée 1987. The Angkor state: rise, fall, and in between. In Henri J. Claessen and Pieter van de Velde (eds), *Early State Dynamics*, pp. 154-169. Studies in Human Society, Vol. 2. New York and Leiden: E. J. Brill.
- Kulke, Hermann 1986. The early and imperial kingdom in Southeast Asian history. In David G. Marr and A. C. Milner(eds), *Southeast Asia in the 9th to 14th Centuries*, pp.1-22. Singapore: Institute of Southeast Asian Studies and Research School of Pacific Studies, Australian National University.
- Lunet de Lajonquière, E. 1907. *Inventaire Descriptif des Monuments du Cambodge*, Vol. 2. Inventaire Archéologique de l'Indo-Chine, Vol. 8, No. 1. Paris: Leroux.
- McNeill, Judith R. and David J. Welch 1991. Regional and interregional exchange on the Khorat Plateau. *Bulletin of the Indo-Pacific Prehistory Association* 10: 327-340.
- Parmentier, Henri 1939. *L'art Khmer Classique: Monuments du Quadrant Nord-Est*. Paris: L'École Française d'Extrême-Orient.
- Sahai, Sachchidanand 1970. *Les Institutions Politiques et L'Organisation Administrative du Cambodge Ancien (VI^e*

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- XIII^e Siècles). Paris: L'École Française d'Extrême-Orient.
- Sedov, Leonid A. 1978. Angkor: society and state. In Henri J. Claessen and Peter Skalník (eds), *The Early State*, pp. 111-130. New Babylon Studies in the Social Sciences No. 32. The Hague, Paris, New York: Mouton.
- Stern, Philippe 1927. *Le Bayon d'Angkor et l'Evolution de l'Art Khmer: Etude et Discussion de la Chronologie des Monuments Khmers*. Paris: P. Geuthner.
- Vickery, Michael 1986. Some remarks on early state formation in Cambodia. In David G. Marr and A. C. Milner (eds), *Southeast Asia in the 9th to 14th Centuries*, pp. 95-116. Singapore: Institute of Southeast Asian Studies and Research School of Pacific Studies, Australian National University.
- Welch, David J. 1984. Settlement pattern as an indicator of subsistence and political organization in the Phimai region, Thailand. In Donn Bayard (ed.), *Southeast Asian Archaeology at the XV Pacific Science Congress*, pp. 129-151. Dunedin: University of Otago Studies in Prehistoric Anthropology, Vol. 16.
- Welch, David J. and Judith R. McNeill 1991. Settlement, agriculture, and population changes in the Phimai region, Thailand. *Bulletin of the Indo-Pacific Prehistory Association* 11: 210-228.
- Wheatley, Paul 1975. *Satyanrta in Suvarnavdipa*—from reciprocity to redistribution in ancient Southeast Asia. In J. Sabloff and C. C. Lamberg-Karlovsky (eds), *Ancient Civilization and Trade*, pp. 227-283. Albuquerque: University of New Mexico Press.
- 1979. Urban genesis in mainland Southeast Asia. In R. B. Smith and W. Watson (eds), *Early South East Asia*, pp. 288-303. New York and Kuala Lumpur: Oxford University Press.
- 1983. *Nagara and Commandery: Origins of the Southeast Asian Urban Traditions*. University of Chicago Department of Geography Research Papers Nos. 207-208. Chicago: University of Chicago Press.
- Wolters, O. W. 1973. Jayavarman II's military power: the territorial foundation of the Angkor empire. *Journal of the Royal Asiatic Society*, p. 21-30.
- 1982. *History, Culture, and Region in Southeast Asian Perspectives*. Singapore: Institute of Southeast Asian Studies.
- Zhou Dagan (Chou Ta-Kuan) 1987. *The Customs of Cambodia*. Translated by J. Gillman d'Arcy Paul from the French translation by Paul Pelliot. Bangkok: The Siam Society