PART THREE

Art and Architecture of the Khmers: Centre and Periphery

Angkor's Roads: An Archaeo-Lexical Approach

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Abstract

Using the corpus of Pre-Angkorian (6th–8th century) and Angkorian (9th–14th century) inscriptions, this study finds a growing frequency and diversity of road terms, particularly during the 11th century when the Khmer began expanding across mainland Southeast Asia. This likely corresponds to the development of the durable roads of the Angkorian transport system. Analysis of the texts highlights a distinction between types of roads (e.g., *thnal*, *phlu*, *vraḥ phlu*) that may be discerned from archaeological features (causeways, embankments, main roads) visible in the landscape today. The paper supports the view that the road system was the product of centuries of inter-regional communication rather than the work of Jayavarman VII predominantly and demonstrates the utility of employing inscriptions to provide spatio-temporal contexts of features found through traditional archaeological investigations.

Introduction

> On the road (*adhvan*) from Yaśodharapura to the capital of Campā [he constructed] 57 dwellings (*ālaya*). From the capital to the town of Vimāy, there were 17 dwellings. From the capital to Jayavatī, from this town to Jayasiṃhavatī, there to Jayavīravatī, from this town to Jayarājagiri, from Jayarājagiri to Śrī Suvīrapurī; from this town to Yaśodharapura (along this road) there were 44 inns of fire (*vahnigṛhāṇi*). There was one at Śrī Sūryaparvata, one at Śrī Vijayādityapura, one at Kalyāṇasiddhika. In total, 121 (inns of fire).
>
> K. 908D / 1191 CE

The text from the Preah Khan stele provides the only detailed account of the Khmer road system and has influenced academic interpretations of the history of Angkorian transportation. Written during the reign of King Jayavarman VII (CE 1181–1219), the famed ruler known for his massive building program, it clearly states that he erected fire shrine resthouse temples (often referred to as *dharmaśala*, see Finot 1925) along three roadways. Archaeological survey confirming the existence of 17 laterite masonry fire shrines along the Northwest Road connecting Angkor to Phimai has led many scholars to link the construction of this formalized system to Jayavarman VII, the last of Angkor's great kings (Higham 1989: 337; Freeman 1996: 154; Bruguier 2000: 542; Stark 2004: 109). A closer examination of the text, however, shows that he does not take responsibility for constructing the roads. Recent work integrating archaeological and historic records (see Hendrickson 2010a) has demonstrated that the roads are actually the product of several periods of construction, particularly during the 11th century expansion of the Khmer Empire. This paper presents an investigation of changes in the usage of transport terminology in all the published Khmer inscriptions, to test this new interpretation.[1]

By documenting the diversity of road terms, their historical frequency and spatial context, we seek to address four main questions: (1) Can we discern any changes in the terminology, in its diversity or word frequency, which might correspond with changes in the archaeological record? (2) How useful are the inscriptions for identifying individual items of transport infrastructure? (3) Can the inscriptions improve our understanding of the history of the development of the Angkorian transport network? and (4) Can visible features (e.g., temples, roads, resthouses) in the landscape help us to interpret epigraphic transport terminology?
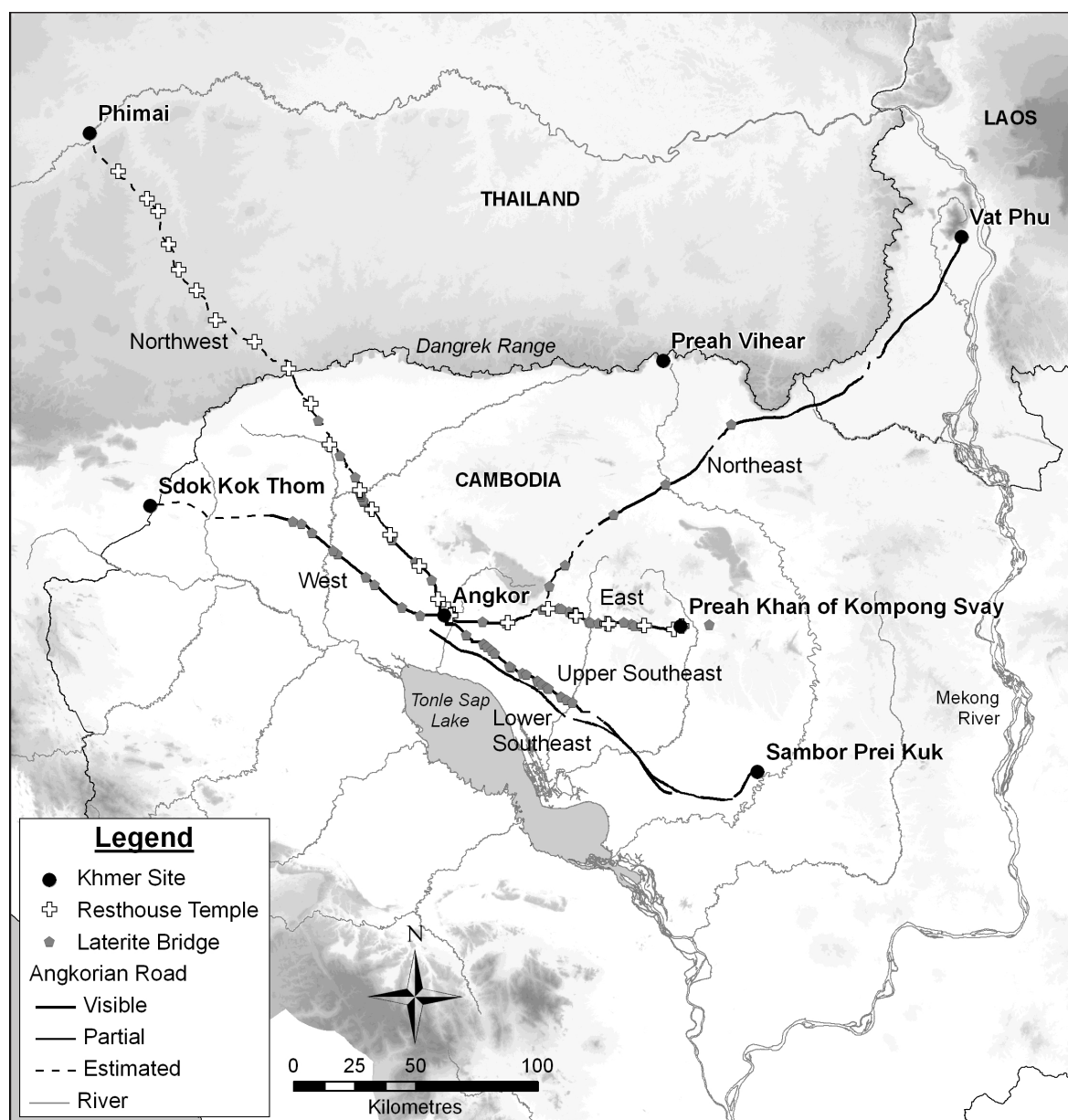
Fig. 15.1: Location of the Angkorian Khmer road system (Map: M. Hendrickson).

The Khmer Road System

Traces of the Khmer road system were first systematically reported in the extensive site surveys of Étienne Aymonier (1900–4) and Étienne Edmond Lunet de Lajonquière (1901; 1902–11). Five main roads were identified radiating out from Angkor to its provincial centers across northern Cambodia, northwest Thailand and southern Laos. In addition to the raised earthen roads, some up to 5m high, the Khmer variously fitted these routes with support infrastructure including masonry resthouse temples, laterite bridges and water tanks [Fig. 15.1]. The implication from the archaeological evidence is that the Khmer had specific transport goals and were well aware of the importance of and requirements for regional transport by the 11th century, if not considerably earlier (Hendrickson 2010a).

Today, it is possible to identify three different types of remnant Khmer roads: main roads, secondary roads and local access ways, including temple causeways. Main or formalized roads are the routes that connected Angkor to its provincial centers and served to facilitate long-distance communication. Secondary roads are local transportation routes around regional centers, typically based on temples.

The third type, local access ways, provided connections to occupation sites or temples, for example, a causeway connecting a temple and its *trapeang* or water tank. Construction of Khmer roads was relatively simple — either a cleared way at ground level or a raised earthen embankment. Only causeways leading to temples show evidence of paved surfaces (Hendrickson 2010b). It is important to note that many of these structures served both water management and transport functions, as embankments would commonly have been constructed from the material excavated from channels and then acted as barriers to flood waters, and re-directed water across the landscape. Thus, the distinction between road embankment, canal bank and water distributor channel may have had little meaning.

The Khmer also built infrastructure in the form of resthouse temples, masonry bridges and water tanks to assist movement along the terrestrial system. Two types of resthouse temples have been identified: the early 12th century *temple d'étape* on the East road (Lunet de Lajonquière 1911: xxix–xxx; Groslier 1973: 118) and the late 12th century fire shrines on the Northwest and East roads made of laterite and sandstone respectively (Finot 1925; LARP 2009: 249). Spaced between 14–16km apart, these structures served as way stations and also placed the road, and the goods and people moving between Phimai, Preah Khan of Kompong Svay and Angkor under direct control of the Khmer elite (Jacques and Lafond 2004: 286; Hendrickson 2008: 68). Over 60 laterite bridges, presumably in addition to deteriorated wooded structures, have been found along five of the main roads. The size of these structures varies considerably from the 140m long Spean Toeup spanning the Sreng River to small culverts enabling water to flow under the roadway (see Bruguier 2000). The Khmer also excavated water tanks accessible to travelers every 1–2km along these routes (Hendrickson 2007: 173). These watering holes would have been a necessity for pack animals moving along the roadways, particularly during the hot dry season. In combination, the archaeological remains of the road system represent the strong focus of the Khmer on improving and maintaining communication within their territories. As with their temples and hydraulic management system, the scale of the roads and infrastructure also points to substantial resources and manpower, requiring state-level involvement. From this it could be expected that roads were significant enough to be included within the records of the Khmer elite.

Textual References to Khmer Roads

Using all relevant transportation data from 716 published transliterated inscriptions of the 6th–14th century from an existing data base (see Lustig 2009: 121), the study examines the occurrence, frequency and context of each transport term. Table 15.1 shows transportation terms in Pre-Angkorian and Angkorian period inscriptions, their interpreted meanings, and whether they occur in Old Khmer or Sanskrit language texts.

Old Khmer has relatively few terms that are glossed as, or linked with "roads". The words *phlu* and *thnal* are by far the most frequently occurring and their meaning in Khmer has remained unchanged up to the present. *Tnal / thnal*,[2] understood etymologically as "means of access", has been interpreted as "access road, especially causeway, road over an embankment" (Jenner 2009a, 2009b) and; "that which leads to; a road, a dike" (Pou 1992). In the texts, these almost always appear to be quite local, sometimes pertaining to a particular temple or to an individual person, for example, in K. 155 / 8th century, *sre tnal tāṅ makara* (a ricefield on the *tnal* to the *tāṅ Makara*'s [place]). *Thnal* may be simple embankments surrounding a field or pond, such as in K. 844 / 11th century, *thnal sre mvāy jeṅ dau lvaḥḥ* (the *thnal* of the ricefield of one *jeṅ*). The etymology of *plu / phlu* — a way, path or road (Pou 1992; Jenner 2009a, 2009b) — is less certain. According to Phillip Jenner (pers. comm., 2 June 2010), there may have been little occasion for a term for graded roads for facilitating the passage of oxcarts, troops or elephants before the Pre-Angkorian period. When the need arose to express the concept, the Khmer might have adopted the prefix /p-/ plus *lu* (road), borrowed from Chinese.

In Angkorian period texts the word *phlu* is occasionally qualified to emphasize a road's function or location: thus a large road, *phlu ruṅ* (K. 178 / CE 994); a cart road, *phlu (paṃ)ji ratha* (K. 843 / 1025) or *phlū rddeḥ* (e.g., K. 248 / CE 1064); crossroads, *phlu tadiṅ* (e.g., K. 843); and fork in the road, *phlu vrek* (K. 219 / CE 1050). Roadways termed *vraḥ* (sacred / royal) *phlu* and *vraḥ thnal* are also mentioned, but occur only in Angkorian period inscriptions. The implications of "*vraḥ*", based on the epigraphic and geographic contexts are discussed below.

Table 15.1: Transport terminology in Old Khmer (Kh) and Sanskrit (Sk) (*14th-century Sukhothai)

Pre-Angkorian Kh text	Pre-Angkorian Sk text	Angkorian Kh text	Angkorian Sk text	Interpretation
plu; *plū*		*phlū*; *phlu*; *phluv* *vraḥ phlū*, *phlu*		road, way sacred road
tnal; *tnall*; *tnol*; *thnol*		*thnal*; *tnal* *vraḥ thnal*		means of access, road, causeway, embankment, sacred causeway, etc.
	patha		*patha* (Sk)	way, path, road
		ganloṅ		passage, route, way, path, track, trail, road
		rathyā (Sk)	*rathyā* (Sk)	carriage road, highway, street
		ādhvā (Kh)	*adhvan* (Sk)	road, way
		*mārga (Sk) **rājamārga* (Sk)	*mārga* (Sk)	track, road, path royal road
			ālaya (Sk) *vasati* (Sk)	road inn, abode, asylum
		svān		bridge
		travaṅ	*taṭāka*	tank, pond, reservoir

Another term, *ganloṅ*, whose meanings include "passage, route; way, path, track, trail; road" (Pou 1992; Jenner 2009b), appears as a hapax in the 10th-century K. 175.[3] Khmer authors adopted many Sanskrit words which became assimilated over the centuries to suit their diverse purposes (Filliozat 2003; Pou 2003: 283). Table 15.1 shows a single Sanskrit term for road (*patha*) in a Sanskrit text in the Pre-Angkorian period and an additional three in the Angkorian period in Sanskrit and Khmer language texts: *rathyā*, *adhvan* (Sk) or *ādhvā* (Kh) and *mārga*.

The word *rathyā*, "carriage way, highway or street" (Monier-Williams 2005), appears metaphorically in a Sanskrit text, K. 1002 / CE 1022 and twice in the Khmer K. 248 / CE 1064, where it might, in one instance, be interpreted as the known Angkor-Phimai road (see Prasat Ta Kam Thom below). In the text, *rathyā* is contrasted with the Khmer *phlū rddeḥ* (a cart road). *Adhvan*, a "road, way, orbit, journey, distance" (Monier-Williams 2005), is found in the Sanskrit text K. 908 / CE 1191 and refers to the route along which the fire shrines were placed by Jayavarman VII. It also appears in the bilingual K. 254 / CE 1126, in Sanskrit and in its Khmer form (*ādhvā*), referring to the routes along which bridges (*svān*) were constructed. An important consideration is that the meanings of Sanskrit words, as with many aspects of Indic culture, were borrowed and modified by the Khmer to suit local needs. This raises the question of whether they had a similar broad range of meanings as in the original Sanskrit, or whether on adoption they referred to specific types of roads.

In the Sanskrit text, K. 157 / CE 953, *mārga*, "track, road, path, way to" (Monier-Williams 2005), is associated with an artificial mound (*sthalā*) and would not have been a major road. Two other Sanskrit texts with *mārga*, K. 814 / CE 1004 and K. 382 / CE 1047, associate the road with a city, *nagara* — in the case of K. 814 (discussed below), possibly Angkor. The term *nagara* is glossed as "(of a) town or city" (Monier-Williams 2005), while in Khmer dictionaries, it is the place of the sovereign's residence: thus royal city, or capital (Jenner 2009b). In K. 382, it seems unlikely that the *nagara* is Angkor, well to the south of the temple Preah Vihear: "The limits of this land are Suraghṛita to the east, Samroṅ to the south, the land of Lohakāras to the west, the road of the *nagara* to the north."

A later use of the word *mārga* is seen several times in K. 413, a Khmer language 14th century text from Sukothai. In the same inscription, the term *rājamārgga* (royal road) appears once, where it refers to a local access way linking two gates within the royal or monastery precinct. Nonetheless, as Sukhothai had been independent of Angkor from the first half of the 13th century, the terminology from this text can not readily be accepted as Angkorian and therefore is not considered further.

Context of Road Terminology

Many of the inscriptions were written by rulers as administrative edicts and records of gifts to foundations. Non-royal texts, authored mostly by titled officials, refer to the establishment or donation to "private" religious foundations and property matters. Roads and infrastructure are mentioned in a number of contexts, but in most cases (53 per cent Pre-Angkorian texts; 72 per cent Angkorian texts) refer to a context of donated or disputed lands (see Table 15.2). Records of land holdings were likely important for the state's fiscal administration: in the inscription of Aranh, K. 1116 / CE 992, it is noted that the limits of the land were to be recorded in the archives of the royal tribunal and on boundary markers.

It might be thought that constructing roads for regional trade, moving armies or otherwise administering the state would have been a state matter (Hendrickson 2007: 47–9) and that some commemoration of the works would be found in the texts. However, there are no records of road building in royal inscriptions. References to local road-building, however, appear in two non-royal texts:

> [He] made an access road (*thnal*) one hundred and forty [*hat*] three *phlās* long, and constructed kennels? (*vraṅ*)
> for rainwater. The forest was cleared, [and he] excavated a foundation into a passable road (*phlu*) […]
> Sek Ta Tuy, K. 618 / CE 1026 (Phillip Jenner trans., 10 Jun. 2010)

> I have raised causeways (*thnal*), constructed bridges (*svān*) for the roads (*ādhvā*) to pass.
> Trapeang Don On, K. 254 / CE 1126

The first is the only example of the actual measurements used for road construction and also makes a distinction between *thnal* and *phlu*. The second indicates the concurrent construction of three types of road infrastructure, and here distinguishes between *thnal* and *ādhvā*. With the exception of water tanks, road infrastructure is rarely mentioned. Tanks and reservoirs (*travaṅ* [Kh]) / *taṭāka* [Sk]) are commonly recorded in toponyms, e.g., *travaṅ Bhāga* (K. 353, Prasat Kantop, below), and often mentioned as works undertaken by an individual in the process of establishing a religious foundation. In one instance, roads are linked with both road houses and tanks: "He constructed dwellings (*vasati*) and ponds (*taṭāka*) along the roads (*patha*) for caravans of travellers." (Sdok Kak Thom, K. 235 / CE 1052 [C: CXIX]).

The Sanskrit Preah Khan *stele* (mentioned earlier) refers to *ālaya* that are recognized as the fire shrines on the Northwest road. *Śāla*, a generic term used for a shelter or relay station (Jenner 2009b), appears more frequently in Khmer inscriptions. These may have been constructed of perishable materials. The only mention of a *śāla thmo* (stone hall) on a road is from Samrong, located about 4km north of the East Baray: […]; to the north-east, the *śāla thmo* of the road (*phlū*) of Rlaṃ Dyan (K. 258A / CE 1093 [A: 44–8]). While cited infrequently, it is apparent that different types of roads and communication infrastructure were present and recognized as significant features in the landscape. These structures are often used in the context of delimiting spaces of land, though without detailing their purpose or who constructed them.

Temporal and Geographic Trends

Evaluating the temporal and spatial patterns in the use of transport terms provides another means of assessing the degree of specialization that took place. Table 15.2 shows that the overall proportion of references to roads relative to the total number of inscriptions for the Pre-Angkorian (7.1 per cent) and Angkorian (8.1 per cent) periods is remarkably similar. In the Pre-Angkorian period, when polities didn't control large regions, there is a significantly greater use of the term *tnal* than *plu*, indicating a focus on local structures (*tnal*). By contrast, in the Angkorian period there is a five-fold increase in the proportion

Table 15.2: Comparison of frequency of road terms in Pre-Angkorian and Angkorian period inscriptions (Kh — Old Khmer; Sk — Sanskrit)

Mentions of roads	Pre-Ang. inscr.	Ang. inscr.
"Dated" inscriptions with comprehensible text	210	528
Inscriptions mentioning "road" in any context	18	43
Inscriptions with roads as % of all inscriptions	7.1%	8.1%
Inscriptions with roads as limits or location of land	44%	70%
plu / phlu	4	27
tnal / thnal, etc.	14	17
plu / phlu: *tnal / thnal*	1:3.5	1:0.67
vraḥ phlu		5
vraḥ thnal		4
Sk inscriptions with road words: *patha*; *rathyā*; *adhvan*; *mārga*	1	7
Kh inscriptions with Sk road words: *rathyā*; *ādhvā*		2

of *phlu* to *thnal* and the appearance of more Sanskrit words for roads in both Sanskrit and Khmer texts. These patterns correspond with the escalating level of long-distance communication and specialization of the Khmer transport system as the Empire consolidated and expanded across the region.

The spatial distributions of *plu / phlu* and *tnal / thnal* between the 6th–14th centuries depict the trends shown in the table [Fig. 15.2a–b]. In the Pre-Angkorian period, before the appearance of a single unified political centre, the term *tnal* is more prominent, with clusters seen in the southern part of Cambodia and various locations along the Mekong [Fig. 15.2a]. Following the coalescence of power at Angkor we see the increased mentions of road terms, specifically *phlu*, and these are concentrated north of the Tonle Sap [Fig. 15.2b]. This rise likely corresponds to the need for more durable roads to manage newly obtained territories from the capital. Another change in the Angkorian period is the use of the word *vraḥ*, or sacred / royal, to qualify these two types of roads. At a regional perspective [Fig. 15.2c] there appears to be a significant spatial relationship between *vraḥ phlu* and the main roads.

More detailed temporal changes can be discerned within five centuries of the Angkorian period. Table 15.3 shows the number of inscriptions referring to roads in each century, excluding examples of what we take to be more local *thnal*. There is a marked contrast between the 9th century, which represents a large number of inscriptions but has very few references to roads, and the 10th and 11th centuries, where the majority of road terms in the sample appear. Again, these results highlight the increased focus on roads from the 10th, and more so in the 11th century, the time when Suryavarman I (1002–1050) rapidly expanded Khmer territories across the region. Since many of the texts are not accurately dated, the current evidence cannot be used to directly support a prominent role played by this king.

Locating Roads from Textual References

The specific descriptions of Khmer land entitlements provides an opportunity for seeking correlations between the historical documents and archaeological features. In Khmer texts, the limits of a piece of land are typically stated in clockwise order, starting from the east. Using Google Earth imagery we can identify likely locations of each toponymic reference. Two initial assumptions for this analysis are: (1) the inscription was found at or close to its temple site and defines the origin for the limiting points; and (2) land holdings are within communicable distance of the temple site. On the basis of their textual references to roads and the temples' proximity to visible roads or embankments, seven different 10th–11th-century temple inscriptions, written in both Khmer and Sanskrit are evaluated.
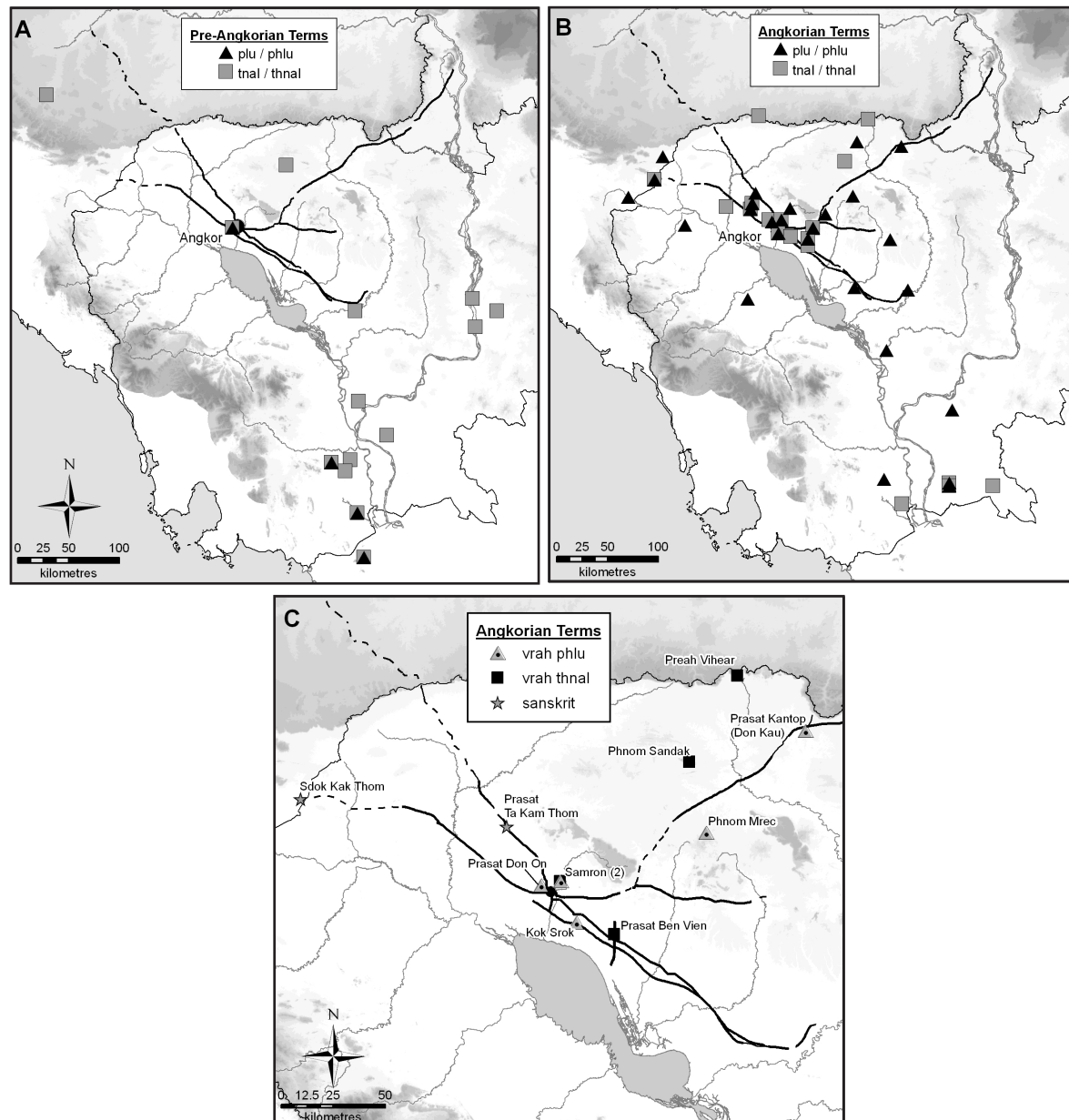
Fig. 15.2a–c: Geographic distribution of transport terms found within Pre-Angkorian and Angkorian period inscriptions.

Table 15.3: Frequency of road terms per century in the Angkorian period

| Date range CE	Khmer texts with *phlu*, *ādhvā*, *rathyā*	Sanskrit texts with *rathyā adhvan patha*, *mārga*	Total	% of total	Inscriptions in study	% of total inscriptions
800–1299	29	5	34	100%	508	100%
800–899	1	0	1	3%	62	12%
900–999	14	1	15	44%	184	36%
1000–1099	12	3	15	44%	145	28%
1100–1199	2	1	3	8%	59	12%
1200–1299	0	0	0	0%	60	12%

Prasat Srange

> Limits of land given by Steṅ āñ Nandikācārya: to the east it crosses the river Chdiṅ Kryev and goes up to Travāṅ Abhaṣa; to the south going from the corner of the moat situated to the north-east of VKA Śrī Indreśvara (Bakong) up to Canhvar Vak Srasar, and going from Canhvar up to Chidiṅ Kryauv; to the west it follows the foot of the enclosure wall of VKA Parameśvara (Preah Ko); to the north it follows the *thnal* of VKA Parameśvara up to Chdiṅ Kryauv. To the north of the road (*thnal*), there are two parcels of ricefields of VKA Parameśvara; to the north of the access to the ricefields […]

<div align="right">K. 933B / CE 1012 [Kh]</div>

The Prasat Srange inscription provides very precise details of an area northeast of the Bakong temple at Roluos [Fig. 15.3]. It illustrates the use of *thnal*, which is clearly visible as the access route to the entrance to Preah Ko temple from the east (Pottier 1999: 156–7). While the physical association of the road term is relatively unambiguous there are two possible solutions for the land-holding. The first one describes an area of land of about 62–77ha. As the inscription post-dates the construction of the baray, the Indratataka, the river Kryev would have been an outlet old river course from the baray. In the second solution, the river is further to the east, possibly the Roluos River — which could approximately double the size of the land. The example of Prasat Srange highlights two issues for identifying features from toponyms. The first is that land boundaries are impacted by the footprint of pre-established temple holdings about which information is typically lacking. The second, and perhaps more important, is the scale of the land-holding. In the Srange inscription, the area is of the order of 50–140ha. However, while the text provides an approximate size for this land-holding, at other temples or indeed at the same temple, the size of other land allocations can vary considerably according to several factors, including the wealth of the foundation.

Sdok Kak Thom

> Limits of land having the settlement and 3 *jeṅ* of ricefields: to the east it adjoins the land of Dhanavāha; to the south going up to Dnaṅ; to the west up to the cart road (*phlū rddeḥ*) in the direction of the setting sun; to the
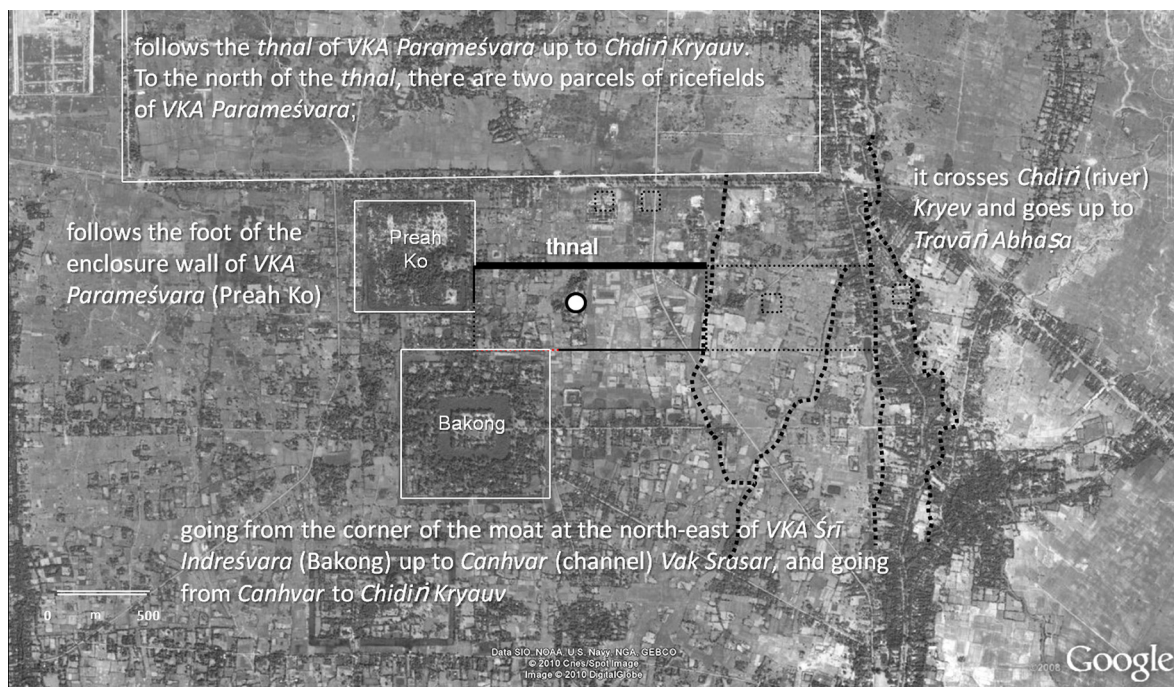
Fig. 15.3: Land allocation in the Prasat Srange inscription showing temple site (circle) (Image courtesy of Google Earth; 2011).

...the area for burning paddy, returning...to the dip of the trapeang

the *aśrāma* situated to the north of the *thnal* near the *añcan*

again, up to the sacred tree *stau*, adjoining the land of *Thpvaṅ Rmmāṅ*

up to the cart road (*phlū rddeḥ*) to the west of *Snvāl*

it adjoins the land of *Dhanavāha*

the *aśrāma* situated to the south of the *thnal* near the moat / trench (*añcan*)

0   m   500

going up to *Dnaṅ*

Fig. 15.4: Land allocation in the Sdok Kak Thom inscription showing temple site (circle) (Image courtesy of Google Earth; 2011).

> north, *samlvat* the area for burning the paddy; returning *tāṅ tai* to the bank of the pond (*travāṅ*); to the east anew, up to the sacred tree *stau*, adjoining the land of Thpvaṅ Rmmāṅ.
>
> K. 235 / CE 1052 (D85–90) [Kh]

This inscription, which plays an important role in the Khmer historical record, describes land delimited on the west by a cart road (*phlū rddeḥ*) and in another part of the text (D113–9) the presence of a *thnal*. The area immediately west of Sdok Kak Thom [Fig. 15.4] shows evidence of the old rice field system but the roads and linear features that could represent the cart road are modern constructions. Two *aśrāma* (hermitages) are said to be to the north and south of the sanctuary and two are to the north and south of the *thnal*, near the moat or trench (*añcan*) visible around the temple. This suggests that the *thnal* here could be the causeway connecting the temple and the reservoir.

Prasat Ben Vien

> The land of Jen Kryal: limits are: to the east it touches the marker outside the dug ground (*jaṃnyak*); to the south-east at the *indrakhīla* (pillar); to the south to the *vraḥ thnal*; to the south-west to the mound (*sthalā*); to the west to the basin (*danle*) of Śrindreśvara; to the north-west to Travāṅ Crapic; to the north to [the land received through] royal kindness; to the north-east to Svetabhagra and Tai Khnor, two places. The ricefield of Smiṅ to the south of the sanctuary up to the *vraḥ thnal*.
>
> K. 873 / CE 921 [Kh]

This text has two references to *vraḥ thnal*, both likely describing the same feature south of the temple. At first glance, it is tempting to argue that this corresponds with the Southeast Upper Road visible in the lower part of Figure 15.5. However, the position of the ricefield Smiṅ, likely part of the field pattern visible to the south of the sanctuary and the fact that *thnal* are associated with local features, suggest that this embankment is located north of the main road, which is 4km away. Of interest, is the potential correlation of the eastern boundary, the *jaṃnyak* or dug ground, with the 200m wide Damdeck channel located 600m east of the temple. This would be the only mention of this 20km long structure, and indicate that it existed in the 10th century.
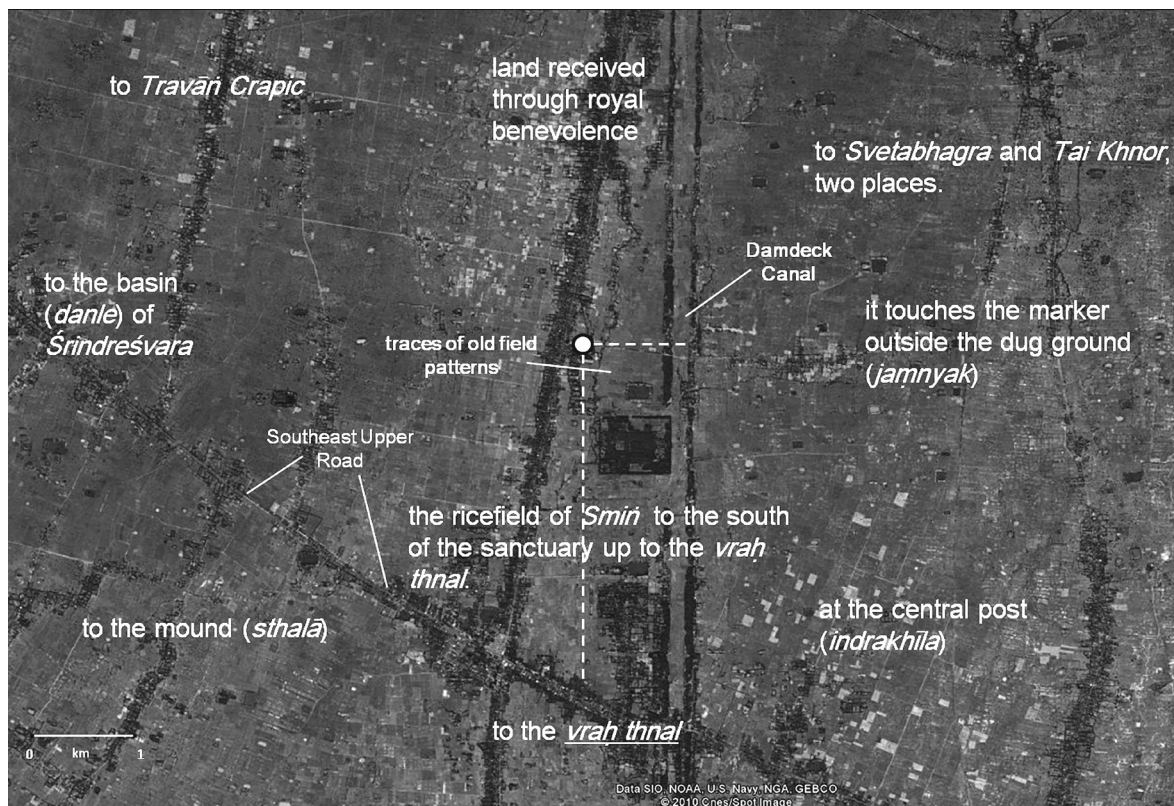
Fig. 15.5: Land allocation in the Ben Vien inscription showing temple site (circle) (Image courtesy of Google Earth; 2011).

Samrong

The Samrong inscription refers to different periods of land acquisition in the Angkor area and makes several references to transport infrastructure. The first case [Fig. 15.6a] is from a record of 1093:

> [Lands of two KJ Śivaliṅga and KA Nārāyaṇa] Limits: to the east the sacred road (*vraḥ phlū*); to the south-east the stone marker [placed] to the north-east of Travāṅ Cho (or Chok?) Antās; to the south it touches the land of Kat Crās; to the south-west it touches the land of Stuk Cravo; to the west it touches the land of Caṃnat *VKA ta mūla* (a god or a senior lord?); to the north-west, Indrāpati; to the north it touches the land of S…; to the north-east the *śāla* of stone of the road (*phlū*) of Rlaṃ Dyan.
>
> K. 258 (A: 44–8) [Kh]

This is the only reference to stone *śāla* positioned along a road. Unfortunately, with Samrong as the point of reference, the stated location of the *phlū* does not correspond with the roads known to have resthouse infrastructure. There are several east-west linear structures, notably one located just north of the temple, any of which could have been the *phlū*. A possibility for the *vraḥ phlū* or sacred road is the Siem Reap River or its embankments. This river and its embankments were created artificially, perhaps early in the 10th century, by the diversion of another river to direct water south to the royal capital at Angkor (Groslier 1979: 164, 179–80). A textual reference to this may be found in the Sanskrit Pre Rup inscription K. 806 / 961 which alludes to the river Gaṅgā Tripatha, or triple way, perhaps a further allusion to the Siem Reap diversion (Groslier 1979: 180). Since channel embankments often double as terrestrial routes, the Tripatha may be referring to the embankments and channel and v*rah phlū* therefore corresponds to this manmade feature.

The second excerpt from the Samrong inscription mentions a *phlū* and contains a reference to the East Baray [Fig. 15.6b].

> [Gift of a *khloñ* in 1011 *śaka*] … a land situated at the foot of Vnaṃ Thmo (mountain of stone). Limits: to the east … the sacred banks (*vraḥ tīrtha*) of Śrī Yaśodharaṭāka (East Baray); to the south …; to the west, the
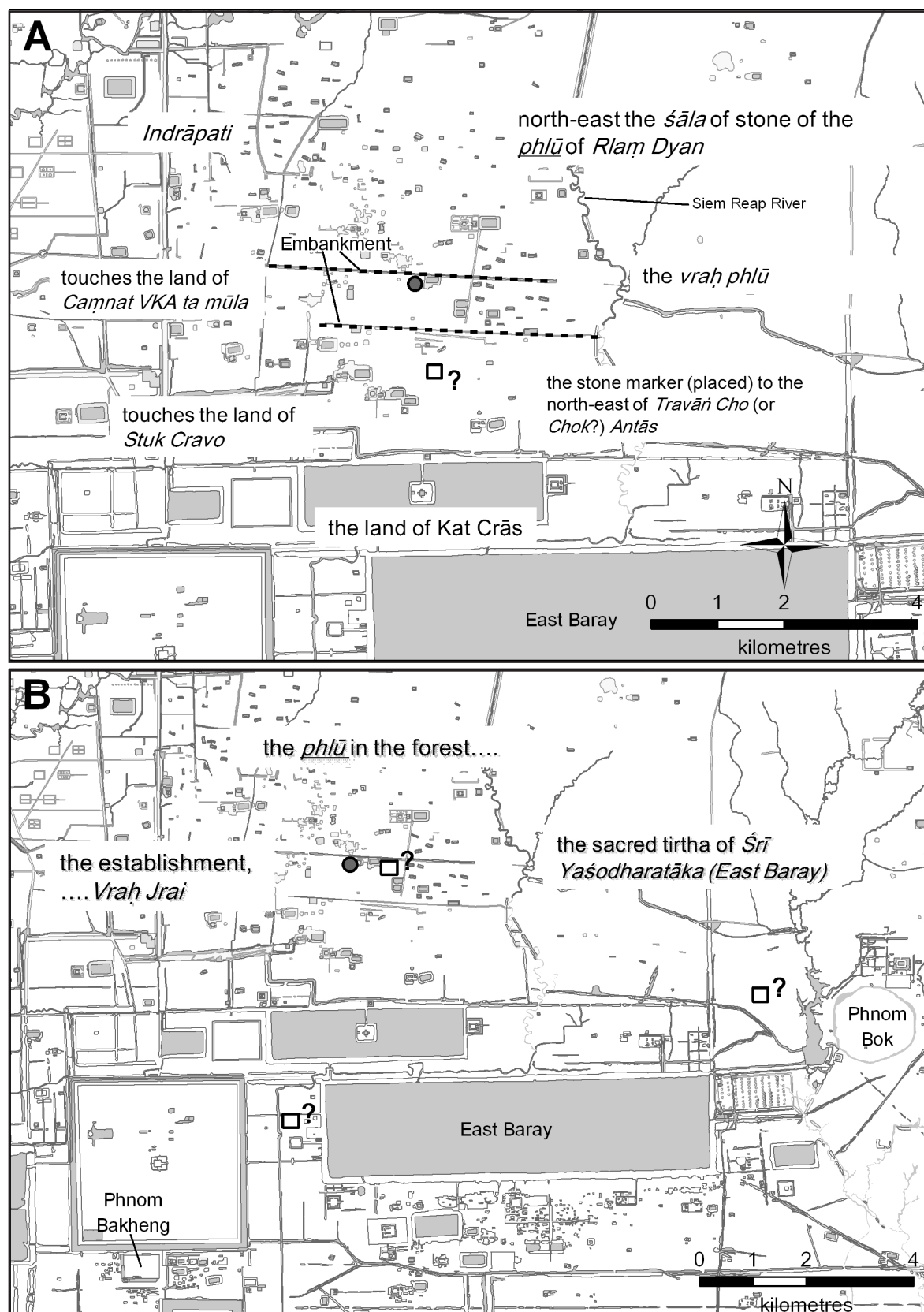
Fig. 15.6a–b: Land allocations in the Samron inscription showing temple site (circle) and suggested point of reference (square) based on toponyms (GIS data: Pottier 1999; Evans 2007).

> establishment, … Vraḥ Jrai …; to the north, the road (*phlū*) in the forest … the product … the hill … the land of Siddhivala which I gave to service the provisions for KJ Liṅgapura.
>
> K. 258 / CE 1089 (A: 80–84) [Kh]

There are several linear embankments north of Samrong that could represent the *phlū*, however, the interpretation is complicated by at least two possible interpretations for the eastern boundary. The first is that this is the west bank of the East Baray, siting the land between the baray and Angkor Thom, which, according to George Cœdès, is surprising. In addition, there are a few missing characters in the text before the words *vraḥ tīrtha*, and their absence means we cannot be certain that it is referring to the west bank of the reservoir (Cœdès 1952: 199, fn. 1). The second, following Christophe Pottier's hypothesis (pers. comm., 10 Dec. 2010), is that the *tīrtha* — which can mean a ford, descent to a river, access to a watercourse — as well as a place of pilgrimage (Jenner 2009a; 2009b) — is the edge of the Siem Reap River that supplied water for the baray. These lands are at the foot of *Vnaṃ Thmo*, literally the Stone Mountain. At the time the inscription was written, the two most evident "mountains" in the vicinity of Samrong were Phnom Bakheng, 3km southwest of the East Baray and Phnom Bok, 5km to the east of the temple. The former is known to have had a specific name, Phnom Kantāl (Cœdès 1942: 131, fn. 7), and therefore is unlikely to have been referred to as a "stone mountain". Though further away, the latter is a more likely candidate, as it is a large rhyolite outcrop, and laterite is known to have been quarried around its base (Christophe Pottier, pers. comm., 19 Jan. 2011). The *phlū* mentioned in this text is most likely one of the linear features in the northeast part of Greater Angkor. A final option is that *Vnaṃ Thmo* refers to a smaller, currently unidentified outcrop. In this case therefore, it is uncertain that the land in question is near the Samrong temple.

Prasat Char

> Land of Caṃhop purchased with above goods. Limits of the land: to the east (it is limited by the land of the Steṅ) Añ Vraḥ Guru; to the south, it is limited by Vnaṃ Khyaṅ (mountain of shells); to the west it touches the land of …; to the north it reaches the sacred road (*vraḥ phlū*).
>
> K. 257 / CE 994 [Kh]

The *vraḥ phlū* in this text refers to a road north of the temple. As the Northwest road is located about 4km away from the temple, the text more likely refers to the long linear feature connecting to the enclosure of the Neam Rup temple [Fig. 15.7]. Several other embankments to the south of Prasat Char would have also served as roads, perhaps to the centre of Angkor, locating the land nearer to the West Baray. The mountain of shells to the southeast is an intriguing reference, as there is no physical correlate for this feature.
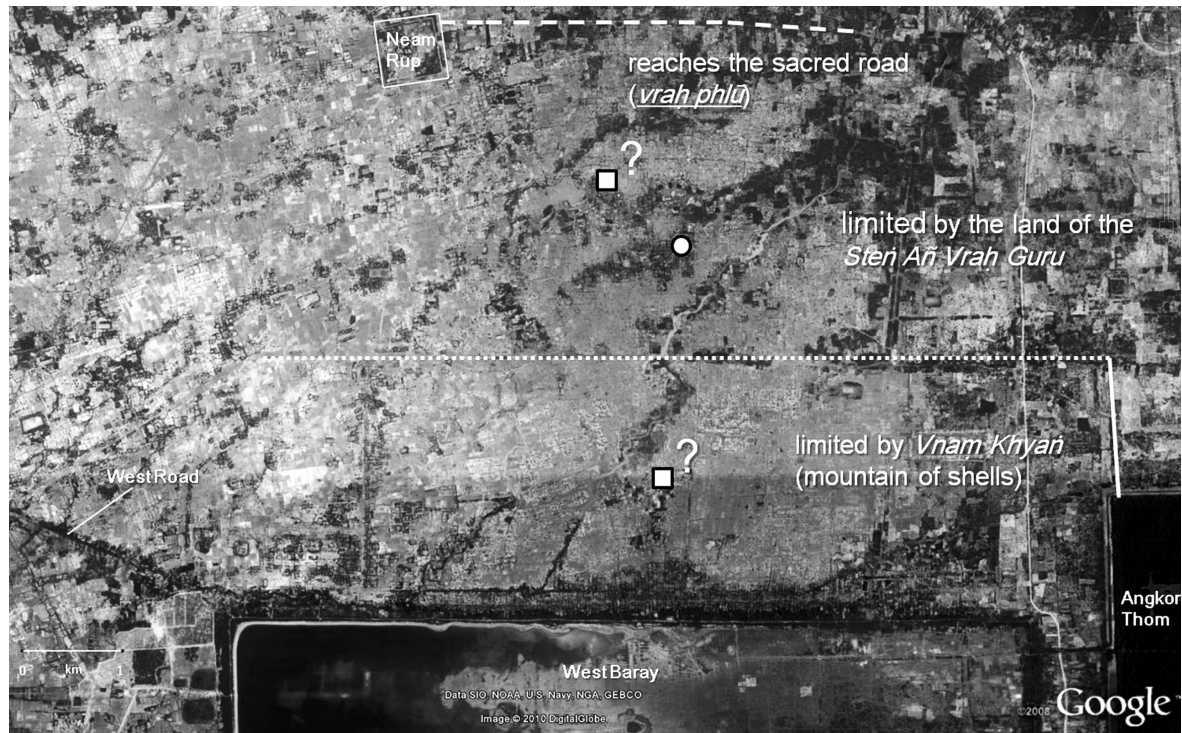
Prasat Kok Po

> The field dedicated to the victor of the gods' enemies (Viṣṇu), named Draṅga, is the limit of this land, to the east, on the road from the capital (*nagarīmārgga*)
>
> K. 814 / CE 1004 [Sk]

The Sanskrit text of Prasat Kok Po, the temple located to the southwest of Prasat Char, mentions a land limit to the east on the road (mārga) from the city (or capital). In the landscape, this could refer to numerous embankments north or south of the site and indicated in Figure 15.8. At the date of the inscription, the West Baray had not yet been built. Hence the land in question might be south of the temple, and the road, quite possibly to Angkor, may be the one seen continuing into the baray — perhaps even to the southern embankment where the important Pre-Angkorian temple of Ak Yum had been established. Another option is that the northern embankment of the baray already existed and served as a road leading to the capital. Regardless, the text clearly indicates that a road from the city was an important landmark in the early 11th century.

Fig. 15.7: Land allocation in the Prasat Char inscription showing temple site (circle) and suggested point of reference (square) based on toponyms (Image courtesy of Google Earth; 2011).
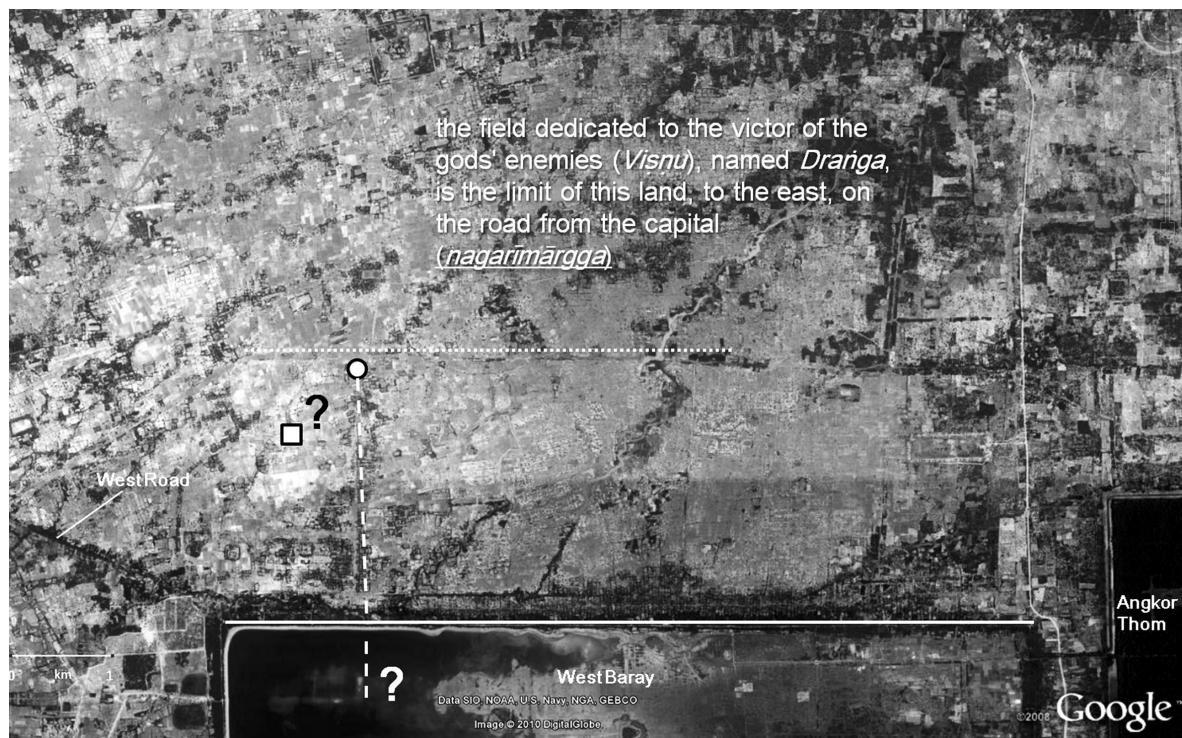
Fig. 15.8: Land allocation in the Prasat Kok Po inscription showing temple site (circle) and suggested point of reference (square) based on toponyms (Image courtesy of Google Earth; 2011).

Prasat Ta Kam Thom

[Given to author's ancestors by king Jayavarman II and now sold]. Limits: to the east the carriage road (*rāthyā*) to the east of the enclosure wall; to the south the cart track (*phlu rddeḥ*); to the west the land of Abhinavagrāma; to the north the carriage road (*rathyā*).

K. 248 / CE 1064 [Kh]

Numerous temple structures have been identified by the Living Angkor Road Project (LARP 2009) in the vicinity of the village of Kol, which is where the Ta Kam Thom inscription was found [Fig. 15.9]. The text mentions minor ox cart roads and carriage roads incorporating both Khmer and Sanskrit terminology. If the starting point for delimiting the land is at or near the temple, the *rathyā* most likely refers to the Northwest road located 1km to the east. The Angkorian rice field pattern south of the temple is clearly visible and extends to the present-day cart road cutting through the fields. Various other sanctuaries in the area are present but their lands are unlikely to overlap. Therefore it is conceivable that the land in question was in the vicinity of these fields, west of the Northwest road. The *rathyā* to the north could also refer to the Northwest road but this is located almost 3km north of the temple. Two closer options are the southwest-northeast embankment connecting to the Northwest road or the east-west embankment just to the north of the temple. Beyond the issue of scale on the northern boundary of the land, the description of roads in the Ta Kam Thom inscription is relatively unambiguous and appears to have archaeological correlates, specifically with the main road.

Prasat Kantop

Limits of the land: to the east it runs along the road (*phlu*) …; to the south-east along Travāṅ Bhāga, to the south it extends to Travāṅ Bhāga towards the west up to the land given by the king; to the south-west it follows the marsh / scree (*rllaṃ*); to the west, it extends to the land of Jlyak Cok … *Teṃ Sannāya*; to the north-west, it follows the sacred road (*vraḥ phlu*), extending to Travāṅ Na Aṃvil; (to the north) it follows the sacred road (*vraḥ phlu*); to the north-east, it extends to Travāṅ Van(a) 'Ās(a).

K. 353 / CE 1046 [Kh]

Situated 145km from Angkor, K. 353 offers a close correspondence between transport terminology and the main road system. In the text, the term *vraḥ phlu* is used twice to describe the northern boundaries of the land. Looking at Figure 15.10, we can see that the Northeast road is located 2km to the northwest and 1.4km to the north of the temple. The association of this road with the term *vraḥ* therefore has some interesting implications [see Fig. 15.2c]. The Northeast road connects Angkor to Vat Phu, a significant religious site for the Khmer from at least the Pre-Angkorian period. Whether the *vraḥ* refers to its religious importance or its status as an imperial construction is a subject for further debate.

### Discussion — Formalized and Non-Formalized Road Words

The Khmer employed several words in two different languages to describe the roads and paths used for movement across their territories — implying different classes of roadways. From the analysis of these terms, some patterns are beginning to emerge. We know that the term *adhvan* in the Sanskrit Preah Khan inscription designated one of the main roads radiating out of Angkor. On the basis of the inscription's listed fire shrines and the centers connected by the Northwest road, this is the only road to be directly identified. The same road is also referred to as a *rathyā* in the Ta Kam Thom inscription. *Mārga* is also used for a road from the city or capital (*nagara*), which, in the Prasat Kok Po inscription, appears to have been Angkor; however, this road doesn't appear to correspond to any of the main roads, but rather to one of the many substantial embankments found around the Greater Angkor region.

It is not surprising that transport terms occur much more frequently in Khmer language texts, given their pragmatic nature. It seems that the commonly mentioned *phlu* and *thnal* would normally not have designated roads built to withstand heavy traffic in Angkorian terms. *Phlu* may often have been the structures we have categorized as secondary roads, serving regional districts and could have

Fig. 15.9: Land allocation in the Prasat Ta Kam Thom inscription showing temple site (circle) (Image courtesy of Google Earth; 2011 Cnes / Spot Image).
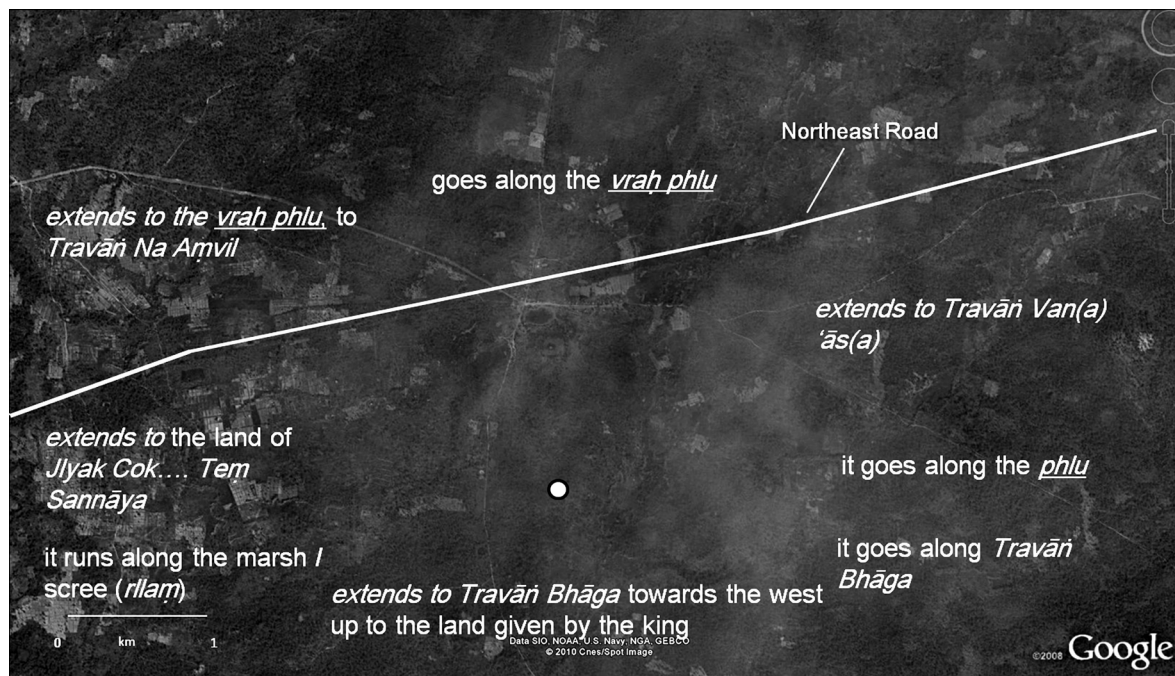
Fig. 15.10: Land allocation in the Prasat Kantop inscription showing temple site (circle) (Image courtesy of Google Earth; 2011 Cnes / Spot Image).

carried carts and local traffic. These were sometimes referred to more precisely as a cart road (*phlu (paṃ)ji ratha or phlū rddeḥ*), crossroad (*phlu tadiṅ*) or large road (*phlu ruṅ*). The last term may, alternatively, have signified a more important road, but this is not substantiated. *Thnal*, embankments and causeways, can be regarded as local structures, and *vraḥ thnal* viewed as "holy ways" leading to a sanctuary or connecting a temple to its *trapeang*. In three texts, there are indications that the *vraḥ thnal* have a relationship to a sanctuary. In K. 873 of Prasat Ben Vien we see "ricefield *Smiṅ* to the south of the sanctuary up to the *vraḥ thnal*"; in the Preah Vihear and Phnom Sandak inscriptions, K. 383B and K. 194B, dated to 1119, "He re-covered with fabric all the towers, courtyards and the *vraḥ thnal* up to the area where the paddy is burnt annually" (see Sahai 2009). In other texts, *thnal* (not *vraḥ thnal*), also appear to be associated with a temple or temple infrastructure: K. 258 (the East Baray); K. 248 (an enclosing wall); K. 235 (a moat); K 933 / CE 1012 (the [access] *thnal* of VKA Parameśvara). We might conclude from this that temple access causeways were *vraḥ thnal* and that the generic *thnal* was used for these as well.

Regarding *vraḥ phlu*, perhaps in the example of K. 258, this sacred road was the Siem Reap River and its embankments, not leading to a temple, but to the "sacred" city Angkor. More generally, *vraḥ phlu* may have been associated with the main roads as, on a regional scale, the term in four out of five instances is mentioned in close proximity to one of these routes. At the local level, this association is relatively clear at Prasat Kantop. However, *vraḥ phlu* could refer to secondary roads that were associated with local temples.

Summary

The aggregation of power by the Angkorian Empire required improved communication and diversity in the transport system. We see in the Khmer texts an increase in the frequency and diversity of transport terminology, particularly in the 11th century when the Khmer expanded rapidly across the region. This includes a shift in focus from *thnal* to *phlu* and the introduction of Sanskrit terms for roads into the Khmer language texts, coincident with a shift to more formalized roads. Overall, the inscriptions do support the view that the Khmer road system was well-established before the reign of Jayavarman VII. Previously, the only definite association of a road term with a main road was with the Sanskrit *adhvan*. Yet, *rathyā* and *mārga* and possibly *patha* may also have been used, as they are found in proximity to the Northwest and West roads. In Khmer language texts, it is suggested that an expression for state-built roads, such as the Northeast Road and possibly the sacred "triple way" created by the Siem Reap diversion, was *vraḥ phlu*. *Vraḥ thnal*, however, appear to have been more localized temple causeways.

This paper has demonstrated how the rich Khmer epigraphic material can be used with archaeological evidence to enhance our understanding of their society. Where toponyms could not be identified, this may have stemmed from an imprecise starting point for assessing the land, the impact of land redevelopment or, more significantly, a limited appreciation of the differing scales for distances alluded to in the texts. This issue of visualizing Khmer concepts of space will be important for scholars when integrating the archaeological and lexical data sets in similar studies.

Text Citations

K. 155, Cœdès 1953, vol. V: 64–8 (II: 16) [door jamb]
K. 157, Cœdès 1954, vol VI: 123–7 (A: VI) [stele]
K. 178, Cœdès 1954, vol. VI: 192–4 (3–11) [door jamb]
K. 175, Cœdès 1954, vol. VI: 173–80 (E: 2; N: 8)
K. 194 and K. 383, Cœdès and Dupont 1943: 134–54 (B: 3–5) [stele]
K. 219, Cœdès 1964, vol. VII: 45–7 (20) [door jamb]
K. 235, Cœdès and Dupont 1943: 57–134 (C: CXIX; D: 85–90; 113–9) [stele]
K. 248, Cœdès 1951, vol. III: 94–6 (5–7) [door jamb]
K. 254, Cœdès 1951, vol. III: 180–92 (A: XV=B–16) [stele]
K. 257, Cœdès 1952, vol. IV: 140–50 (N: 24–5) [door jamb]

K. 258, Cœdès 1952, vol. IV: 175–205 (A: 44–8; 80–4) [stele]
K. 353, Cœdès 1953, vol. V: 133–42 (N: 34–9) [door jamb]
K. 382, Barth and Bergaigne 1885–1893 (C: 13) [pillar]
K. 618, Pou 2001: 224–9 (43–5) [door jamb]
K. 806, Cœdès 1937, vol. I: 73–142 (CCLXXIII) [stele]
K. 814, Cœdès and Dupont 1937 (IV: XXIII) [door jamb]
K. 843, Cœdès 1964, vol. VII: 109–19 (A: 25–31) [stele]
K. 844, Cœdès 1953, vol. V: 173–4: (3–7) [stele]
K. 873, Cœdès 1953, vol. V: 104–5 (13; 17) [stele]
K. 908, Cœdès 1941 (D: CXXII–VI) [stele]
K. 933, Cœdès 1952, vol. IV: 47–52 (B: 18–23) [stele]
K. 1002, Jacques 1968 (B: XXXV) [stele]
K. 1116, Pou 2001: 145–8 (A: 10–3) [stele]

Acknowledgments

Notes

1. [Referencing] All inscriptions mentioned in the text are referenced according to their K number at the end of the paper and a CE date. Many undated inscriptions have been assigned an estimated date range, usually a particular century, by the translator, which is used in the analysis. [Spelling] While variations in spelling of Khmer words are noted in the paper, where some terms occur frequently, the most common form has been used. [Translation] All translations, unless otherwise stated, are our interpretations of the original French translation.
2. Respectively Pre-Angkorian and Angkorian forms.
3. The expression *bhūmi vrai vraḥ ganloṅ* (K. 175E:2), is translated in Jenner's dictionary (2009b) as "the forested land along the sacred way", but by Cœdès as "the forest land of Vraḥ Ganloṅ". In another occurrence (N8), a named village is said to be located (*āy*) at / near Ganloṅ; however, this may refer to a road and not a place. The term *ganlaṅ* is in use today, having meanings including: track, trail, way, path, and a trail habitually used by animals (Jenner 2009b). Recent work by the Living Angkor Project noted the use of this term by locals in relation to the Northwest road (Im Sokrithy, pers. comm., 10 June 2010).

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