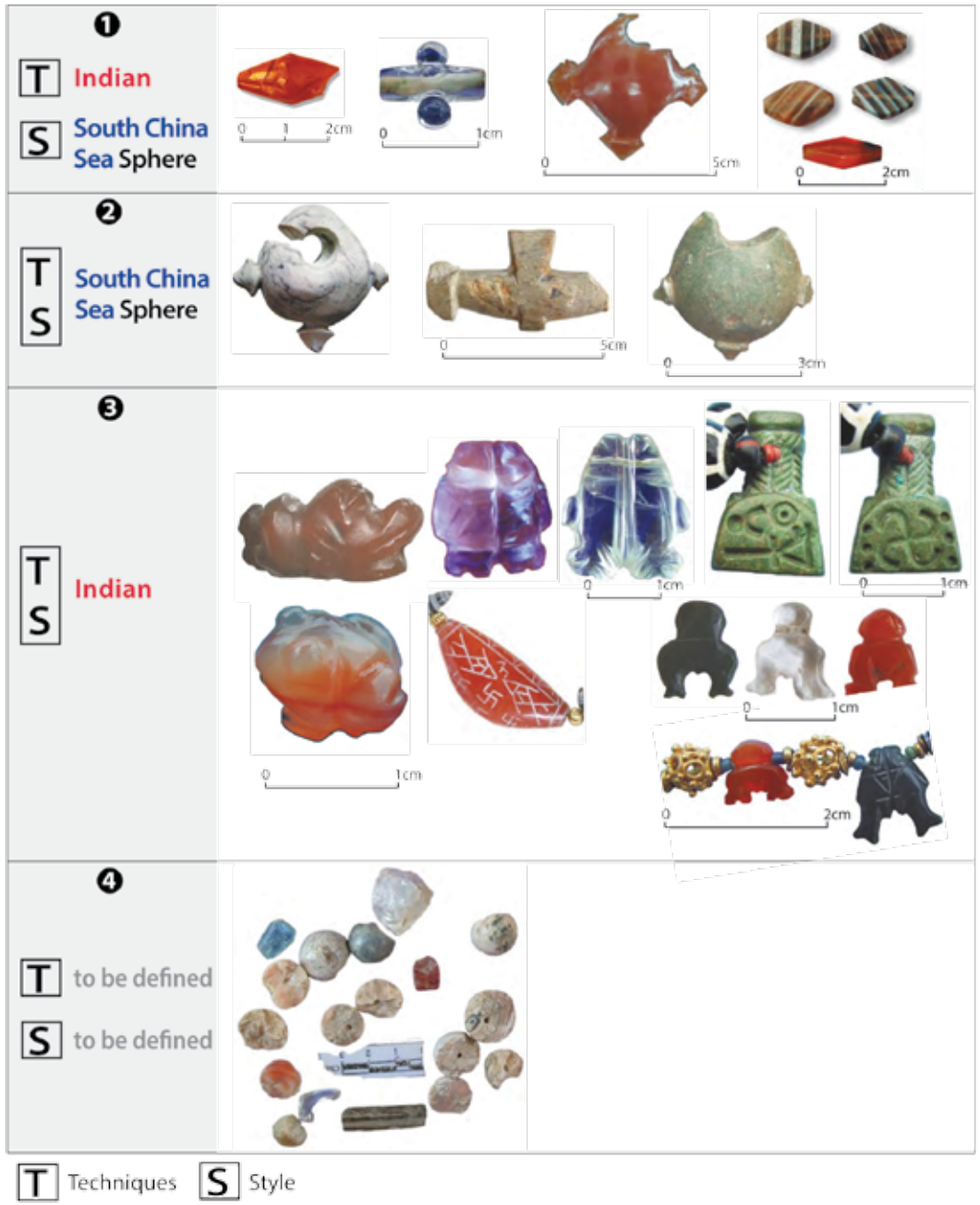


The Development of Coastal Polities in the Upper Thai-Malay Peninsula

Bérénice Bellina *et al.*
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Introduction

The late fourth and third centuries BCE witnessed the political unifications of Mauryan India (including north India after 321 BCE, and most of the subcontinent by 265 BCE) and Han China (206 BCE-220 CE), and the completion of connections between the different regional networks linking the classical western world and Asia. This chain of intertwined networks inaugurated a trading boom and major transnational cultural processes. For Southeast Asia, a producer of several products sought after by her two major economic and political neighbouring regions of China and South Asia, this interconnection opened an avenue to economic and cultural integration. It is argued herein that the inception of this network coincided with the fashioning of political and socio-cultural configurations that predicted certain patterns described for the later historical periods.

It is also argued that the much earlier integration within long-distance maritime networks of pre-existing local and regional networks had already allowed, and encouraged, the emergence of a chain of separate, independent, local "trading" polities both in what is today South Asia and in Southeast Asia. Evidence tends to suggest that the levels of complexity and the sizes of these polities varied, contributing to the development of a hierarchy and possibly to different economic specialisations within this network. Economic specialisation seems to have involved various social groups at distinct socio-political levels of organisation, and occupying different environments. Amidst those emerging exchange-based complex polities, the "port-entrepôts" or port-cities constitute the focus of this essay.

By the final centuries BCE, certain port-cities were already able to concentrate control over both local and far-reaching ties. The economic and cultural vitality of some of these nodes acted as catalysts for the creation of syncretic cultural configurations, amongst which, it is argued, were a shared cosmopolitan-type of urbanism and culture that touched spheres of life ranging from material culture (daily life utensils and technologies) through the ideational sphere and even culinary preferences. Such assertions are based on the results of recent investigations led by the Thai-French archaeological mission, working in the upper Thai-Malay Peninsula since 2005, and by the Thai Fine Arts Department. The essay thus emphasises continuity, in the sense

Opposite Figure 1: *Hard stone ornament types of productions identified at Khao Sam Kaeo based on morpho-technological criteria [Photographs and drawing by Bérénice Bellina].*

that the so-called Silk Road networks did not emerge *ex-nihilo* but developed out of a pre-existing chain of socio-economic and political networks that crystallised in the maritime "Silk Road" trade, allowing the fashioning of broader transregional socio-economic practices, the results of hybridised cultural traits processed in the coastal port-cities.

The Early Importance of Coastal Polities and Transpeninsular Routes

The research presented here has been conducted in the Kra Isthmus area, in the present-day provinces of Chumphon to the east and Ranong to the west, where the peninsula is the narrowest, approximately 50 kilometres. The Isthmus can be seen as a stepping stone between the Bay of Bengal and the South China Sea, and the authors of this collective essay believe that its transpeninsular routes were used even before the Mauryan and Han unifications took place, for early exchange among independent polities located around the two basins, before circumnavigation of the peninsula began to be used in the first century BCE at the earliest (Wheatley 1961: 12). The early use of the northern transpeninsular routes is conjectured and based on a reference in the *Qian Han Shu* which alludes to the mission sent by the Han Emperor Wu (r. 140-87 BCE) to the kingdom of "Huangzhi," said to have been located at Kanchipuram, Tamil Nadu, in southern India (Wheatley 1961: 8-13).

The intensity of the use of transpeninsular routes during the historical periods fluctuated depending on the political situation and the prevalence of piracy. The use of Isthmian land routes, which crossed over very irregular terrain, implies that travel required combining different modes of transport (men, porters, wagons, pack animals – including elephants –, bull carts, boats, rafts, and pirogues). According to the season and the route, the duration of a journey could vary tremendously from a week to a month (Andaya 2008).

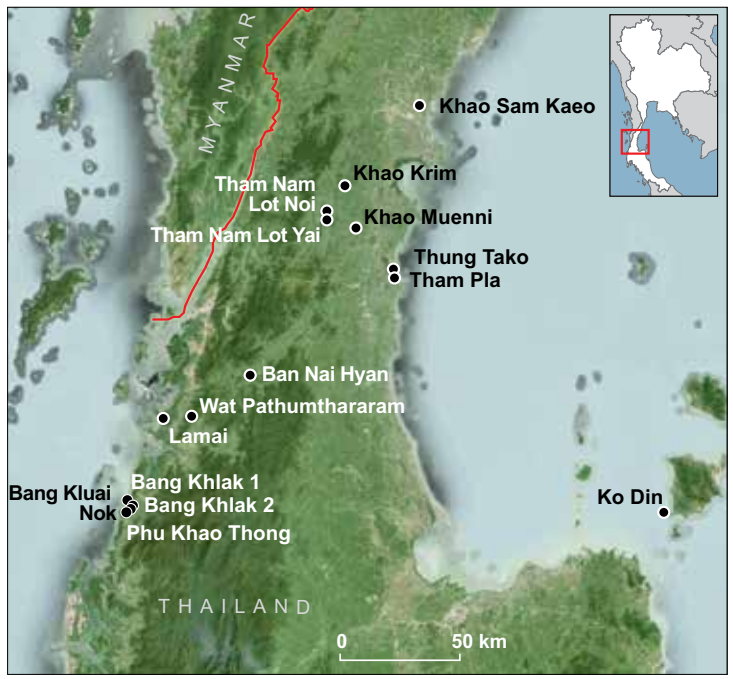
Even if the use of transpeninsular routes was not easy, they had the advantage of shortening the journey. Based on Chinese accounts, Paul Wheatley (1961: 12) estimates that their use saved about four months on a total journey from South Asia to China (twelve months as against sixteen). Until recently, the region and its transpeninsular routes that lack major monumental Brahmanical or Buddhist remains were felt not to have played any major historical role. Michel Jacq-Hergoualc'h (2002: 104), for example, concluded that "Panpan," which is known from Chinese sources to have emerged around the fourth century CE, was the earliest "indianised" city-state of the peninsula, but that the actual remains of fully fledged "indianised polities" only appeared from the fifth century CE onwards and further south from the regions of Chumphon-Ranong.

While the upper part of the peninsula is devoid of monumental remains, its archaeological sites are rich in debris of local industries including metal-, glass- and, stone working, dating in some cases to the Metal Age from the fifth century BCE. It is this richness in industrial remains that opened the avenue to investigate the development of the coastal polities that produced them. The analysis of these remains at certain sites revealed complex technological transfers and hybrid production techniques which suggest that early and close contacts between populations occupying the two maritime basins took place there. These remains and associated structural remnants unravelled complex socio-economic structures and their close association with the emergence of exchange-based, complex polities at the end of the first millennium BCE.

Although work is being conducted at sites of various types in the peninsula, in particular those of the forested interior, this essay focus on partly contemporary port-entrepôts situated on the two coasts of the upper peninsula that might have been located at the two ends of sets of northern transpeninsular routes: Khao Sam Kaeo on the east coast and the complex of Phu Khao Thong/Bang Kluai Nok on the west coast **[Map 1]**.

Khao Sam Kaeo, on the east coast of the peninsula, excavated for five seasons by a French-Thai team, has proved to be an early urban settlement with socio-professional quarters delimited by series of walls and embankment berms, and characterised by a hydraulic system. There, several highly specialised industries implementing foreign technologies were producing prized products, some of which were clearly part of the symbolic assemblage shared by maritime Southeast Asian elites. The overall configuration at Khao Sam Kaeo finds no comparison yet in contemporaneous Southeast Asian settlements but predicts those of certain later maritime city-states that thrived along the fringes of the South China Sea – e.g. sites like Pasai, Banten and Malacca. One of the goals of the archaeological research at Khao Sam Kaeo, however, is to focus on production and its organisation, an aspect rarely and poorly described by later historical sources for these early polities.

Phu Khao Thong, on the west coast of the peninsula, is a smaller site that seems to have been part of a complex of sites in the Kluai



Map 1: *Map showing Khao Sam Kaeo on the east coast and the complex of Phu Khao Thong/ Bang Kluai Nok on the west coast [Drawing by the Thai-French archaeological mission].*

Bay. This complex includes Bang Kluai Nok, which yielded a significant amount of material from South Asia, and, further west, two very small sites, Bang Khlak 1 and Bang Khlak 2.

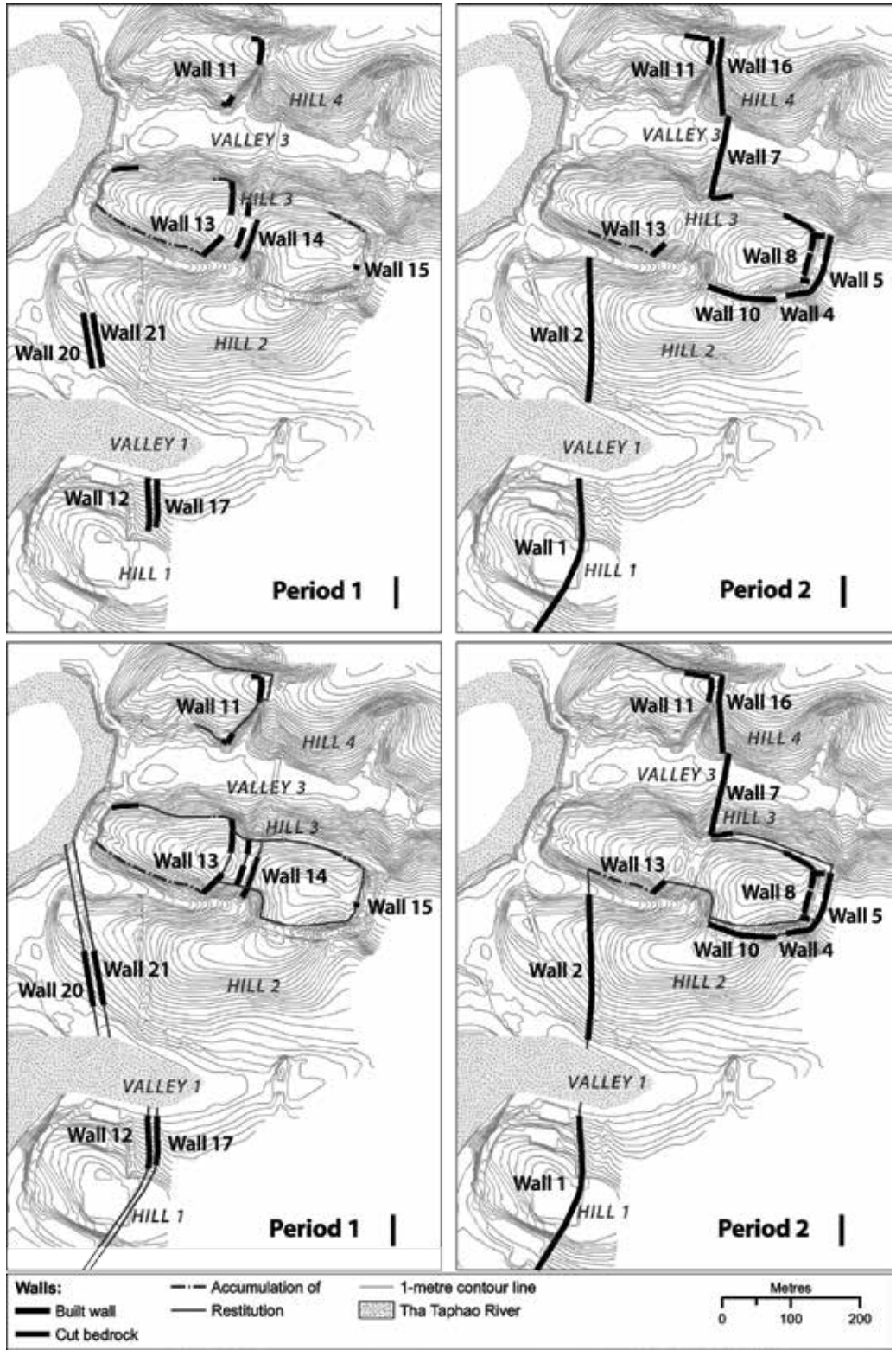
Khao Sam Kaeo

Our excavations at Khao Sam Kaeo from 2005 to 2009 revealed a coastal complex polity of cosmopolitan and proto-urban character whose emergence seems clearly linked to the development of the maritime silk roads. Based on the radiocarbon-dating results of 30 samples consisting of charcoal, wood, and organic material, using conventional (13) and AMS (17) radiocarbon analysis, the site is securely dated to the very early fourth to second or first century BCE.

Located five kilometres from the coast today, the site extends over four hills; it is limited on its western side by the Tha Taphao river, which connects it with the Gulf of Thailand and the China Sea in the east and with resource-rich forests in the north. One hundred and thirty five test pits opened (2 x 2 m.) over an area of 55 hectares revealed an occupation *stricto sensu* over 35 hectares delimited by walls and palisades; however, erosion of the western part of the site by the river makes it difficult to estimate the size of the area it occupied **[Map 2]**. The bordering walls include simple and twin parallel earth walls that were probably surmounted by wooden palisades that do not survive. A ditch usually ran beside the wall. In the steepest parts of the hills, indirect evidence suggests that wooden palisades were placed in cuts in bedrock. These ramparts were probably built during two main phases, the second apparently corresponding to an extension of the site towards the north. The presence of these ramparts expresses a double concern: first to retain sediments upslope and upstream, avoiding the erosion and redeposition that are induced by heavy monsoon rains (Allen 2009), and second to delineate the urban space, delimiting specialised zones (Malakie LaClair 2008: 28-33).

The enclosing system finds no comparison amongst contemporaneous Southeast Asian sites, which, except in the case of the Co Loa citadel in northern Vietnam, consist of a moat surrounding the site. At Khao Sam Kaeo, in contrast, valleys were crossed by earth walls. Their structure varied according to their role. The wall in Valley 1 aimed at maintaining a flooded area, that probably corresponded to a mooring place for boats sailing up the river; the wall prevented its silting-in. On the other hand, the succession of earth walls blocking Valley 3 aimed at containing the water streaming from the hills towards the west; this system kept the western part of the valley dry and retained water in its east, upstream zone, which may have been dedicated to agriculture (Bellina-Pryce & Praon 2008).

As for agriculture, Cristina Castillo's research (2009 and 2011) indicates that dryland cultivation was practised on the hills. The archaeobotanical finds so far include rice and foxtail millet, crops that originated in China, as well as mung beans and horse gram, which are of South Asian origin. Evidence for dryland cultivation is also found further south on the peninsula, where, for example, it supported historical city-states in Kedah, on the north-western coast of peninsular Malaysia, from the early centuries CE to the middle of the second millennium (Allen 1991 and 1999).



Opposite Map 2: *Map of Khao Sam Kaeo suggesting two stages of rampart erection [Drawing by the Thai-French archaeological mission].*

The morphology of the settlement of Khao Sam Kaeo resulted from both the natural landscape and fully human-constructed boundaries. The encircling walls do not trace a distinguishable geometric or other cultural pattern but follow the natural topography, even enhancing it. Their morphology and the configuration of the site are not comparable to those of the contemporaneous irregular concentric-moated sites of northeast Thailand, the Mimotian sites in Cambodia, or the northern Vietnamese citadel of Co Loa, 17 kilometres north of Hanoi (Kim *et al.* 2010).

Khao Sam Kaeo's enclosed pattern finds pertinent comparisons with early cities that emerged in northern Indian polities from the mid-first millennium BCE onwards (Smith 2003: 274-275). Data concerning the morphology, size, structure, and network integration of early historical cities is still sparse, and the changes made during long-term occupations of settlements greatly limit the understanding of their earliest phases. Nonetheless, it appears that cities were situated, for the greater part, on flat lands of low or average height but took advantage of hills, hillsides, and other higher elevations punctuating the landscapes (Deloche 1992). The early cities in northern India were not uniform in plan and seem to have been adapted to local topography, especially when integrating a river. They were delimited by ramparts, each consisting of an earthen structure constructed of fill excavated from an adjacent ditch, and laid out to follow the natural topography (Smith 2003: 275; Deloche 1992). The ramparts served multiple purposes besides warfare, controlling floods, restricting the access of outsiders to markets, encouraging the development of civic identity, and generating social cohesion in part through the need to maintain the ramparts cooperatively at regular intervals. In any case, the ramparts embodied a level of political control capable of mobilising and organising the labour needed to produce and maintain them (Smith 2003: 280-283). As for their size, they surrounded sites that range from more than 241 hectares in area (Pataliputra) to much smaller areas between 16 and 14 hectares (e.g. Bhita) (Coningham 1995: 58). It appears that Khao Sam Kaeo's morphology, location, and encircling boundary wall find more pertinent comparisons with contemporaneous Indian cities than with contemporaneous Southeast Asian settlements, although the cities in both regions at the time were small, independent polities, not parts of a unified nation-state, like today's Thailand or India.

The occupation area at Khao Sam Kaeo was delimited by the walls. No structures other than the hydraulic ones have been found outside the boundary walls. Inhabitants built structures on piles and on terraces set on plateaux and the gentle slopes of the four hills. The bases of the hills and the river banks were also occupied. Occupied zones are characterised by domestic or craft structures of small dimensions (terraces, floors, wells, low walls, drains, and holes left by posts) and by monumental structures (pathways with drains and terraces). The network of habitations on piles and terraces was dense and is characterised by accumulations of terraces and drains.

All craft activities (iron, copper-base alloy, and hard stones) expanded both on the plateaux and at the bases of the hills, except that the lapidary glass, stone, and glass-bracelet craft centres have been identified exclusively in the lower parts of Valley 1 and along the river. The western and low slopes of Hill 2 seem to have held a cemetery, which we could not excavate but which yielded a rich small-material assemblage (hard stone ornaments, glass, and gold) and thick jars.

The study of the occupation of the site combines data from the excavations of the settlement with the results of technological analysis of the artefacts, an approach from the anthropology of techniques (Bellina-Pryce & Praon 2008: 260). Data from technological analysis, integrated in Geographic Information Systems (GIS), reveal a spatial distribution by groups in different zones; a series of statistical tests has established that this distribution is statistically significant (Malakie LaClair 2008: 28-33).

Two clearly defined zones emerge from the spatial analysis: a southern area corresponding to Hills 1 and 2, most likely used for indigenous occupation, and a northern area, including Hills 3 and 4, occupied by various Asian groups: South Asian, Southeast Asian, and East Asian.

The southern part of the site provides objects whose style is South China Sea-related, and locally produced, using:

- techniques found in Southeast Asian areas around the South China Sea, as for instance certain types of shell-incised ceramics that relate to the Sa Huynh-Kalanay complex elaborated by Wilhelm Solheim (Bellina *et al.* 2012);

- Indian raw materials were probably worked under the aegis of a few experienced Indian craftspersons. These productions comprise ornaments in hard stone (Bellina 2003 and 2007; Bellina-Pryce & Praon 2008) and facetted lapidary-worked glass ornaments that is ornaments whose "chaîne opératoire" used some lapidary techniques. The lapidary glass beads and an important proportion of the bracelets are made from a transparent green glass with a m-Na-Al 3 composition, which is particularly abundant in the southern part of the site and has been identified at other contemporaneous sites around the South China Sea (Dussubieux & Bellina, forthcoming). Evidence of primary m-Na-Al 3 glass manufacture in northeastern India indicates a possible source area for the same type of glass found at Khao Sam Kaeo. Both ornaments implemented Indian lapidary techniques (Bellina-Pryce & Praon 2008), and are characterised by a high level of expertise that necessitates an apprenticeship of several years (Roux 2000). The presence of a fully-developed glass industry, involving complex technologies, in the earliest occupation levels makes it very unlikely that this glass tradition evolved locally.

The hard-stone ornament production **[Figure 1]**, referred to as "South China Sea siliceous production," and found in the southern part of the settlement, consists of both finished and unfinished products. This type of production, combining Indian raw material and highly skilled Indian technologies with South China Sea-related style, is the earliest hard stone tradition identified in Southeast Asia, beginning in the fourth century BCE and found in central Thailand (Ban Don Ta Phet), central and southern Vietnam (Sa Huynh sites) and Palawan in the Philippines (Tabon caves) (Bellina 2001: 280, 2003: 291 and 2007: 33).

This type of production shared a workshop with those producing facetted glass beads and bracelets, at the bases of Hills 1 and 2. Other stone-working workshops occupy the summits of Hills 3 and 4, and both iron smithies are located on Hill 3's western and eastern plateaux.

The northern part of the settlement (Hills 3 and 4) yielded evidence for habitation and for different types of craft production associated with various groups from South, Southeast, and East Asia. Some materials were imported; others were locally produced with exogenous or local techniques.

Materials associated with South Asia were found concentrated on both plateaux of Hill 3. They consist of goods that were imported, like Indian rouletted and knobbed ware (Bouvet 2008 and 2012: 318, 429-449); or locally produced. Local wares include some Indian-influenced Fine Wares (Bouvet 2012: 441-443) and hard-stone ornaments whose skilled manufacturing techniques, good-quality materials, and certain stylistic elements appear either South Asian or South Asian-inspired. The stylistic repertoire includes auspicious symbols, for some of which we do not know the ancient name or significance (*triratna*, *minayugala*, *svastika*, *haṃsa*, and *nandipāda*). A third category includes owners' names inscribed on seals in Prakrit, written with Brāhmī characters; some of these are unfinished **[Figure 1]**. This north part of the settlement also yielded evidence for the transfer of Indian metallurgical technologies to local craftspeople, especially those involving high-tin bronze (Murillo-Barosso *et al.* 2010). Fragments of high-tin bronze bowls decorated with Indian motifs comparable to those found in central Thailand (Ban Don Ta Phet and Khao Chamuk) have been recovered at Khao Sam Kaeo by looters (Glover & Bellina 2011: 35; Glover & Shahnaj, this volume). This type of bowl was used by numerous Southeast Asian communities during the late prehistoric period and constitutes one of the pieces of evidence for early contacts with polities in certain areas of the Indian subcontinent (Bellina & Glover 2004). It appears most likely that Khao Sam Kaeo imported the copper (in metal or mineral form), which is lacking in the Thai-Malay Peninsula, and exploited the rich tin ores of the peninsula, to produce high-tin bronze ingots for bowl manufacture or exchange (Pryce *et al.* 2008; Murillo-Barroso *et al.* 2010). Furthermore, Khao Sam Kaeo's high-tin bronze production represents the most ancient evidence for exploitation of the peninsula's vast tin resources, an industry whose importance to Arabic trade during the historical period is well known (Murillo-Barroso *et al.* 2010).

The earliest iron-working evidence recovered on the peninsula comes from a workshop on the eastern plateau of Hill 3, a workshop later covered by a wall but that was active during the fourth to second centuries BCE (Bellina-Pryce & Praon 2008). At Khao Sam Kaeo, smithing was practised but, as opposed to other technologies, seems to have involved only rudimentary skills, while bloomer-smelting was common (Biggs *et al.* 2013).

Materials recovered at Khao Sam Kaeo also attest to links with the insular world of the South China Sea. These include imported ceramics, which represent a minority at the site (Bouvet 2009 and 2012: 433; Bellina *et al.* 2012: 14-15), and ornaments such as bicephalous ornaments and *lingling'o*, which were produced in the workshops of Hill 3 using imported materials **[Figure 1]**. Analysis of nephrites recovered, indicates that part of that material assemblage originated at the eastern Taiwanese source of Fengtian. Green nephrite from Fengtian was used to make these two very specific forms of ear pendant, which were distributed along a network that extended from the Philippines, eastern Malaysia, southern Vietnam, and eastern Cambodia to peninsular Thailand (Hung *et al.* 2007; Hung & Bellwood 2010).

Hills 3 and 4 also yielded what is currently the most abundant Western Han (206 BCE-9 CE) Chinese artefact corpus found outside China and northern Vietnam. Metal artefacts include a complete bronze mirror of the type called *xing yunjing* ("mirror with stars and clouds"). A mirror fragment from Khao Sam Kaeo is fairly similar to Western Han mirrors recovered in central and southern Vietnam (Pryce *et al.* 2008: 11). The Han-style metallic assemblage also includes a prismatic arrowhead comparable to examples found in quantity at Co Loa Citadel near Hanoi in northern Vietnam, an axe, and two bronze seals. One of these seals which has been dated to the first century BCE has a turtle shape and bears an inscription that reads in Chinese: *Lü Yougongyin*, that is "the seal of Lü Yougong," Lü being a common family name during the Han dynasty (206 BCE-220 CE). Eighty-four Han-style ceramic storage-jar sherds were recovered on Hills 3 and 4 **[Figure 2]**. Most are decorated with a seal-on-net design. This net pattern was very popular throughout the Han dynasty, especially in South China around Guangdong (Canton), but also in northern Vietnam, in the province of Thanh Hoa. Twenty sherds are stamped with a "checkered design," a pattern very popular in eastern China during the Han period; jars with this design are numerous in tombs in Zhejiang, Jiangsu, and Anhui provinces. Also related to eastern China are two handles decorated with animal masks (Peronnet & Sachipan, forthcoming).



Figure 2: *Han style ceramics recovered at Khao Sam Kaeo on Hills 3 and 4 [Photographs by Bérénice Bellina].*

Finally, Hill 4 hosted another type of stone production, one characterised by lower-quality mass-production techniques and large numbers of similar or identical items. The extensive and rapid looting that took place on Hill 4 did not give us much opportunity to observe many ornaments or to define the style. It seems to include large spherical and ellipsoid beads and flat agate pendants like those found at prehistoric sites in central (Bellina 2001: 145, 157, Table 5; Bellina 2007: CD Rom) and northeast Thailand, such as Noen U Loke (Theunissen 2007). It is likely that this hill was used at the very late stage of the site's activity.

Discussion on Khao Sam Kaeo

Thriving local populations occupied the southern part of the settlement. They had been participating in the South China Sea sphere of interaction, probably for a long time already. During the period when the site was most active (ca late fifth-second centuries BCE), autonomous polities engaged in exchanges of commodities such as tin and "prestige goods" like Dong Son drums and developed a shared symbolic and material culture.

When the Bay of Bengal and the South China Sea networks were interconnected by nodes such as Khao Sam Kaeo, merchants and also craftspeople could access products and markets from different Southeast Asian networks. At Khao Sam Kaeo, the earliest industries are believed to have involved South Asian craftsmen who used highly skilled traditional Indian techniques to produce very fine-quality goods of types that fit within the South China Sea cultural repertoire. Khao Sam Kaeo's central role in the maritime trade network would have been strengthened initially by the presence of these foreign specialists. These productions at the site would have made it a location that exerted complete control over this important, forest-to-coast, segment of the extra-regional trade network.

Quite plausibly, the few foreign craftspersons who resided at a centre and were involved in producing a mixed range of products enhanced the reputation of the polity hosting them (Bellina 2007: 92). By doing so, these foreign residents probably served the strategies of Khao Sam Kaeo's elite, who were presumably engaged in competitive exchanges with other socio-political systems around the South China Sea, a type of relationship that has been described by Colin Renfrew and John F. Cherry (1986) as "peer polity interaction." This prestige-enhancing role of the artisans probably remained important during the later occupation of the site, when the evidence suggests that some trade items were still being produced by patronised South Asian artisans.

At a later stage of the occupation at Khao Sam Kaeo (perhaps from the late fourth-third centuries BCE?), this cultural sphere integrated more ostentatious South Asian-inspired or "indianised" elements. This evidence includes elements such as the hard-stone products made on the eastern plateau of Hill 3 and also found in the cemetery area, which display symbols belonging to the "Indian" ideational world at that time, that is still undefined Brahmanical/Buddhist/Jain symbols used in small, individual polities on the Indian subcontinent. This "indianised" South China Sea product repertoire differs in many respects from what would be found in contemporaneous South Asian sites. These very fine ornaments display a wide range of morphologies, some of them only rarely or never used for ornaments in South Asia (Bellina, in press). These later "South China Sea indianised" products, motifs, and techniques, whose distribution quickly expanded within the Southeast Asian sites of the late prehistoric period, would have been produced mainly for Southeast Asian populations either in the process of "Indianisation," that is probably the coastal trading elites or those wanting the same symbolic items as those acquired by the former, at Khao Sam Kaeo or elsewhere as for instance at the contemporary site of Ban Don Ta Phet (Glover & Bellina 2011).

At Khao Sam Kaeo, South Asian specialists may have been welcomed by local elites to set up industries that played a role in the economic and political strategies of the South China Sea early trading polities. Their industries which the main author of this essay believes may have been attached to the local elite (Bellina 2007: 91-93), produced elements which became part of this cultural sphere. As early as this period some South Asian representations and technologies began to be transferred to Southeast Asia, especially in the coastal trading polities. The development of these industries and their possible close association to political strategies might be better understood if we look at other contemporaneous sites on the peninsula that were involved at different levels of this trans-Asiatic network.

Phu Khao Thong and Bang Kluai Nok

Phu Khao Thong or "Golden Hill," is located in Suk Samran sub-district, Ranong province, on the Andaman coast. It is a small site that can be interpreted as an entrepôt. It may have been part of a trading complex located along the shoreline of an ancient bay, protected by small islands, such as Ko Kluai, from the waves of the Andaman Sea. Phu Khao Thong is located approximately 20 kilometres from the mouth of Kraburi river, beside which one may find a path that crosses the Isthmus of Kra.

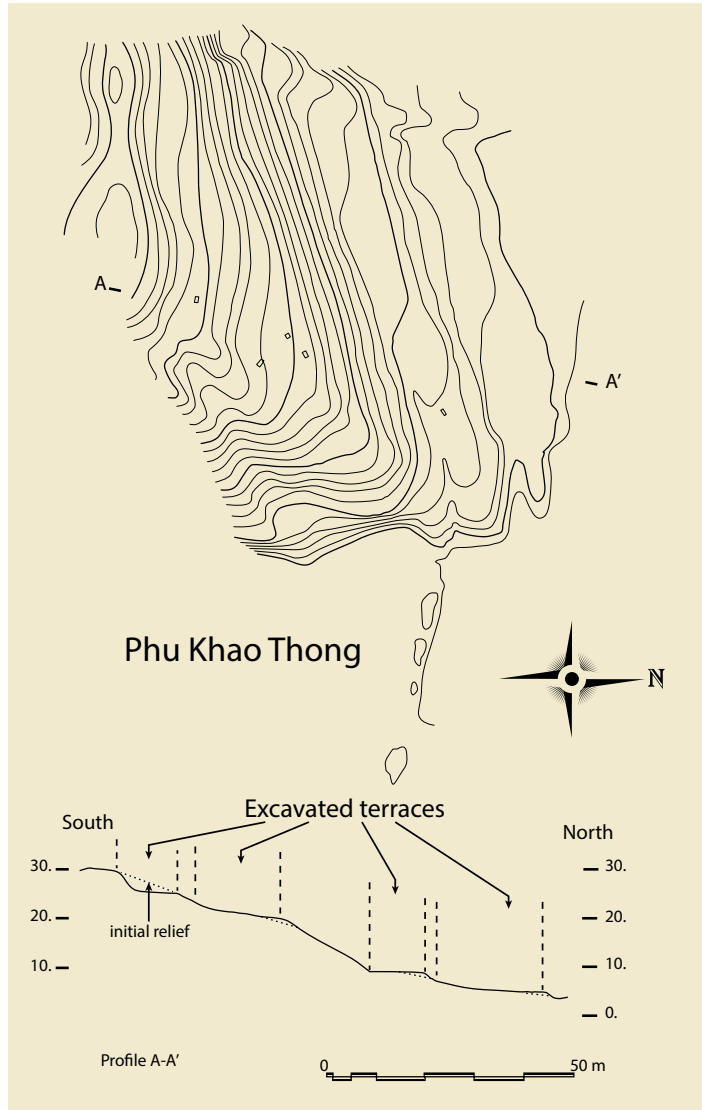
This complex includes a bigger site, Bang Kluai Nok, and two minor sites, Bang Khlak 1, and Bang Khlak 2, both now completely destroyed. They all yielded a variety of imported artefacts and evidence for glass and semi-precious ornament production.

Captain Boonyarit Chaisuwan from the Fine Arts Department conducted excavations at the base of the hill in 2006 and 2008 (Boonyarit 2011). The Thai-French archaeological mission conducted three surveys in May 2006, April 2007 and 2009 consisting of non-systematic survey, section clearing, sampling and material study. Because no in-depth investigations could be conducted, the nature of these severely looted sites is difficult to interpret. The chronological sequence of the sites is based on relative dating, mostly of material collected on the surface.

The relief of the hill is quite steep. Our survey and the mapping done on the accessible part of the hill led us to observe that some terraces had been cut into the rock, as at Khao Sam Kaeo, thus providing flat areas for activities conducted there **[Map 3]**. We did not observe any embankment that would have delimited the site, in contrast with Khao Sam Kaeo.

Phu Khao Thong's early period of activity (perhaps around the third-first centuries BCE?) coincides with the later period of activity at Khao Sam Kaeo. Part of the assemblage is very comparable, for example the Indian ceramics and some morphological types of hard-stone ornaments (flat lozenge, lion, *nandipāda*, etc). But its sequence may have extended

Map 3: *Topographic profile of Phu Khao Thong [Drawing by the Thai-French archaeological mission].*



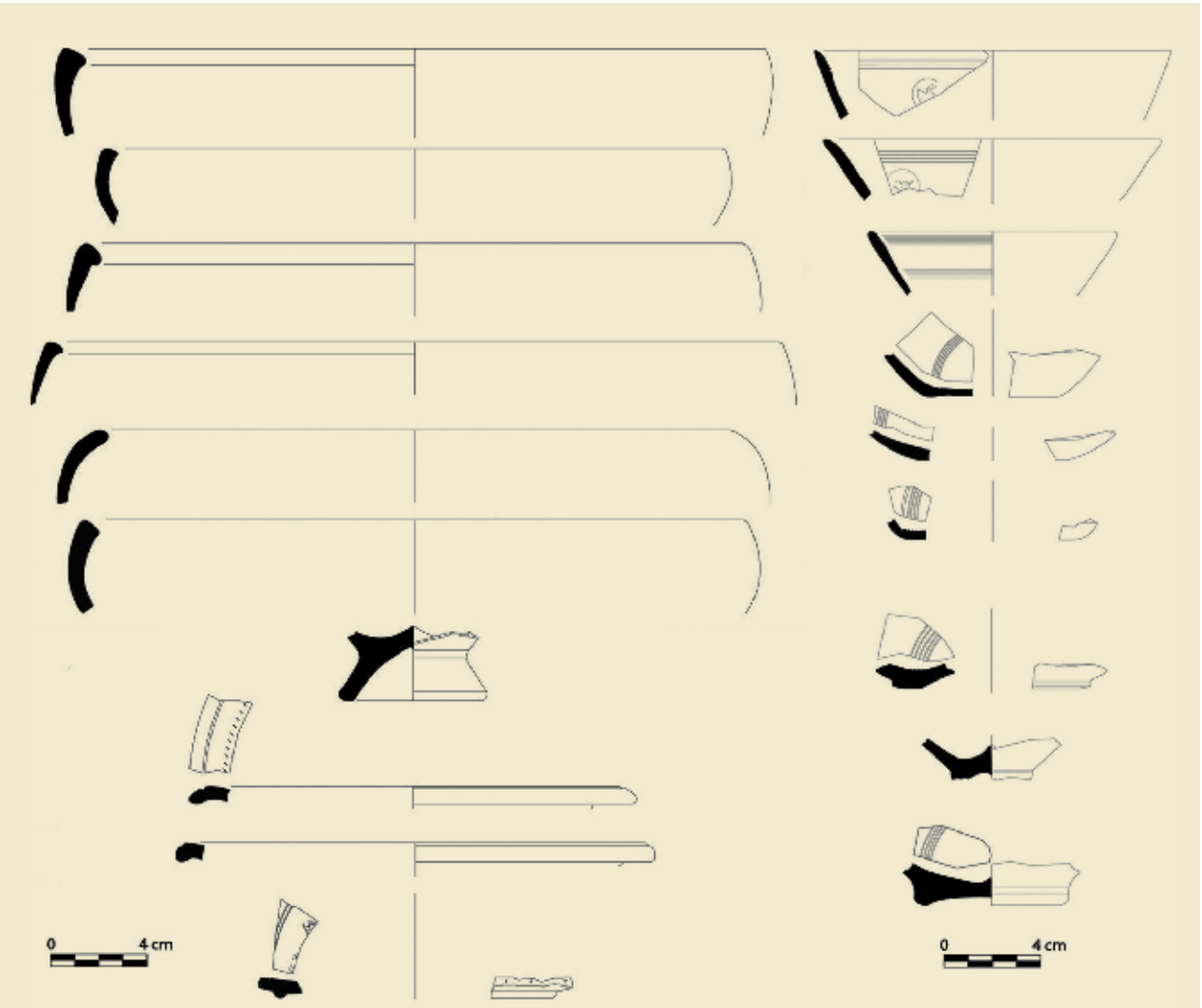


Figure 3: *Fine Wares from Phu Khao Thong and Khao Sam Kaeo [Drawing by Phaedra Bouvet].*

a little later, probably until the second or third century CE. As we would expect from a site located along the Andaman Sea, Phu Khao Thong yielded a significant amount of South Asian material, as well as material from further west. This is well demonstrated with ceramics.

So far, with Khao Sam Kaeo, Phu Khao Thong has yielded a large corpus of Indian Fine Wares. At Phu Khao Thong, Phaedra Bouvet (2012: 287-301) distinguished "rouletted wares," stamped and unstamped bowls, knobbed wares, dishes with a rouletted or chattered rim and a stamped leaf medallion at the centre of the inner base **[Figure 3]**.

Besides Khao Sam Kaeo, sherds of Fine Wares have been recorded on the east coast at Tha Chana (Surat Thani province) and in the caves of Tham Thuai (Thung Tako district, Chumphon province) (Bellina 2009: 122). On the west coast, sherds have been identified at the sites of Bang Kluai Nok and Wat Pathumthararam, a small riverine trading post

probably of second order in Kapoe district (both in Ranong province), and Bang Ro (in Phang-nga province). Bouvet's study demonstrates that Indian imports at Phu Khao Thong are much more numerous and more diverse than the imports at Khao Sam Kaeo, and that the Fine Wares may come from various Indian workshops **[Figure 3]**.

Amongst the sherds found at Phu Khao Thong, one surface find recovered at the base of the hill during the Thai-French mission's 2006 survey is worth mentioning **[Figure 4]**. Prof. Iravatham Mahadevan and Richard Salomon (pers. comm.) tentatively identified three letters on the sherd as part of a fragmentary inscription in Tamil-Brāhmī which would seem to read *tū Ra o*..., possibly part of the Tamil word *tu̲ravōn* or *tu̲ravōr*, which means "ascetic" or "recluse" (Skt, *ṛṣi* or *sannyāsin*), but not of a Buddhist kind (Skt, *bhikṣu*; P., *bhikkhu*). Alternatively, Emmanuel Francis (pers. comm.) proposes *tū̲ravam*, "common black plum," or *tū̲ravu* for a "plum recipient." The inscription may date to the second century CE on a palaeographic basis and is the earliest Tamil inscription found so far in Southeast Asia. Parallels are found in Egypt and the Red Sea area (site of Berenike), where both Tamil-Brāhmī and standard-Brāhmī inscriptions are found. This inscription thus predates a third- or fourth-century CE inscription engraved on a touchstone from Khuan Luk Pat in Krabi province (Amara 1996: 87).



Figure 4: *Sherd bearing three letters, fragmented inscription in Tamil-Brāhmī [Photograph by Bérénice Bellina].*

Fragments of steatite containers **[Figure 5]** have also been found at both Phu Khao Thong and Khao Sam Kaeo. Similar early steatite containers were used or re-used as reliquaries and were found in *stūpa* complexes for example in the region of Gandhāra (modern Pakistan; Jongeward 2012). Their contents varied from bones to deposits of "treasures" (ornaments in ivory, crystal, bronze, and semi-precious stones). The systematic use of such containers as reliquaries, however, remains unproved until they are found in context. These were often and primarily used as household containers for cosmetics, scents, spices, and jewels (Jongeward 2012: 44-46). Any Buddhist connexion for the steatite containers recovered at Khao Sam Kaeo and Phu Khao Thong is therefore wanting and cannot be established at this stage. It would need confirmation through discovery of these containers *in situ* in clearly established Buddhist contexts or structures.

Indirect links with areas even further west, with the Roman world, are suggested by the presence of Roman-like intaglios and pendants, mosaic glass, a granulated gold bead comparable to specimens from Iran, and a fragment of glazed ware. These items place Phu Khao Thong in a trading network that extended beyond the Bay of Bengal. Several intaglios dating to the Roman Imperial period (from the late first century BCE to the third century CE) have been reported from southern Thailand, from Khuan Luk Pat (Krabi province), Tha Chana, another port-entrepôt of the early centuries CE (Surat Thani province), and from both Phu Khao Thong and Khao Sam Kaeo (Borell *et al.*, this volume).



Opposite Figure 5: *Fragments of steatite containers found at Phu Khao Thong and Khao Sam Kaeo [Photographs and drawings by Bérénice Bellina].*

Phu Khao Thong yielded one fragment of turquoise-glazed ware or pottery **[Figure 6]**. Similar discoveries were also found in the peninsula at sites including Takua Pa (Lamb 1963), sites in Kedah, Malaysia (Allen 1988: 483-486), and Kota Cina, Sumatra in Indonesia (Milner *et al.* 1978). Jane Allen (1988: 484) believes that these wares were used by visiting merchants, rather than as trade wares. This type of pottery was probably manufactured in modern-day southern Iraq, for example at the kilns in Old Basra and in southern Iran (Mason & Keall 1991: 52-55). The turquoise ware has a wide distribution, reaching coastal sites around the Indian Ocean from Tanzania to Pakistan and Southeast Asia and travelling as far east as Japan (Glover 2002: 167-173).

This extensive distribution network is further supported by the analysis of glass, part of which was imported from the Mediterranean world (Dussubieux *et al.* 2012). Of particular interest is a fragment of a moulded bowl from Phu Khao Thong made of mosaic glass composed of cane sections fused together, which create spirals of opaque yellow in a matrix of translucent green that Brigitte Borell dates from the late second century BCE to the early first century CE.

Moulded glass bowls, in particular the ribbed type, were part of the traded commodities in the Indian Ocean, from the Red Sea coast to the sites at Pattanam, Arikamedu, and Dharanikota on the Indian subcontinent (Cherian 2010: 271-272). They appear to have been mass-produced from the first century BCE to the first century CE. Another parallel with Arikamedu can be made through two types of glass (potash and m-Na-Ca-Al/Arika glass) present in identical proportions at the two sites, suggesting not only that both sites were ports of entry for these types of glass in South and Southeast Asia but also that Arikamedu and Phu Khao Thong were parts of the same trade sphere, with long-distance connections.

Connections between exchange-based polities on the western coast of the peninsula and South Asia and areas further west are also attested at the neighbouring site of Bang Kluai Nok. This evidence can only be introduced briefly because of the lack of excavation and the resulting dearth of context. Like Khao Sam Kaeo and Phu Khao Thong, the site occupies a small hill that might have been suited for settlement. As at Phu Khao Thong, we did not observe any evidence of embankments.

The site yielded finished siliceous stone ornaments and evidence for glass bead manufacture. It is worth noting that no stone industrial remains seem to have been reported so far at this site, in contrast with the clear workshop evidence found at both Phu Khao Thong and Khao Sam Kaeo. Bang Kluai Nok also yielded an intaglio with a horse motif of Indian inspiration and probably relatively early, perhaps first century BCE (Borell *et al.*, this volume, fig. 7). It also produced a fragmented cameo of Roman Classical inspiration that shows a "Bacchic scene" probably dating from the late first century BCE to early first century CE.



Figure 6: *Fragment of a turquoise glazed ware or pottery recovered at Phu Khao Thong [Photograph by Bérénice Bellina].*

In addition to the already-mentioned Fine Wares, Bang Kluai Nok yielded evidence from the South China Sea and mainland Southeast Asia in the form of a coin of "rising sun and *śrīvatsa*" Type A. Similar coins have been attributed to sites in Myanmar (Halin and Binnaka), to the Dvāravatī realm in Thailand (U Thong),

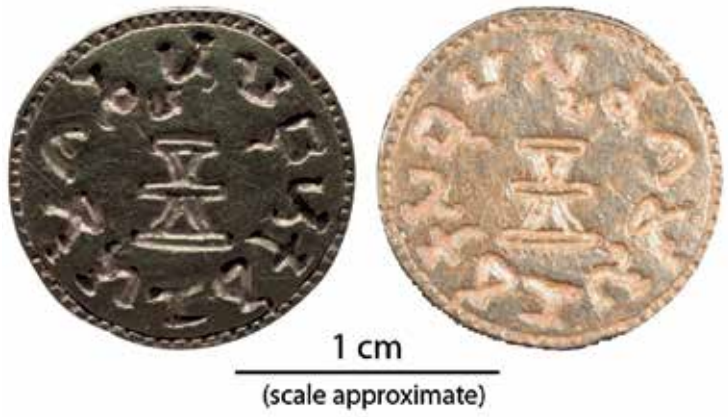


Figure 7: *Original golden seal with a Brāhmī inscription from Bang Kluai Nok (left) and its mirror image (right) [Photograph by Boonyarit Chaisuwan].*

and to the Funan region in Cambodia and southern Vietnam (found near Ho Chi Minh City and at Oc Eo) (Wicks 1992: 117).

Like Phu Khao Thong, Bang Kluai Nok has also yielded a significant Brāhmī inscription in reverse on a golden seal **[Figure 7]**. This inscription is in Sanskritised-Prakrit and surrounds a representation of a *bhadrapīṭha* or auspicious seat/throne. Once inverted, Oskar von Hinüber and Peter Skilling have been able to read the inscription as *brahaspatiśarmasanāvikasa* which can be rendered as "Of the sailor/captain Brahaspatiśarma." Skilling believes it may date to the first to second century CE and von Hinüber to the fourth century CE at the latest (pers. comm.). This inscription adds to the known *mahānāvika* references such as the famous "Buddhagupta" stone slab, which was found in Seberang Perai (formerly Wellesley province), Malaysia (Chhabra 1935: 22; Allen 1988: 253-265).

Finally, Bang Kluai Nok also provided material from China, in the form of two fragments of Eastern Han (25-220 CE) mirrors, thus providing further argument for the possible use of the transpeninsular routes between the east and the west coasts. The maritime route would have been a very long journey, whereas at this point, the Isthmus is narrow and could be crossed relatively quickly on a pathway like the one mentioned above, beside the mouth of the Kraburi river.

Discussion on Phu Khao Thong and Bang Kluai Nok

We are well aware that the lack of in-depth investigation at the sites on the west coast and their destruction greatly limit interpretation of their economic and political organisation as well as any comparisons with Khao Sam Kaeo on the east coast.

The first limitation is affected by the hazy respective dating of Phu Khao Thong and Bang Kluai Nok. Both sites contain materials, most out of context, that date stylistically to the late centuries BCE or the early centuries CE. Phu Khao Thong produced late-century BCE material similar to some at Khao Sam Kaeo, such as the Fine Wares (rouletted ware, stamped ware, etc.) and the Sasanian-Islamic turquoise-glazed ware, which dates to between the seventh and the eleventh or twelfth century CE. Bang Kluai Nok yielded fewer Fine Ware sherds than Phu Khao Thong, but produced Eastern Han material, as well as intaglios and cameos that probably date to the initial centuries CE; it also provided mid-to-late first-millennium CE objects such as the *śrīvatsa* coin. Were Phu Khao Thong and Bang Kluai Nok active exactly at the same time? Was there a period when their activities overlapped, or did Bang Kluai Nok emerge after Phu Khao Thong's decline?

A second limitation affects our understanding of the specialisation at each of the four sites. Phu Khao Thong appears small but concentrates more evidence for ornament production (glass and stone industries) than Bang Kluai Nok. Meanwhile, Bang Kluai Nok's topography appears more appropriate for settlement, and the site yielded evidence for more recent occupation. On a political level, the question remains as to whether they belong to the same political entity, a polity that would have thrived from the last century BCE until about the mid-late first millennium CE. No definitive answer can be provided at this stage. Khao Sam Kaeo was apparently an enclosed settlement housing various foreign communities and trading and industrial activities. In contrast, the two sites on the west coast do not provide evidence for boundary walls, for hydraulic systems, or for the concentration of as many activities as in Khao Sam Kaeo. Phu Khao Thong might have hosted South Asian traders, given the extensive numbers of Indian wares found there. However, again, the absence of in-depth investigation prevents our discussing any potential distribution of different activities within various portions of the site area.

What roles were played by Bang Khlak 1 and Bang Khlak 2, the two neighbouring sites that yielded stone-production evidence? What were their relationships with Phu Khao Thong and Bang Kluai Nok? As far as we are aware, Bang Kluai Nok has not yielded any evidence for industrial activities or their distribution networks.

Finally, what was the role of Bang Kluai Nok, compared to its neighbour Phu Khao Thong? If the sites were partially contemporary, were their activities complementary, with Phu Khao Thong serving as a port-entrepôt and specialised industrial site, and Bang Kluai Nok serving as the area's main settlement? These hypotheses still need to be confirmed by more extensive research and surveys at the sites.

Conclusion

The three sites, Khao Sam Kaeo in the east and Phu Khao Thong and Bang Kluai Nok in the west, were clearly trading nodes on the maritime trade routes linking the South China Sea and the Bay of Bengal with their extensions further east and west **[Map 1]**. A major part of the organisation of the political and economic networks of these sites is unfortunately missing, thus restricting evaluation of their capacity, extensions, evolution, and local peculiarities at this developing stage.

Our understanding of the subsistence modes and agricultural regimes of these coastal trading posts, and in particular the western sites, is still very limited. At both Khao Sam Kaeo and Phu Khao Thong, the results of archaeobotanical research corroborate the technological reconstruction of the industries, demonstrating that the sites participated in the exchange of crops coming from both the East and the West. Evidence also indicates that Khao Sam Kaeo had the capacity to develop an agricultural system able to sustain local as well

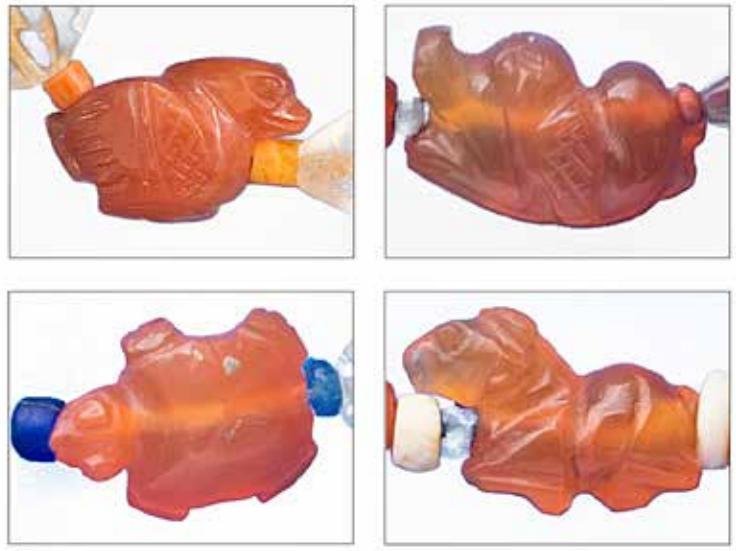


Figure 8: *Examples of ornaments found in Khao Muenni caves of the interior in Thung Raya sub-district, Sawi district, Chumphon province [Photographs by Bérénice Bellina].*

as transient populations. It is clear from the volume of rice remains recovered at the site that it was the main cereal consumed at Khao Sam Kaeo. Geomorphological evidence suggests that many areas near the settlement could have been used for dryland cultivation, as could the hill slopes and plateaux within the settlement. The archaeobotanical study conducted by Cristina Castillo at Phu Khao Thong (sampling during surveys conducted in 2007 and 2009) shows that the processing of rice was taking place on-site and that rice was again the most important cereal, although not enough evidence is available yet to help us understand where agriculture was taking place and where the rice originated.

Indian pulses are represented more prominently at Phu Khao Thong than at Khao Sam Kaeo, suggesting that they were probably brought in by the Indian population, as some of these pulses would not have been available in peninsular Thailand on their arrival. On the other hand, no assertion can be made about the subsistence base for Bang Kluai Nok, where no archaeobotanical study has been conducted, and no information is available concerning the agricultural regime as to level of production, crop variety, or destinations of the various products.

We will conclude by saying that achieving an integrated view of the economic, political, and social networks represented at these sites requires not only considering the trans-Asiatic networks and their populations but also the various local ones (i.e. interior, coastal, from the sea), an approach Laura Lee Junker (1999) has applied in her research concerning later sites in the Philippines and that researchers have applied in other areas including peninsular Malaysia and Sumatra (e.g. Miksic 1979; Allen 1988). What potential change did integration within a transregional network bring to these interior populations and their environments? Alternatively, how did those local populations affect the long-distance networks? These populations, based on the evidence for interior groups studied by later ethnographic observers including F.L. Dunn (1975), lived in close association with the forest, knew its products intimately, and exploited their environments for the benefit of the coastal polities, via networks of riverine way-stations (e.g. Bronson 1977). According to this scheme, the leaders at stations in the network could control the traffic, whether of goods or travellers, for their own benefit and that of the local people who supported them.

The Thai-French mission is only beginning to investigate interior regions, which almost certainly constituted vital parts of the hinterlands that supported the complex coastal polities. A few discoveries of artefacts **[e.g. Figure 8]** at sites in the interior that are similar to those found at coastal sites suggest that it may eventually be possible to identify, for periods as early as the final centuries BCE, the kind of symbiotic relationship that is described in ethnographic accounts. In the context of the multiple social and political strategies that were used by the various populations, and based on ethnographic extrapolations, it seems likely that these artefacts might have been used as gifts to strengthen alliances with other elites, as well as to recompense the loyalty of subordinates (Bronson 1977; Junker 1990: 176-177). This study would allow us to address whether, some groups became highly economically specialised, some collecting forest products or precious ores in the interior, others becoming specialised in the offshore collection of sea products for the maritime trade networks and so on. In this way, a much earlier "globalisation" would have thus contributed significantly to the creation of cultural identities in Southeast Asia.

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References

Allen, Jane
1988 *Trade, Transportation, and Tributaries: Exchange, Agriculture, and Settlement Distribution in Early Historic-period Kedah, Malaysia*. Doctoral Dissertation. Mānoa: University of Hawai'i. [Unpublished]

1991 Trade and Site Distribution in Early Historic Period Kedah: Geoarchaeological, Historic and Locational Evidence. *Bulletin of the Indo-Pacific Prehistory Association* 10: 307-319.

1999 Managing a Tropical Environment: State Development in Early Historical-era Kedah, Malaysia. In Bacus, E. & Lucero, L. (eds), *Complex Polities in the Ancient Tropical World*. Arlington: American Anthropological Association, pp. 131-150.

2009 Étude géomorphologique : paléo-drainage, érosion, gestion des sols et agriculture. In Bellina, B. (ed.), *Campagne de fouilles à Khao Sam Kaeo. Campagne 2009 : rapport pour le Ministère des Affaires Étrangères*. Paris: CNRS. [Unpublished]

Amara Srisuchat
1996 Merchants, Merchandise, Markets: Archaeological Evidence in Thailand Concerning Maritime Trade Interaction between Thailand and Other Countries before the 16th Century A.D. In Amara Srisuchat (ed.), *Ancient Trades and Cultural Contacts in Southeast Asia*. Bangkok: The Office of the National Culture commission, pp. 237-266.

Andaya, Leonard Y.
2008 *Leaves of the Same Tree. Trade and Ethnicity in the Straits of Melaka*. Honolulu: University of Hawai'i Press.

Bellina, Bérénice
2001 *Témoignages archéologiques d'échanges entre l'Inde et l'Asie du Sud-Est, morphologie, morphométrie et techniques de fabrication des perles en agate et en cornaline (VIe siècle avant notre ère – VIe siècle de notre ère)*. Doctoral Dissertation. Paris: Sorbonne Nouvelle. [Unpublished]

2003 Beads, Social Change and Interaction between India and Southeast Asia. *Antiquity* 77: 285-297.

2007 *Cultural Exchange between India and Southeast Asia: Production and Distribution of Hard Stone Ornaments, 6th c. BC-6th c. AD*. Paris: Éditions de la Maison des sciences de l'homme.

2009 Carte archéologique régionale : repérage et prospections à l'échelle régionale. In Bellina, B. (ed.), *Campagne de fouilles à Khao Sam Kaeo. Campagne 2009 : rapport pour le Ministère des Affaires Étrangères.* Paris: CNRS. [Unpublished]

In Press Maritime Silk Roads' Ornament Industries: Socio-political Practices and Cultural Transfers in the South China Sea. *Cambridge Journal of Archaeology*.

Forthcoming Stone Ornament Production System's Sociopolitical Environment, Social Identities and Cultural Transfers in Khao Sam Kaeo. In Bellina, B. (ed.), *Khao Sam Kaeo: An Early Industrial Port-city between the Indian Ocean and the South China Sea.* Paris.

Bellina, Bérénice & Glover, Ian C.
2004 The Archaeology of Early Contacts with India and the Mediterranean World from the Fourth Century BC to the Fourth Century AD. In Glover, I.C. & Bellwood, P. (eds), *Southeast Asia from the Prehistory to History.* London: Routledge/Curzon Press, pp. 68-88.

Bellina-Pryce, Bérénice & Praon Silapanth
2008 Weaving Cultural Identities on Trans-Asiatic Networks: Upper Thai-Malay Peninsula – An Early Socio-political Landscape. *Bulletin de l'École française d'Extrême-Orient* 93 [for 2006]: 257-293.

Bellina, Bérénice, Bacus, Elizabeth, Pryce, Thomas Oliver & Wisseman Christie, Jan (eds)
2010 *50 Years of Archaeology in Southeast Asia: Essays in Honour of Ian Glover.* Bangkok: River Books.

Bellina, Bérénice, Epinal, Guillaume & Favereau, Aude
2012 Relations et échanges en Mer de Chine Méridionale à la fin de la préhistoire : début de caractérisation du matériel céramique de la péninsule Thaïe-Malaise. *Archipel* 84: 7-33.

Biggs, Lynn, Bellina, Bérénice, Martinon-Torres, Marcos & Pryce, Thomas Oliver
2013 Prehistoric Iron Production Technologies in the Upper Thai-Malay Peninsula: Metallography and Slag Inclusion Analyses of Iron Artefacts from Khao Sam Kaeo and Phu Khao Thong. *Archaeological and Anthropology Science* 5(4): 311-329.

Boonyarit Chaisuwan
2011 Early Contacts between India and the Andaman Coast in Thailand from the Second Century BCE to the Eleven Century CE. In Manguin, P.-Y., A. Mani & Wade, G. (eds), *Early Interactions between South and Southeast Asia. Reflections on Cross-Cultural Exchange.* Singapore: Institute of Southeast Asian Studies, pp. 84-111.

Bouvet, Phaedra
2008 Étude préliminaire de céramiques « indiennes » et indianisantes du site de Khao Sam Kaeo. *Bulletin de l'École française d'Extrême-Orient* 93 [for 2006]: 353-390.

2009 Rapport sur la céramique à Khao Sam Kaeo, saison 2009. In Bellina, B. (ed.), *Campagne de fouilles à Khao Sam Kaeo. Campagne 2009 : rapport pour le Ministère des Affaires Étrangères.* Paris: CNRS. [Unpublished]

2012 *Interactions culturelles entre l'Asie du Sud-Est et l'Inde aux 4e-2e s. av. J.-C.: étude technologique des céramiques de Khao Sam Kaeo (Thaïlande péninsulaire, province de Chumphon)*. Doctoral Dissertation. Nanterre-La Défense: Université Paris-Ouest. [Unpublished]

Bronson, Bennet
1977 Exchange at the Upstream and Downstream Ends: Notes Towards a Functional Model of the Coastal State in Southeast Asia. In Hutterer, K. (ed.), *Economic Exchange and Social Interaction in Southeast Asia: Perspectives from Prehistory, History and Ethnography.* Ann Arbor: Michigan Papers on South and Southeast Asia 13, pp. 39-52.

Castillo, Cristina
2009 The Archaeobotany of Khao Sam Kaeo: 2009 Season. In Bellina, B. (ed.), *Campagne de fouilles à Khao Sam Kaeo. Campagne 2009 : rapport pour le Ministère des Affaires Étrangères.* Paris: CNRS. [Unpublished]

2011 Rice in Thailand: The Archaeobotanical Contribution. *Rice* 4(3/4): 114-120.

Cherian, P.J.
2010 Pattanam Excavations and Explorations 2007 & 2008: An Overview. In Forte, M., Campana, S. & Liuzza, C. (eds), *Space, Time, Place. Third International Conference on Remote Sensing in Archaeology 17th-21st August 2009, Tiruchirapalli, Tamil Nadu, India*. Oxford: Archaeopress, pp. 269-274.

Chhabra, B.C.
1935 Expansion of the Indo-Aryan Culture during the Pallava Rule, as Evidenced by Inscriptions. *Journal of the Asiatic Society of Bengal* 1: 1-64.

Coningham, R.A.E.
1995 Dark Age or Continuum? An Archaeological Analysis of the Second Emergence of Urbanism in South Asia. In Allchin, F.R. (ed.), *The Archaeology of Early Historic South Asia: The Emergence of Cities and States.* Cambridge: Cambridge University Press, pp. 54-72.

Deloche, Jean
1992 Étude sur les fortifications de l'Inde. II. Les fortifications de l'Inde ancienne. *Bulletin de l'École française d'Extrême-Orient* 79: 89-131.

Dunn, F.L.
1975 *Rain-forest Collectors and Traders – A Study of Resource Utilization in Modern and Ancient Malaya.* Kuala Lumpur: Malaysian Branch of the Royal Asiatic Society.

Dussubieux, Laure, Lankton, James, Bellina, Bérénice & Boonyarit Chaisuwan
2012 Early Glass Trade in South and Southeast Asia: New Insights from Two Coastal Sites, Phu Khao Thong in Thailand and Arikamedu in South India. In Tjoa-Bonatz, Mai Lin, Reinecke, Andreas & Bonatz, Dominik (eds), *Crossing Borders: Selected Papers from the 13th International Conference of the European Association of Southeast Asian Archaeologists, Volume 1*. Singapore: NUS Press, pp. 307-338.

Dussubieux, Laure & Bellina, Bérénice
Forthcoming Glass from Early Southeast Asian Producing and Trading Centre. In Bellina, B. (ed.), *Khao Sam Kaeo: An Early Industrial Port-city between the Indian Ocean and the South China Sea.* Paris.

Glover, Ian C.
2002 West Asian Sassanian-Islamic Ceramics in the Indian Ocean, South, Southeast and East Asia. *Man and Environment* 27(1): 165-177.

Glover, Ian C. & Bellina, Bérénice
2011 Ban Don Ta Phet and Khao Sam Kaeo: The Earliest Indian Contacts Re-assessed. In Manguin, P.-Y., Mani, A. & Wade, G. (eds), *Early Interactions between South and Southeast Asia: Reflections on Cross-Cultural Exchange.* Singapore: Institute of Southeast Asian Studies, pp. 17-42.

Hung, H.-C. & Bellwood, Peter
2010 Movement of Raw Materials and Manufactured Goods Across the South China Sea after 500 BCE: From Taiwan to Thailand, and Back. In Bellina, B., Bacus, E. A., Pryce, T. O. & Wisseman Christie, J. (eds), *50 Years of Archaeology in Southeast Asia. Essays in Honour of Ian Glover*. Bangkok: River Books, pp. 234-245.

Hung, H.-C., Iizuka, Y., Bellwood, P., Nguyen, K.D., Bellina, B., Silapanth, P., Dizon, E., Santiago, R., Datani, I. & Manton, J.H.
2007 Ancient Jades Map 3,000 Years of Prehistoric Exchange in Southeast Asia. *Proceedings of the National Academy of Sciences* 104, pp. 19745-19750.

Jacq-Hergoualc'h, Michel
2002 *The Malay Peninsula. Crossroads of the Maritime Silk-Road (100 BC-1300 AD).* Leiden: Brill.

Jongeward, David
2012 Survey of Gandharan Reliquaries. In Jongeward, D.E., Salomon, R. & Baums, S. (eds), *Gandharan Buddhist Reliquaries*. Seattle: University of Washington Press, pp. 39-110.

Junker, Laura Lee
1990 The Organization of Intra-regional and Long-distance Trade in Prehispanic Philippine Complex Societies. *Asian Perspectives* 29(2): 167-209.

1999 *Raiding, Trading, and Feasting – The Political Economy of Philippine Chiefdoms*. Honolulu: University of Hawai'i Press.

Kim, Nam C., Lai Van Toi & Trinh Hoang Hiep
2010 Walls, Warfare, and Political Centralization: Recent Excavations at Vietnam's Ancient Capital of Co Loa. *Antiquity* 84:1011-1027.

Lamb, Alastair
1963 Indianized Inscriptions in North-western Malaya. *Tamil Culture* 10(1): 75-86.

Malakie LaClair, Julie
2008 *Identifying Patterns between the Looting Pits: Spatial Analysis at Khao Sam Kaeo.* Master Thesis. London: University of London. [Unpublished]

Mason, R.B. & Keall, E.J.
1991 The Abbasid Glazed Wares of Siraf and the Basra Connection: Petrographic Analysis. *Iran* 29: 51-66.

Miksic, John N.
1979 *Archaeology, Trade and Society in Northeast Sumatra.* Doctoral Dissertation. Ithaca: Cornell University. [Unpublished]

Milner, Anthony C., McKinnon, Edward E. & Sinar, Tengku L.
1978 A Note on Aru and Kota Cina. *Indonesia* 26: 1-42.

Murillo-Barroso, Mercedes, Pryce, Thomas Oliver, Bellina, Bérénice & Martinon-Torres, Marcos
2010 Khao Sam Kaeo – An Archaeometallurgical Crossroads for Trans-asiatic Technological Traditions. *Journal of Archaeological Science* 37: 1761-1772.

Peronnet, Sophie & Sachipan Srikanlaya
Forthcoming The Chinese-related Ceramic at Khao Sam Kaeo. In Bellina, B. (ed.), *Khao Sam Kaeo: An Early Industrial Port-city between the Indian Ocean and the South China Sea.* Paris.

Pryce, Thomas Oliver, Bellina, Bérénice & Bennett, Anna
2008 The Development of Metal Technologies in the Upper Thai-Malay Peninsula: Initial Interpretation of the Archaeometallurgical Evidence from Khao Sam Kaeo. *Bulletin de l'École française d'Extrême-Orient* 93 [for 2006]: 295-316.

Renfrew, Colin & Cherry, John F. (eds)
1986 *Peer Polity Interaction and Socio-political Change.* Cambridge: Cambridge University Press.

Roux, Valentine (ed.)
2000 *Cornaline de l'Inde : des pratiques techniques de Cambay aux techno-systèmes de l'Indus.* Paris: Éditions de la Maison des sciences de l'homme.

Smith, Monica L.
2003 Early Walled Cities of the Indian Subcontinent as "Small Worlds." *The Social Construction of Ancient Cities.* Washington, DC: Smithsonian Institute Press, pp. 269-289.

Theunissen, Robert
2007 The Agate and Carnelian Ornaments. In Higham, C., Kijngam, A. & Talbot, S. (eds), *The Excavations of Noen U-Loke and Non Muang Kao.* Bangkok: Fine Arts Department, pp. 359-377.

Wheatley, Paul
1961 *The Golden Khersonese. Studies in the Historical Geography of the Malay Peninsula before A.D. 1500*. Kuala Lumpur: University of Malaya Press.