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## Contacts between the Upper Thai-Malay Peninsula and the Mediterranean World

BRIGITTE BORELL, BÉRÉNICE BELLINA &  
BOONYARIT CHAISUWAN

### Introduction

In the last centuries BCE and the early centuries CE, the coastal regions of mainland Southeast Asia were linked to a network of maritime routes. Recent studies based on archaeological finds demonstrated the active contacts between South Asia and the upper part of the Thai-Malay Peninsula. However, for the sea routes between the coasts of southern China and India, the Thai-Malay Peninsula acts as a huge barrier. In recent years some sites on the western and eastern coast of the Isthmus of Kra area have been receiving more and more attention from archaeologists – but sadly, also from looters, who find digging for artefacts very profitable. These sites yielded an array of finds imported from several rather distant regions. It appears that different systems of maritime routes were here connected by transpeninsular routes, as had already been concluded from a passage in the annals of the Western Han dynasty (206 BCE–8 CE) describing a sea voyage from the southern Chinese ports in the Gulf of Tonkin to India. Judging from the finds, the networks connecting different maritime routes reached as far as China in the east, and in the west to the western coasts of the Indian Ocean, and from there via the Red Sea ultimately to the Mediterranean Sea (Bellina & Glover 2004).

This essay presents a selection of artefacts originating from the region of the Mediterranean Sea and mainly dating from the Roman Imperial period (here the late first century BCE to third century CE) unearthed or reported to have been found mainly at sites in the upper part of the Thai-Malay Peninsula: Khao Sam Kaeo, Tha Chana, Phu Khao Thong and nearby Bang Kluai Nok [e.g. **Figure 1**] in the region of the Isthmus of Kra (Bellina *et al.*, this volume), and Khlong Thom further south. These sites provide a chronological sequence from the very early days of the maritime silk roads – i.e. from the fourth to the third centuries BCE for the site of Khao Sam Kaeo, then from the last centuries BCE and the early centuries CE for the other sites. Although a few Mediterranean finds from Khlong Thom, also known as Khuan Luk Pat (“bead mound”), in Krabi province, had already come to light in the 1980s, some newly reported material from there and also from the other sites is introduced. The discussion will focus on the dating of the objects, and when they might have been used in their Southeast Asian context, their possible function – as well as the types of objects which seem to have been most favoured. Objects, whether made in the West or inspired by its production, help to illustrate the chronological development of long-distance sea routes to this peninsular area.



**Opposite Figure 1:** Roman cameo fragment with satyr and standing figure from Bang Kluai Nok, Ranong province, early 1st century CE, preserved height 19.5 millimetres, Suthiratana Foundation, inv. no. BKN 280 [Photograph courtesy of Karunphol Phanich].

## The Sites

Khlong Thom, Krabi province, is located about 240 kilometres south of the Isthmus of Kra. The site is now about 20 kilometres inland from the western coast, and connected to the Andaman Sea by the Khlong Thom river. It was in an ideal location for an entrepôt engaged both in sea-borne trade and specialist manufacturing activities.

Khao Sam Kaeo is in Chumphon province, on the eastern coast of the Kra Isthmus region. According to the chronology established by the Thai-French excavations based on radiocarbon dates, the major period of activity at the site can be dated between the fourth and first centuries BCE, nevertheless some activity appears to have also taken place in the early centuries CE (Bellina-Pryce & Praon 2008; Glover & Bellina 2011; Bellina *et al.*, this volume). The excavations brought to light an astounding array of finds, among them Chinese ceramic fragments dating from the Han period (206 BCE to 220 CE) (Peronnet 2013), large amounts of Indian pottery fragments (Bouvet 2006 and 2011) as well as other imports from India, indicating the status of the site in the trade networks of the period.

The site of Tha Chana in Surat Thani province, about 100 kilometres south of Khao Sam Kaeo, is likewise situated on the east coast. This site has been heavily looted and only briefly surveyed by archaeologists, therefore very little is known about it (Amara *et al.* 1987: 350). The evidence of waste material from the manufacture of stone and glass beads suggests that one of the activities at the site was bead-making; some of the beads can be compared with those from Khao Sam Kaeo and Phu Khao Thong. The finds from the site also include sherds of Han period pottery (Peronnet 2013) and Indian Fine Wares (Bouvet 2012: 307-308). In addition, fragments of at least seven glass vessels of a type known from Han period tombs in the Gulf of Tonkin region (Borell 2011: 62, n. 37) were also found at Tha Chana, which support a dating of the early phase of the site that covers at least the first century BCE and the early centuries CE.

Archaeological investigations have been carried out at Phu Khao Thong, Ranong province on the western coast of the peninsula, only since 2005. Their preliminary results already point to an identification of this site and the group of neighbouring sites including Bang Kluai Nok as an important coastal trading station in a period covering the last two centuries BCE to the early centuries CE. These sites yielded abundant finds of Indian ceramics, among them “rouletted ware,” as well as fragments of Han period Chinese ceramics. They are thought to be connected to the western end of transpeninsular routes crossing the Isthmus (Boonyarit 2011; Bellina *et al.*, this volume).

Lastly, the site of U Thong, Suphan Buri province, in central Thailand is a major urban centre of the later Dvāravāṭi culture. It also yielded archaeological evidence of earlier phases, as well as finds that parallel those from Oc Eo from the first centuries CE. It is an inland site<sup>1</sup> but was well connected to the trading networks, and appears to have been an important place already in the early historic period (Phasook 2004 and 2009).



**Left Figure 2:** Roman carnelian intaglio with two fighting cocks from Khlong Thom, late 1st-2nd century CE, Wat Khlong Thom museum, Krabi province [Photograph by Boonyarit Chaisuwarn].

**Right Figure 3:** Roman carnelian intaglio with Fortuna from Khlong Thom, late 1st-2nd century CE, 15 millimetres. Formerly at Wat Khlong Thom museum, Krabi province [After Bellina 1998: fig. 8b].

## Intaglios and a Cameo Fragment

Motifs on Roman intaglios were usually engraved in reverse because it was supposed to have been viewed as it appeared on the impression or sealing. Here for example, Fortuna [Figure 3] would be correctly viewed in an impression holding her rudder with her right hand. The Mars in impression [Figure 5b] has his sword and arms correctly on his left side. However, this was not always strictly observed by the Roman gem-cutters, maybe because the intaglios were also appreciated for their decorative value in jewellery. For instance, a motif such as the young satyr with a bunch of grapes in his outstretched hand [Figures 4a-b] frequently occurs in both versions on Roman intaglios with the actions of arms and legs reversed. In this essay, the motifs are described as they appear on the stone.

A number of intaglios from the Roman Imperial period have been found at Khlong Thom. Three of these are described below and have already been discussed in earlier publications (Mayuree 1992: 157, fig. 5; Glover 1996a: fig. 5 and 1996b: 65, ill. top row centre which is mirror-inverted; Bellina 1998: fig. 8). The first is an oval intaglio with a convex face showing two fighting cocks [Figure 2], a motif well known from Roman gems.<sup>2</sup> The second intaglio, also a carnelian, illustrates one of the most popular motifs used on Roman seal stones: Fortuna [Figure 3]. She is standing, dressed in a long garment (*chiton*) with a long cloak (*himation*) draped around her hips and right shoulder; its ends falling down over the right forearm. Fortuna holds her characteristic attributes: the horn of plenty (*cornucopia*) and in her other hand she grasps the rudder. In addition to the rudder, she holds a corn-ear and a poppy-head – attributes originally characteristic of Ceres, the goddess of agriculture, for which reason this type is sometimes also called Fortuna-Ceres. Judging from photographs, Martin Henig has already suggested a date in the late first to second century CE for these two intaglios (Glover 1989: n. 5 and 1996b: n. 7).<sup>3</sup> The third intaglio is an oval carnelian with dark inclusions and a flat face, engraved with another motif very common in the Roman Imperial period. It shows a young, nude, walking satyr, a mythological figure belonging to the retinue of Bacchus, the god of wine [Figures 4a-b].<sup>4</sup> The satyr, part man, part animal, can be recognised here by the two pointed goat horns on his head. Young satyrs of this type are usually shown dancing rather than walking. In his raised right hand he holds a bunch of grapes. On his left he has the throwing-stick (*lagobolon* or *pedum*) for hunting used by shepherds and satyrs, and a fawn skin (*nebris*), customarily worn by the

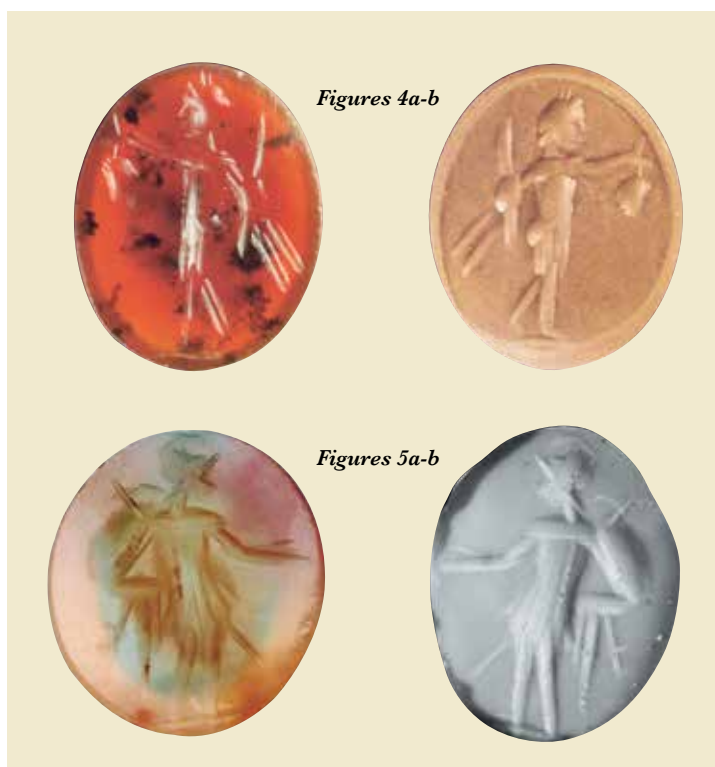


followers of Bacchus, is draped over his left arm. The style suggests a date between the mid-second to early third century CE.

Recently, another Roman intaglio has been found at the site of Khao Sam Kaeo [Figures 5a-b]. Like the intaglios from Khlong Thom it is without a stratigraphic context. It is an oval, pale yellowish carnelian with a flat face. It shows an armed figure, probably Mars the god of war, in short military dress with helmet and spear; he stands to the front with his head in profile. His one arm is bent with his hand on his hip, the sword hangs down behind; the upper arm carries the shield. The short military cloak is draped over the arm, two drapery ends hang down from the forearm. The impression [Figure 5b] shows the shield and sword at his left side which would be customary. The other hand (his right hand in impression) is outstretched in front of him, possibly meant to hold a shallow libation bowl (*patera*). The style suggests a date in the second or possibly early third century CE.<sup>5</sup>

At the site of Tha Chana, an amethyst intaglio with the image of Bacchus was found [Figures 6a-b]. The oval stone is convex on both sides. The face of the seal shows signs of wear where it was exposed above the ring setting, but otherwise the stone is in good condition. The god stands frontally with his head in profile to the right, he is nude except for a long cloak draped over his shoulder and leg. In one hand, he holds the *thyrsos*, a long staff with its cone-shaped top wreathed in ivy- and vine-leaves, and in his other hand, the two-handled wine cup (*kantharos*), his characteristic attributes. He is accompanied by his animal, the panther, emerging behind his feet. The panther walks with one front paw raised, its head turned back and upwards to the god. Amethyst was

**Figures 4a-b:** Roman carnelian intaglio with youthful satyr from Khlong Thom, Krabi province, mid-2nd to early 3rd century CE, 12 millimetres, Suthiratana Foundation, inv. no. KLP 345 (left: original intaglio; right: impression) [After Bunchar 2552: 148].



**Figures 5a-b:** Roman carnelian intaglio with Mars from Khao Sam Kaeo, Chumphon province, mid-2nd to early 3rd century CE, 13 millimetres, Suthiratana Foundation, inv. no. KSK 108 (left: original intaglio; right: impression) [Photographs by Bérénice Bellina and Brigitte Borell].



**Figures 6a-b:** Roman amethyst intaglio with Bacchus from Tha Chana, Surat Thani province, ca early 1st century CE, 11.5 millimetres, Suthiratana Foundation, inv. no. TCN 125 (left: original intaglio; right: impression) [Photographs by Bunchar Pongpanich and Brigitte Borell].

**Figures 7a-b:** Layered sardonyx intaglio with rider on a walking horse from Bang Kluai Nok, Ranong province, late 1st century BCE to early 1st century CE, Suthiratana Foundation, inv. no. BKN 335 (left: original intaglio; right: impression) [Photographs courtesy of Karunphol Phanich].

often chosen for an intaglio engraved with a representation of Bacchus since the stone was believed to protect the wearer against drunkenness (*methē*). The Greek name for the stone, *amethystos*, means “not drunken.” The classicising style of the figure with its fine and detailed modelling suggests a date in the first century CE, possibly even in the early part of the century.<sup>6</sup>

In Boonyarit Chaisuwan’s excavations at Phu Khao Thong, a very small carnelian intaglio with the figure of a galloping animal was found.<sup>7</sup> The schematic rendering and the tiny format does not allow a closer dating. From nearby Bang Kluai Nok comes a horizontally layered sardonyx with a convex face, now set in a modern ring. The stone is engraved with a walking horse and rider [Figures 7a-b]. The fine and sensuous modelling of the horse’s head and legs and the wavy movement in the rendering of the horse’s tail are very much in the tradition of Roman gem-cutting and would suggest a date in the late first century BCE to the early first century CE.<sup>8</sup> Some peculiarities, however, like the spiky mane and, most notably, the absence of a ground line, seem to point to an origin in a workshop farther east and possibly to a later dating.<sup>9</sup>

The same site also yielded a fragment from the lower edge of a layered sardonyx cameo [Figure 1]. However, only the lower halves of two male figures standing on uneven ground remain. The figure on the left has a tail and is therefore to be identified as a satyr. In a stooping posture, he moves to the left. The figure on the right, possibly another satyr if not the god Bacchus himself, stands in relaxed fashion with his weight on one leg and the other bent at the knee. Judging from the style of the few details preserved, a date in the late first century BCE or the

early first century CE may be proposed.<sup>10</sup> In this period, such Bacchic scenes were particularly popular also on cameo glass.

In contrast to the cameos, which are purely decorative, intaglios in the Graeco-Roman world were used as seals, a function comparable to the role of a signature today. Engraved, the carved stones were usually mounted in finger rings. Besides their use as seals or signet rings, they might also have been prized as items or pieces of jewellery. The high-quality intaglio with Bacchus from Tha Chana [Figure 6a] allows the proposing of a relatively narrow dating. The intaglios from Khlong Thom [Figures 2-4a] and Khao Sam Kaeo [Figure 5a] discussed here belong to the later Imperial period, when gem-cutting workshops made mass-produced intaglios for a wide market of customers. These seals were often engraved with standardised representations of gods and goddesses chosen by their owners as their tutelary deities; or with other motifs, valued for their auspicious meaning. For such mass-produced intaglios, it is difficult to give a precise dating based on stylistic analysis alone (Guiraud 1992: 51). Quite often it is only possible to assign them broadly to a certain time span, as suggested here.

The dating of glass intaglios, like the one found at Khlong Thom [Figures 8a-b], presents a different sort of problem. Such glass gems were formed in a mould made from the impression of an original stone intaglio. The moulds were often formed from high-quality pieces, but the glass intaglios were, of course, much cheaper, and therefore affordable by a wider group of buyers. Set as ring stones, they might have been cherished more for their decorative value than for their use as seals, which, in everyday practice, might have been limited, since glass gems are more fragile. Such glass intaglios might have been made soon after the stone original had been engraved, when a particular motif was still *en vogue*, and so might not be much later in date. Stone intaglios, however, might survive for a long time so glass copies could be made from collector items or family heirlooms long after the original stone intaglio had been created.

The glass intaglio from Khlong Thom [Figure 8a], made of almost clear glass, has a slightly convex face and a flat back, and shows a miniature scene of rural life.<sup>11</sup> On the right stands a bearded herdsman leaning on his staff. He is clad in the typical countryman's garb, consisting of a rough skin cloak over a short tunic. In front of him, his dog walks to the left, its head raised, one front leg in the air. On the left is a rock and a tree; the upper part of the tree bends almost horizontally to the right along the oval edge of the glass gem. On top of the rock is an eagle with its prey underfoot. The scene appears to have been combined of several motifs, including herdsmen looking after their animals, usually goats, which became popular in the late first century BCE and early first century CE. This was inspired by the pastoral poetry in Roman literature flourishing in this period, which praised from the perspective of the urban dweller the idyllic country life. The original of the glass intaglio might date from the early first century CE. We must be aware, however, that, strictly speaking, this suggests only a date for the original stone intaglio, not necessarily for the glass gem moulded from it.

It is important to keep in mind these general dating problems of stone and glass intaglios and the tentative nature of the dates proposed here. In addition, not only is the date of the object itself of interest in our context, but also the presumed date of its arrival at the site where it



**Figures 8a-b:** Roman glass intaglio with pastoral scene from Khlong Thom, Krabi province, probably 1st century CE, 18.5 millimetres, Suthiratana Foundation, inv. no. KLP 139 (left: original intaglio; right: impression) [After Bunchar 2552: 150].

was found. Bennet Bronson (1990: 217), though not excluding a direct contact with the Mediterranean world in the first or second centuries CE, pointed out that other finds from Khlong Thom are indicative of a later period, and argued that the seals with motifs of Mediterranean origin might only have arrived at a much later date. However, Mayuree Veraprasert (1992), based on her later research and excavation, re-assessed the chronology of the Khlong Thom site, and proposed for it a first phase from the first century BCE to the second century CE, and a second phase from the third to fifth centuries CE (Amara 1998: 103-104, 107; Bellina 1998: 97-98). Judging from the increased evidence now available from other Thai peninsular sites, it seems plausible to connect some of the Roman intaglios found at Khlong Thom with the early phase of the site.

### Fragments of Glass Vessels

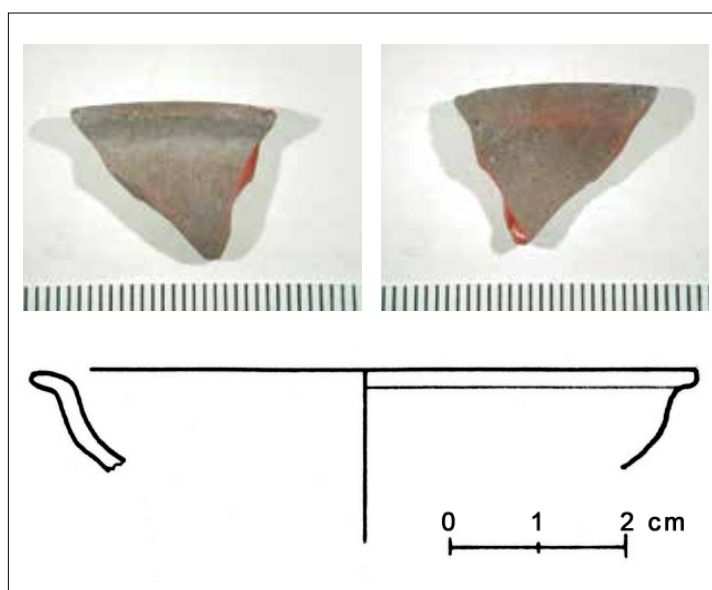
In contrast to the intaglios, fragments of glass vessels, found in peninsular Thailand, might provide a better indication for the date of their arrival in Southeast Asia. At least two or three small glass fragments, identified as of Mediterranean origin on the basis of their chemical composition, were discovered in the Thai-French excavations at Khao Sam Kaeo. Two of these, made of cobalt blue glass, are possibly fragments of glass vessels (Lankton *et al.* 2008: 328; Lankton & Dussubieux 2013: 431). In addition to these fragments, Khao Sam Kaeo yielded another glass fragment probably of Mediterranean origin, although the results of its chemical analysis are still unpublished.<sup>12</sup> It is of opaque bright red glass<sup>13</sup> and presumably stems from a small moulded glass vessel. However, owing to the tiny size of the fragment, no further inferences regarding its original shape are possible at present.

A more significant fragment of opaque bright red glass was found at Tha Chana. It is the rim fragment of a small moulded bowl [Figure 9]. The glass analysis indicates a soda glass with a composition characteristic of a Mediterranean origin.<sup>14</sup> Although small in size, the fragment preserves a significant part of its shape which allows it to be assigned to a class of moulded bowls of early Roman glass produced in the end of the first century BCE and in the first half of the first

century CE. These carinated bowls, also called *patella* bowls, were often made of glass in intense colours such as the opaque bright sealing-wax red glass. They are thought to imitate the famous red *sigillata* pottery where this shape also occurs. The question as to where the shape was first developed, however, is still unresolved. At present, the dates suggest that the *sigillata* bowls of this shape are somewhat later than the glass vessels (Stern & Schlick-Nolte 1994: 328-329, no. 99; Arveiller-Dulong & Nenna 2000: 140-141, nos. 181, 198, nos. 248-250; Weinberg & Stern 2009: 40-41).

In Phu Khao Thong, a few fragments of mosaic glass vessels recently came to light (Boonyarit & Rarai 2552: 95-105; Boonyarit 2011: 87). One fragment of a mosaic glass vessel [Figure 10] has already been analysed. Its chemical composition is characteristic of Mediterranean glass.<sup>15</sup> The fragment appears to stem from the curved side of a bowl. The pattern is composed of cane sections with spirals of opaque yellow glass in a matrix of translucent green glass. The cane sections were fused together, forming a disc-shaped blank which was then sagged over a convex mould (Stern & Schlick-Nolte 1994: 68-70). Such cane sections with a spiral design in two colours are one of the two basic patterns of Hellenistic mosaic glass vessels, in contrast to the prevalent patterns of Roman composite mosaic glass canes (Grose 1989: 189-190, fig. 102). However, cane sections with a spiral pattern still appear occasionally in early Roman mosaic glass vessels, usually among other motifs (Grose 1989: 225, 322, no. 513). The fragment herein is too small to allow for a more precise dating. It might stem from an early Roman mosaic glass bowl of the early first century CE, yet, the attribution to a Hellenistic mosaic glass bowl of the late second or first century BCE cannot be excluded (Goldstein 1979: 181, no. 475; 188-189, nos. 501-502; Arveiller-Dulong & Nenna 2000: 140-141, no. 176; Weinberg & Stern 2009: 36-38, nos. 63, 67-68).

We know from various sources as well as from the archaeological record that such Mediterranean moulded glass bowls played a role in



**Figure 9:** Rim fragment of a Roman glass bowl from Tha Chana, Chaiya province, probably 1st half of 1st century CE, 2.0 x 1.5 centimetres, estimated diameter of bowl 7.6 centimetres, Suthiratana Foundation, inv. no. TCN 100.10 [Photographs and drawing by Brigitte Borell].

the maritime trade via the Red Sea to India and beyond (Borell 2010). In particular, ribbed bowls, a special type of moulded bowl, are easily identified, even if only a small fragment is preserved. They were mass-produced in the period from the first century BCE to the first century CE, and fragments of ribbed bowls have been found along the maritime trade routes from the Red Sea along the Arabian Peninsula, and in India. In addition to the well-known finds of ribbed bowls from Arikamedu and Dharanikota on the southeastern coast of India, fragments of at least two more such bowls were recently discovered at the Pattanam site on the Malabar coast, identified as part of the important port-town of Muziris known from ancient sources (Cherian *et al.* 2007: 7 pl. 1D; Cherian 2010: 271-272). It is unlikely that all these glass vessels were traded as antiques; they probably arrived at their distant destinations relatively soon after manufacture. This is supported by the discovery of such a ribbed bowl of mosaic glass deposited in a tomb of the Yangzi Delta in the Chinese province of Jiangsu (Borell 2010: 128, fig. 1). The tomb has been identified as the burial of Liu Jing, a son of the Eastern Han emperor Guangwu (r. 25-57 CE), dated to the year 67 CE. Presumably, this ribbed bowl reached China along the maritime routes and therefore would have passed coastal sites in southern Thailand and then would have even been carried along one of the land routes across the peninsula. Although no finds of such ribbed bowls have yet come to light in southern Thailand, it would not be surprising if they were to do so. It is worth noting here that other objects found in the upper Thai-Malay Peninsula show similarities to those from Oc Eo in southern Vietnam and Han tombs in southern China, in particular polyhedral gold ornaments. This supports the theory that the maritime route was already in use at the time (Pryce *et al.* 2008: 310).

### Pendants with Coin Designs

In addition to these finds imported from the Mediterranean region, there is another group of objects with a Mediterranean connection, which deserves to be briefly surveyed in this context.<sup>16</sup> These are pendants, made of gold and bronze, which imitate to varying degrees of fidelity, the design of a Roman coin. Such pendants are already known from the site of Oc Eo in southern Vietnam (Malleret 1962: 115-117, nos. 919-921, pl. 40; Borell 2008a), their design imitating the obverse of Roman coins with the portrait heads of Roman emperors in profile. Oc Eo, where Louis Malleret conducted excavations in 1944, is recognised as an early urban centre of the polity referred to as Funan in Chinese sources. A canal connected it to the Gulf of Thailand, and the artefacts recovered at Oc Eo demonstrate its participation in maritime trade, and underline its cosmopolitan character. The city was laid out as a rectangle covering about 3 square kilometres and recent investigations indicate that the construction of its central canal and enclosing moats may have already begun as early as the end of the second century CE (Bourdonneau 2009; Manguin 2009).

The most famous pendant from Oc Eo is a thin gold sheet in repoussé technique. Its prototype could be clearly identified as a gold coin (*aureus*) of Antoninus Pius (r. 138-161 CE) dating from the year 152 CE. Another pendant from Oc Eo, slightly thicker with a plain reverse and probably cast, was initially thought to derive from a coin of Marcus Aurelius



**Figure 10:** Fragment of a Mediterranean mosaic glass bowl from Phu Khao Thong, Ranong province, 1st century BCE to early 1st century CE, 2.2 x 1.4 centimetres, 15th Regional Office of Fine Arts Department, Thalang, Phuket [Photograph by Boonyarit Chaisuwat].



(r. 161-180 CE). However, it has been demonstrated elsewhere that the coins of Marcus Aurelius do not accurately match the details of the Oc Eo obverse, and it has been argued that the prototype for this second pendant from Oc Eo was a coin of Commodus (r. 180-192 CE), the last of the Antonine emperors, dating from the year 192 CE (Borell 2008a).

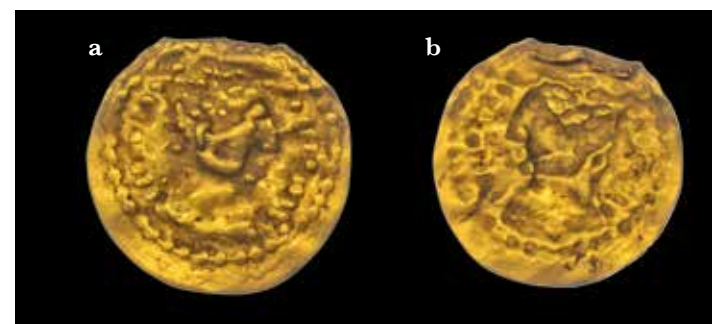
Recently, similar pendants have been found at Khlong Thom. One of them closely imitates the obverse of a coin series of Antoninus Pius dating from 158-159 CE [Figures 11a-b], whereas its worn reverse certainly stems from the coin of a different Roman emperor. On the obverse an essential part of legend has been left out when making the mould for casting, namely the title Augustus for the Roman emperor, usually abbreviated as AVG, and the letter P for PIVS. Instead, above the head of the emperor only a blank space exists, probably to provide space for the suspension loop of which a piece of soldered-on gold wire has been preserved on the back identical to that on the Oc Eo pendant imitating a coin of Commodus. Such a spiral of gold wire serving as a suspension loop is preserved on a similar pendant from Khlong Thom [Figures 12a-b] with a free adaptation of a Roman coin design. Imitations of Roman coins made up as pendants are a phenomenon well known from India. Roman coins arrived in India in enormous numbers during the trade boom with the Roman world in the early centuries CE and have been recovered in their thousands. These pendants from Khlong Thom and Oc Eo, however, are different in appearance to the imitations known from India and were most likely manufactured in Southeast Asia.



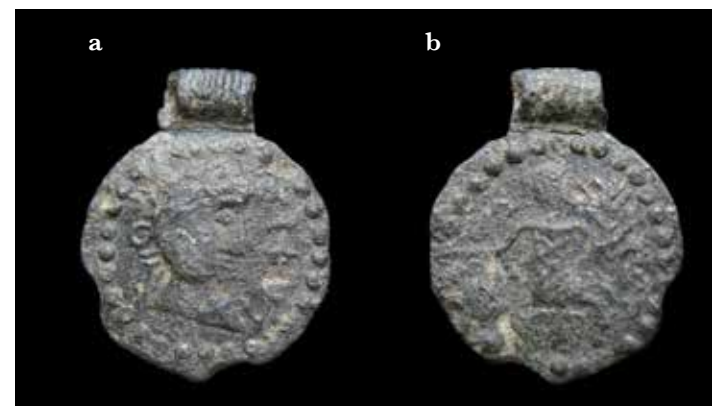
**Figures 11a-b:** Gold pendant from Khlong Thom, Krabi province, obverse imitating a coin of Antoninus Pius (r. 138-161 CE), diameter 19 millimetres, weight 4.16 grams, Suthiratana Foundation, inv. no. KLP 071 (left: obverse; right: reverse) [Photographs by Brigitte Borell].



**Figures 12a-b:** Gold pendant from Khlong Thom, Krabi province, diameter 19 millimetres, weight 4.86 grams, Suthiratana Foundation (left: obverse; right: reverse) [Photographs by Brigitte Borell].



**Figures 13a-b:** Gold pendant from U Thong, Suphan Buri province, diameter 19-20 millimetres, U Thong National Museum (left: obverse; right: reverse) [Photographs by Brigitte Borell].



**Figures 14a-b:** Bronze pendant from Khlong Thom, Krabi province, diameter 18 millimetres, Suthiratana Foundation (left: obverse; right: reverse) [Photographs by Brigitte Borell].

The disc-shaped repoussé pendant discovered at U Thong in central Thailand was probably also locally produced [Figures 13a-b].<sup>17</sup> Khlong Thom yielded yet two other finds whose design is derived from Roman coins. One is a bronze pendant crudely imitating a coin of Tiberius (r. 14-37 CE) of the so-called Livia-type [Figures 14a-b], so named because the seated figure on the reverse is usually identified as Livia, the wife of Augustus and mother of Tiberius. The other find is one half of a two-part stone mould for the reverse of such a pendant [Figure 15].<sup>18</sup> Tiberius coins of this type, which represent one of the most common Roman coin types, were probably minted throughout Tiberius' entire reign and were found in large numbers in India where they arrived through commercial transactions during the Roman period (Turner 1989; Tomber 2008: 35-36). In India, they were also imitated in metal and in clay to be used as pendants. Such clay pendants of local Indian manufacture are known in particular from Kondapur in Andhra Pradesh (Wheeler 1954: 152-153, pls 28-29). Although we cannot be sure where the bronze pendant from Khlong Thom was made, the mould is definite evidence that local production of such pendants took place there.

However, when attempting to date these pendants, we must bear in mind that only their prototypes are firmly dated here, coins of Tiberius, Antoninus Pius, and Commodus. We have no clues to determine how long after these dates the pendants were actually made.

At present it is difficult to determine to what extent the import of these Mediterranean objects like the intaglios, the glass vessels and the coins, involved direct contact with traders from the Roman empire. In



**Figure 15:** Stone mould from Khlong Thom, ca 4.5 x 3.5 centimetres, Wat Khlong Thom museum, Krabi province [After Wannasarn 2550: 28, fig 3, top].

general, many of such trade transactions would have been conducted by intermediaries. As mentioned above, Roman glass vessels were traded to India; and a broken intaglio engraved with a portrait of Augustus was found in Arikamedu in Tamil Nadu (Malleret 1959: 103-104, figs 4c-d; Tomber 2008: 133). The type of pendant such as the one which crudely imitates a coin of Tiberius might have been brought by Indian craftsmen possibly even immigrants present at a place like Khlong Thom. In this case, it would be an indirect adaptation of a Roman prototype, without any need for a genuine coin of Tiberius having arrived in southern Thailand. In contrast, the later production of gold pendants imitating coins of the second century CE differs from the Indian finds and appears to be an indigenous development. The imitations are very close to their prototypes, therefore we may assume that the moulds for their manufacture were directly formed from Roman coins. This suggests that at least a few coins actually came to Southeast Asia.

So far, the only Roman coin known to have been found in Thailand is an *antoninianus* of Victorinus (r. 269-271 CE), one of the usurper emperors of the so-called Gallic empire. It comes from U Thong [Figures 16a-b], dates from 269/270 CE and is attributed to the mint in Cologne (Landes 1981; Borell 2008b: 14, n. 51). These debased coins of the Gallic empire with a minimal silver content were in circulation in the western provinces of the Roman empire until the end of the third century CE. They were not used in bulk in long-distance trade with India, although occasional finds of such coins are known from there.

### Written Sources

The contacts between India and Southeast Asia were already well developed in the last centuries BCE. The upper Thai-Malay Peninsula was the crossroads between maritime networks from an eastern and a western direction connecting here with a land crossing. A Chinese source (*Han Shu*, chapter 28B) describes such a land crossing already being in use between sea voyages from Hepu and Xuwen in the Gulf of Tonkin to Huangzhi, probably to the southeastern coast of India during the reign of Han Emperor Wu (r. 141-87 BCE).

Evidence from written sources suggests that maritime networks from the West, that is, from the Mediterranean and the Red Sea across the Indian Ocean connected with the Far Eastern networks and came into use about two centuries later.

The *Periplus Maris Erythraei*, a mid-first century CE account of maritime trade from the Red Sea to India, written in Greek by an anonymous author, still has only very little to say about the regions east of India. This state of knowledge seems to have changed about fifty years later. Claudius Ptolemy, writing in the second century CE, gives a much more detailed description of the areas east of India in his *Geography* (1.13-14), in particular of the Thai-Malay Peninsula, which he calls the Chryse Chersonesos, i.e. the Golden Peninsula. He relied on an account, which is now lost, written by a certain Alexandros, a sea captain or navigator. This first hand account is thought to date from the late first or early second century CE, as it had also been used by another scholar, Marinus, a geographer and cartographer also writing in the second century CE but somewhat earlier than Ptolemy. Marinus'

geographical treatise is likewise lost and known to us mainly through Ptolemy who relies on it although he heavily criticises it. It seems that detailed knowledge of the Thai-Malay Peninsula and the land route across it can be traced to Alexandros' account (Dihle 1984: 90, 147; Berggren & Jones 2000: 75, no. 51; McLaughlin 2010: 57-59, 133-134). According to our knowledge, Alexandros was the first person to document the circumnavigation of the Thai-Malay Peninsula, having returned home safely to be able to bequeath his report. We cannot exclude that before him other traders from the Roman empire had ventured as far east from time to time, but there exists no trace of this in the written records.

However, the presence of individuals from the Roman empire in Southeast Asia is witnessed in Chinese sources for October 166 CE, when the "embassy" of Andun is recorded as the first official contact with the Roman empire (Da Qin). The entry in the annals of the Eastern or Later Han dynasty (*Hou Han Shu*, chapter 88) says:

The king of this country always wanted to enter into diplomatic relations with the Han. But the Parthians (Anxi) wanted to trade with them in Chinese silk and so put obstacles in their way, so that they could never have direct relations (with China) until the reign of Emperor Huan, in the ninth year of Yanxi (166 CE), when Andun, king of Da Qin, sent an envoy from beyond the frontier of Rinan who offered elephant tusk, rhinoceros horn, and tortoise shell. It was only then that for the first time communication was established (between the two countries). The document listing their tribute had nothing at all precious or rare. Thus one suspects that those who have written about it have erred. (Leslie & Gardiner 1996: 51; with minor stylistic changes)

This text has been discussed by many scholars, and there is general agreement that it was probably not an official embassy sent by the Roman emperor, but a group of merchants from the Roman empire somehow assuming this role in the eyes of their counterparts (Crespigny 1990: 42-43; Graf 1996; Leslie & Gardiner 1996: 153-157). The items listed which they offer as "tribute" might have been acquired on their way along the maritime routes, some of it possibly not far from the frontiers of Rinan in present-day Vietnam, and the derogatory comment in the Chinese source makes it clear that something was out of proportion. The emperor's name Andun is certainly a rendering of Antoninus, however, it is not clear whether it refers to Marcus Aurelius Antoninus (r. 161-180 CE), who ruled together with Lucius Verus (r. 161-169), or rather to their predecessor Antoninus Pius (r. 138-161 CE). These enterprising merchants who ventured beyond India might very well have stayed for some years in the East without knowledge of Antoninus Pius' death in March 161 CE. In our context, the interesting point is that the "embassy" arrived by the sea route along the Vietnamese coast from beyond Rinan, the southernmost commandery of the Han empire, extending south probably as far as central Vietnam. They might have travelled on board foreign ships from the eastern coast of India, thus reaching the western coast of the Thai-Malay Peninsula, which they most likely crossed overland in the Kra Isthmus region.



Figures 16a-b: Roman coin (so-called antoninianus) of Victorinus (r. 269-271 CE), 269/270 CE, diameter 20 millimetres, U Thong National Museum, inv. no. 306/2509 (top: obverse; below: reverse) [Photographs courtesy of the U Thong National Museum].



Additional information about the presence of traders from the Roman empire is found in the *Liang Shu*, which is ostensibly the history of the Southern Liang dynasty (502-556 CE), compiled by Yao Silian early in the seventh century CE, but it also includes earlier material. It continues with more information about Da Qin:

Their people are traders and often visit Funan and Rinan and Jiaozhi, but people of (these) various countries beyond our southern border rarely reach Da Qin. [...]

In the fifth year of Huangwu of the reign of Sun Quan (226 CE), a merchant of Da Qin named Qin Lun came to Jiaozhi. The prefect of Jiaozhi named Wu Miao sent him to visit (Sun) Quan, who asked him about the land and its customs. (Qin) Lun gave a detailed reply. (Leslie & Gardiner 1996: 100-101, 158-159; with minor stylistic changes)

From this information, we may deduce that, in the later second and early third centuries CE, merchants from the Roman empire came more frequently to Southeast Asia clearly along maritime routes and were not uncommon in the regions along the Vietnamese coast, from Funan in the south to Jiaozhi in the north. After the collapse of the Han empire, one Roman merchant was sent in the year 226 CE to the court of the Wu dynasty (222-280) in the area of present-day Nanjing (Crespigny 1990: 479-480, n. 38; Graf 1996: 201-202; McLaughlin 2010: 136-137). To arrive in southern Vietnam these groups of Roman traders must have either bypassed the Thai-Malay Peninsula or more likely must have crossed it one way or another.

### Conclusion

At present, the surprisingly rich archaeological evidence of objects of Mediterranean origin found at sites in Southeast Asia raises more questions than it answers. Some of the objects may be assigned to early dates such as the first century BCE and the first century CE, but it is doubtful whether they indicate direct trade. It seems more likely, at the present state of research, that they would have reached southern Thailand by intermediary trade along the maritime routes via India.

This seems a plausible explanation for the finds of earlier date, and in particular for the pendant and mould imitating coins of Tiberius. Intaglios could have been brought to southern Thailand by their own owners and been lost from or taken out of their ring settings. They could have been traded by intermediaries to Southeast Asia as luxury goods, or used in trade as gifts of high prestige to the local rulers.

In the later second and in the third century CE, traders from the Roman empire, probably from its eastern provinces, may have arrived more frequently, as indicated not only by the finds of the pendants imitating coins of later emperors but also in written sources. Archaeological evidence for still later direct or indirect contact with the Mediterranean, or at least with Egypt, is the find of the early Byzantine lamp at Phong Tuek, in Kanchanaburi province, which dates from the fifth or sixth century CE (Borell 2008b).

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### Endnotes

- 1 The maximum transgression of the shoreline, which in the past has been connected with the Dvāravatī period during the second half of the first millennium (Phongsi & Thiwa 2524), occurred much earlier, probably between 6,000 and 5,000 BCE, see Tanabe *et al.* (2003: fig. 1 and fig. 8A-B); also Montri (2011); see also Trongjai, this volume. Although shoreline progradation was rapid, owing to the deltaic processes of the Chao Phraya and the Mae Klong rivers, in the case of U Thong there would have been only a minor difference of less than 20 kilometres between the shoreline of the early historic period and the present shoreline (Tanabe *et al.* 2003: fig. 8E and fig. 8F).
- 2 Martin Henig (Glover 1989: n. 5) compared this with an intaglio from Aquileia (Italy), see Sena Chiesa (1966: 392, no. 1341, pl. 68). For additional comparisons with further references, see Zwierlein-Diehl (1991: 107, no. 1949, pl. 54); for a stylistic comparison with a gem from Carnuntum (Austria), see Dembski (2005: 142, no. 914, pl. 94).
- 3 Martin Henig (see note 2) gave as references three intaglios from Aquileia (Sena Chiesa 1966: 240-241, nos. 602-604, pl. 31), and several intaglios from Gadara in Jordan, see Henig & Whiting (1987: nos. 102-105); in addition, see also Maaskant-Kleibrink (1986: 44-45, no. 90), Zwierlein-Diehl (1991: 315, no. 2825, pl. 230), Middleton (1991: 81-82, no. 120 and 2001: 41, no. 22) and Weiß (1996: 84, no. 147, pl. 20).
- 4 The motif has been erroneously identified as Perseus with the head of Medusa by Bennet Bronson (1990: 217), followed by others including very recently by Piriya Krairiksh (2012: 43, fig. 1.10). For comparisons of the satyr motif, see Sena Chiesa (1966: 189, no. 391, pl. 20), Henig (1978: 206-208, nos. 159-177, esp. 161), Maaskant-Kleibrink (1986: 109, app. 18), Henig & Whiting (1987: no. 241) and Middleton (2001: 36, no. 18).
- 5 For the type, see Sena Chiesa (1966: 149-50, nos. 217-220, esp. 217, pl. 11) – perhaps holding a *patera*; Zwierlein-Diehl (1979: 169, no. 1281, pl. 116) – second century CE carnelian, here Mars holds out a small Victory. For the style, see Guiraud (1988: no. 542, pl. 37) and Zwierlein-Diehl (1991: 306, no. 2763, pl. 223).
- 6 For the motif, see Maaskant-Kleibrink (1978: 209-210, nos. 482-483, the latter also an amethyst with convex face, pl. 90) and Pannuti (1983: 30, no. 39, although without *himation*) showing a carnelian intaglio, convex face, flat back from Pompei (pre-79 CE).
- 7 Found in 2006; measurements 0.85 x 0.6 cm.
- 8 For the motif of a rider on a walking horse with one front leg raised, see Zwierlein-Diehl (2007: 131, 423, fig. 520), interpreted as the young C. Caesar in military dress and therefore dated to around 8 BCE; Pannuti (1983: 108, no. 161), from Pompei (pre-79 CE date) depicting a youth likewise with his cloak flying out behind; Middleton (1991: 154, app. 11a-b), said to be from Persia and dated to the second half of the first century BCE-beginning of the first century CE, showing a helmeted warrior looking back. However, the style and, in particular, the iconography of the rider differ.
- 9 An anonymous reviewer suggested a Bactrian origin, however, so far no convincing parallel has been found. The intaglio with a horse and a Graeco-Bactrian inscription (Middleton 1998: 102-103, no. 83), interestingly likewise engraved on a layered sardonyx, is very different in style. Thanks are due for this reference to Erika Zwierlein-Diehl who feels that a Bactrian origin may be excluded for the Bang Kluai Nok intaglio (pers. comm.).
- 10 For the unstable stance of the right figure, compare the satyr on a cameo at the Hermitage museum in Saint Petersburg (Neverov 1988: 50, no. 39).

- 11 This scene has been erroneously described as the abduction of Ganymed by Bunchar Pongpanich (2552: 150) and Michael Wright (2552: 48, ills 5-6, centre). For the scene of rural life, see Hamburger (1968: 21, 35 no. 141, pl. 7); for the motif of dog and eagle with its prey under a tree, compare with Sena Chiesa (1966: 385-386, nos. 1291-1293, pl. 65) and Zwierlein-Diehl (1991: 87, no. 1810, pl. 34); for the shepherd, see Maaskant-Kleibrink (1978: 250, nos. 658-659, pl. 115), Henig (1994: 112-113, no. 208), Middleton (2001: 61, no. 36), Weiß (2007: 226-227, nos. 333-338, pl. 45), and Guiraud (2008: 148, no. 1313, pl. 25).
- 12 This was brought to our attention by Yatima Thongkam (pers. comm.), who also showed us a photograph of the fragment.
- 13 This opaque bright red glass (also called sealing-wax red) is a special glass colour not easily achieved in antiquity (Welham *et al.* 2000). It should not be confused with the opaque red glass of a different red hue usually encountered in glass beads found in Southeast Asia. For analyses of red opaque beads from four different sites in peninsular Thailand (Khlong Thom, Phu Khao Thong, Nang Yon, and Thung Tuck), see Wantana *et al.* (2011). On glass in Southeast Asia in general, see Dussubieux & Gratuze (2010).

## References

### Amara Srisuchat

1998 A Proposed Outline of the Chronology of Early History in Thailand: Dating and Re-Analysis of Data from Recently Excavated Sites in Thailand. In Klokke, M.J. & Bruijn, T. de (ed.), *Southeast Asian Archaeology, Proceedings of the 6th International Conference of the European Association of Southeast Asian Archaeologists, Leiden, 2-6 September 1996*. Kingston upon Hull: Centre for South-East Asian Studies, pp. 99-115.

### Amara Srisuchat, Buranee Buransiri, Phatraphi Khanthakan & Boosaya Chaiseno

1987 An Archaeological Visit to the South. In *Seminar in Prehistory of Southeast Asia. SPAFA Final Report*. Bangkok: SEAMO Project in Archaeology and Fine Arts, pp. 345-363.

### Arveiller-Dulong, Véronique & Nenna, Marie-Dominique

2000 *Les verres antiques, volume 1 : contenant à parfum en verre moulé sur noyau et vaisselle moulée, VIIème siècle avant J.-C. - Ier siècle après J.-C.* Musée du Louvre. Paris: Réunion des Musées nationaux.

### Bellina, Bérénice

1998 La formation des réseaux d'échanges reliant l'Asie du Sud et l'Asie du Sud-Est à travers le matériel archéologique (VIe siècle av. J.-C. – VIe siècle ap. J.-C. – le cas de la Thaïlande et la Péninsule Malaise). *Journal of the Siam Society* 86: 89-105.

Forthcoming The Inception of the Trans-national Processes between the Indian Ocean and the South China Sea from an Early City-state on the Thai-Malay Peninsula (4th-2nd c. BCE). In Boussac, M.-F., Roychoudhury, S., Salles, J.-F. & Yon, J.-B. (eds), *The Ports of the*

- 14 The chemical analysis was carried out by James Lankton in 2009.
- 15 The chemical analysis was carried out by Pisutti Dararutana, Department of Earth Sciences, Faculty of Science, Kasetsart University, Bangkok, and Yatima Thongkam. It has also been analysed by James Lankton, see Boonyarit & Rarai (2552: 96); also Boonyarit (2011: 87).
- 16 For a full discussion of these pendants, see Borell (2012).
- 17 According to information provided by the U Thong National Museum, this find was brought into the museum from the community in 2006. In February 2007, Brigitte Borell had the opportunity to see it and take the photographs.
- 18 The back of the mould is prepared for casting collared disc beads. See also Wannasarn (2550: 28, fig. 3, top).

*Indian Ocean, from the Red Sea to the Gulf of Bengal*. Delhi: Primus Books.

### Bellina, Bérénice & Glover, Ian C.

2004 The Archaeology of Early Contact 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 Prehistory to History*. London: Routledge, pp. 68-88.

### Bellina, Bérénice & Praon Silapanth

2006 Khao Sam Kaeo and the Upper Thai Peninsula: Understanding the Mechanisms of Early Trans-asiatic Trade and Cultural Exchange. In Bacus, E., Glover, I.C. & Pigott, V.C. (eds), *Uncovering Southeast Asia's Past*. Singapore: NUS Press, pp. 379-392.

### 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.

### Berggren, J. Lennart & Jones, Alexander

2000 *Ptolemy's Geography. An Annotated Translation of the Theoretical Chapters*. Princeton/Oxford: Princeton University Press.

### Boonyarit Chaisuwan

2011 Early Contacts between India and the Andaman Coast in Thailand from the Second Century BCE to Eleventh Century CE. In Manguin, P.-Y., Mani, A. & Wade, G. (eds), *Interactions between South and Southeast Asia: Reflections on Cross-Cultural Exchange*. Singapore: Institute of Southeast Asian Studies, pp. 83-112.

### Boonyarit Chaisuwan & Rarai Naiyawat

2552 *Thung tuek chut chueamyong sen thang sai mai thang thale / Thung Tuk: A Settlement Linking Together the Maritime Silk Route*. Hat Yai: Trio Creation. [In Thai and English; 2009 CE]

### Borell, Brigitte

2008a Some Western Imports Assigned to the Oc Eo Period Reconsidered. In Pautreau, J.-P., Coupey, A.-S., Zeitoun, V. & Rambault, E. (eds), *From Homo Erectus to the Living Traditions. Choice of Papers from the 11th International Conference of the European Association of Southeast Asian Archaeologists, Bougon, 25th - 29th September 2006*. Chiang Mai: Siam Ratana, pp. 167-174.

2008b The Early Byzantine Lamp from Pong Tuk. *The Journal of the Siam Society* 96: 1-26.

2010 Trade and Glass Vessels along the Maritime Silk Road. In Zorn, B. & Hilgner, A. (eds), *Glass along the Silk Road, from 200 BC to AD 1000*. Mainz: Römisch-Germanisches Zentralmuseum Mainz, pp. 127-142.

2011 Han Period Glass Vessels in the Early Tongking Gulf Region. In Cooke, N., Tana Li & Anderson, J.A. (eds), *The Tongking Gulf Through History*. Philadelphia: University of

Pennsylvania Press, pp. 53-66 and 172-179.

2012 Roman Coins and Derivatives. Paper presented at the 14th International Conference of the European Association of Southeast Asian Archaeologists, Dublin, 18-21 September 2012. [Unpublished]

### Bourdonneau, Éric

2009 Réhabiliter le Funan. Óc Eo ou la première Angkor. *Bulletin de l'École française d'Extrême-Orient* 94 [for 2007]: 111-158.

### Bouvet, Phaedra

2008 Étude préliminaire de céramiques indiennes et "indianisantes" du site de Khao Sam Kaeo IVe-IIe siècles av. J.-C. *Bulletin de l'École française d'Extrême-Orient* 93 [for 2006]: 353-390.

2011 Preliminary Study of Indian and Indian Style Wares from Khao Sam Kaeo (Chumphon, Peninsular Thailand), Fourth-Second Centuries BCE. 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. 47-81.

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

1990 Glass and Beads at Khuan Lukpad. In Glover, I.C. & Glover, E. (eds), *South Asian Archaeology 1986. Proceedings of the First Conference of the Association of Southeast Asian Archaeologists in Western Europe*. Oxford: Archaeopress, pp. 213-230.

### Bunchar Pongpanich

2552 *Roi lukpat / Beyond Beads*. Bangkok: Matichon Publication House. [In Thai and English; 2009 CE]

### 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, Tiruchirappalli, Tamil*

*Nadu, India*. Oxford: Archaeopress, pp. 269-274.

### Cherian, P.J., Selvakumar, V. & Shajan, K.P.

2007 The Muziris Heritage Project: Excavations at Pattanam – 2007. *Journal of Indian Ocean Archaeology* 4: 1-10.

### Crespigny, Rafe de

1990 *Generals of the South. The Foundation and Early History of the Three Kingdoms State of Wu*. Canberra: The Australian National University.

### Dembski, Günther

2005 *Die antiken Gemmen und Kameen aus Carnuntum*. Wien: Phoibos.

### Dihle, Albrecht

1984 *Antike und Orient. Gesammelte Aufsätze*. Heidelberg: Carl Winter.

### Dussubieux, Laure & Gratuze, Bernard

2010 Glass in Southeast Asia. In Bellina, B., Bacus, E.A., Price, T.O. & Wissemann Christie, J. (eds), *50 Years of Archaeology in Southeast Asia. Essays in Honour of Ian Glover*. Bangkok: River Books, pp. 246-259.

### Glover, Ian C.

1989 *Early Trade between India and South-East Asia: A Link in the Development of a World Trading System*. Kingston upon Hull: Centre for South-East Asian Studies.

1996a The Archaeological Evidence for Early Trade between India and Southeast Asia. In Reade, J. (ed.), *The Indian Ocean in Antiquity*. London: Kegan Paul International, pp. 365-400.

1996b The Southern Silk Road: Archaeological Evidence for Early Trade between India and Southeast Asia. In Amara Srisuchat (ed.), *Ancient Trades and Cultural Contacts in Southeast Asia*. Bangkok: The Office of the National Culture Commission, pp. 57-94.

### 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), *Interactions between South and Southeast Asia: Reflections on Cross-Cultural Exchange*. Singapore: Institute of Southeast Asian Studies, pp. 17-45.

**Goldstein, Sidney M.**

1979 *Pre-Roman and Early Roman Glass in the Corning Museum of Glass*. Corning, N.Y.: The Corning Museum of Glass.

**Graf, D.F.**

1996 The Roman East from the Chinese Perspective. *Annales archéologiques arabes syriennes* 42: 199-216.

**Grose, David Frederick**

1989 *The Toledo Museum of Art: Early Ancient Glass. Core-formed, Rod-formed and Cast Vessels and Objects from the Late Bronze Age to the Early Roman Empire, 1600 B.C. to A.D. 50*. New York: Hudson Hills Press.

**Guiraud, Hélène**

1988 *Intailles et camées de l'époque romaine en Gaule*. Paris: CNRS.

1992 Intaglios from Dura-Europos. *Yale University Art Gallery Bulletin* (1992): 48-85.

2008 *Intailles et camées de l'époque romaine en Gaule, volume 2*. Paris: CNRS.

**Hamburger, Anit**

1968 *Gems from Caesarea Maritima*. Jerusalem: Department of Antiquities and Museums.

**Henig, Martin**

1978 *A Corpus of Roman Engraved Gemstones from British Sites*. Oxford: British Archaeological Reports. [Second Edition; First Edition 1974]

1994 *Classical Gems. Ancient and Modern Intaglios and Cameos in the Fitzwilliam Museum, Cambridge*. Cambridge: Cambridge University Press.

**Henig, Martin & Whiting, Mary**

1987 *Engraved Gems from Gadara in Jordan*. Oxford: Oxford University Committee for Archaeology.

**Landes, Christian**

1981 Pièce d'époque romaine trouvée à U Thong, Thaïlande. *Silpakorn Journal* 26(1): 113-115.

**Lankton, James & Dussubieux, Laure**

2013 Early Glass in Southeast Asia. In Janssens, K. (ed.), *Modern Methods for Analysing Archaeological and Historical Glass*. Chichester: J. Wiley & Sons, pp. 413-441.

**Lankton, James, Dussubieux, Laure & Gratuze, Bernard**

2008 Glass from Khao Sam Kaeo: Transferred Technology for an Early Southeast Asian Exchange Network. *Bulletin de l'École française d'Extrême-Orient* 93 [for 2006]: 317-351.

**Leslie, Donald D. & Gardiner, Kenneth H.J.**

1996 *The Roman Empire in Chinese Sources*. Studi Orientali, Vol. 15. Rome: Bardi.

**Maaskant-Kleibrink, Marianne**

1978 *Catalogue of the Engraved Gems in the Royal Coin Cabinet The Hague*. Wiesbaden: Franz Steiner.

1986 *The Engraved Gems: Roman and Non-Roman*. Description of the Collections in the Rijksmuseum G. M. Kam at Nijmegen, Vol. 10. The Hague: Ministry of Welfare, Health and Cultural Affairs.

**Malleret, Louis**

1959 Les lapidaires et artisans du verre de Virampatnam. *Arts Asiatiques* 6: 93-106.

1962 *L'archéologie du delta du Mékong, volume 3*. Paris: École française d'Extrême-Orient.

**Manguin, Pierre-Yves**

2009 The Archaeology of Fu Nan in the Mekong River Delta: The Oc Eo Culture of Viet Nam. In Tingley, N. (ed.), *Arts of Ancient Viet Nam. From River Plain to Open Sea*. New York: Asia Society, pp. 103-118.

**Mattingly, Harold & Sydenham, Edward A.**

1930 *The Roman Imperial Coinage, Volume III: Antoninus Pius to Commodus*. London: Spink & Son Ltd.

**Mayuree Veraprasert**

1992 Khlong Thom: An Ancient Bead-manufacturing Location and an Ancient Entrepot. In Glover, I.C., Pornchai Suchitta & Villiers, J. (eds), *Early Metallurgy, Trade and Urban Centres in Thailand and Southeast Asia*. Bangkok: White Lotus, pp. 149-161.

**McLaughlin, Raoul**

2010 *Rome and the Distant East. Trade Routes to the Ancient Lands of Arabia, India and China*. London & New York: Continuum.

**Middleton, Sheila E. Hoey**

1991 *Engraved Gems from Dalmatia,*

*from the Collections of Sir John Gardner Wilkinson and Sir Arthur Evans in Harrow School, at Oxford and Elsewhere*. Oxford: Oxford University Committee for Archaeology.

1998 *Seals, Finger Rings, Engraved Gems and Amulets in the Royal Albert Memorial Museum, Exeter*. Exeter: Exeter City Museums.

2001 *Classical Engraved Gems from Turkey and Elsewhere: The Wright Collection*. Oxford: Archaeopress.

**Montri Choowong**

2011 Quaternary. In Ridd, M.F., Barber, A.J. & Crow, M.J. (eds), *The Geology of Thailand*. London: The Geological Society, pp. 335-350.

**Neverov, Oleg**

1988 *Antičnye kamei v sobranii Ėrmitaža*. Leningrad: Iskusstvo.

**Pannuti, Ulrico**

1983 *Museo Archeologico Nazionale di Napoli: Catalogo della collezione glittica I*. Roma: Istituto poligrafico e Zecca dello Stato.

**Peronnet, Sophie**

2013 Overview of Han Artefacts in Southeast Asia with Special Reference to the Recently Excavated Material from Khao Sam Kaeo in Southern Thailand. In Klokke, M.J. & Degroot, V. (eds), *Unearthing Southeast Asia's Past. Selected Papers from the 12th International Conference of the European Association of Southeast Asian Archaeologists, Volume 1*. Singapore: NUS Press, pp. 155-169.

**Peronnet, Sophie & Sachipan Srikanlaya**

Forthcoming The Han-related Ceramics. In Bellina, B. (ed.), *Khao Sam Kaeo: An Early Industrial Port-city between the Indian Ocean and the South China Sea*. Paris.

**Phasook Indrawooth**

2004 The Archaeology of the Early Buddhist Kingdoms of Thailand. In Glover, I.C. & Bellwood, P. (eds), *Southeast Asia. From Prehistory to History*. London: Routledge, pp. 120-148.

2009 Un antique royaume urbanisé de Thaïlande. In Baptiste, P. & Zéphir, T. (eds), *Dvāravatī : aux sources du bouddhisme en Thaïlande*. Paris: Réunion des Musées nationaux, pp. 30-45.

**Phongsi Wanasin & Thiwa Suphachanya**

2524 *Mueang boran boriven chai fang thale doem khong thi rap phak klang prathet thai: kansueksa lammaeng thi tang lae phumisat samphan (Ancient Cities on the Former Coastline in the Central Plain of Thailand: The Study of Sites and Geographical Correlation)*. Bangkok: Chulalongkorn University Press. [In Thai; 1981 CE]

**Piriya Krairikhs**

2012 *The Roots of Thai Art*. Bangkok: River Books. [First published in Thai as *Rakngao haeng sinlapa thai*, 2553 (2010 CE)].

**Pryce, Oliver, Bellina, Bérénice & Bennett, Anna**

2008 The Development of Metallurgies 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]: 295-315.

**Sena Chiesa, Gemma**

1966 *Gemme del Museo Nazionale di Aquileia*. Aquileia: Associazione Nazionale per Aquileia.

**Stern, E. Marianne & Schlick-Nolte, Birgit**

1994 *Early Glass of the Ancient World 1600 B.C.-50 A.D.* Ostfildern: Hatje.

**Tanabe Susumu, Saito**

**Yoshiki, Sato Yoshio, Suzuki Yuichiro, Sin Sinsakul, Suwat Tiyapairach & Niran Chaimanee**  
2003 Stratigraphy and Holocene Evolution of the Mud-dominated Chao Phraya Delta, Thailand. *Quaternary Science Reviews* 22: 789-807.

**Tomber, Roberta**

2008 *Indo-Roman Trade. From Pots to Pepper*. London: Duckworth.

**Turner, Paula**

1989 *Roman Coins from India*. London: Royal Numismatic Society.

**Wannasarn Noonsuk**

2550 *Sayam prathet: kantittolok phainok lae phatthanakan khong bannueang (Siam: External Contacts and Early Development of Cities and States)*. Bangkok: National Discovery Museum Institute. [In Thai; 2007 CE].

**Wantana Klysubun, Yatima Thongkam, Sorapong Pongkrapan, Krit Won-in, Jiraroj T-Thienprasert & Pisutti Dararutana**

2011 XAS Study on Copper Red in Ancient Glass Beads from Thailand. *Analytical and Bioanalytical Chemistry* 399: 3033-3040.

**Weinberg, Gladys & Stern, E. Marianne**

2009 *The Athenian Agora, Volume 34: Vessel Glass*. Princeton: The American School of Classical Studies at Athens.

**Weiß, Carina**

1996 *Die antiken Gemmen der Sammlung Friedrich Julius Rudolf Bergau im Germanischen Nationalmuseum, Nürnberg*. Nürnberg: Verlag des Germanischen Nationalmuseums.

2007 *Die antiken Gemmen der Sammlung Heinrich Dressel in der Antikensammlung Berlin*. Würzburg: Ergon.

**Welham, Kate, Jackson, Caroline M. & Smedley, James W.**

2000 Colour Formation in Sealing Wax Red Glass. *Annales du 14e Congrès de l'Association internationale pour l'histoire du verre, Venezia-Milano 1998*. Lochem: Association internationale pour l'histoire du verre, pp. 11-15.

**Wheeler, Robert Eric Mortimer, Sir**

1954 *Rome Beyond the Imperial Frontiers*. London: G. Bell & Sons Ltd.

**Wright, Michael**

2552 *Krik-Roman nai usakhane (Graeco-Roman in Southeast Asia)*. Bangkok: Matchon Publication House. [In Thai; 2009 CE].

**Zwierlein-Diehl, Erika**

1979 *Die antiken Gemmen des Kunsthistorischen Museums in Wien, Volume 2*. Munich: Prestel.

1991 *Die antiken Gemmen des Kunsthistorischen Museums in Wien, Volume 3*. Munich: Prestel.

2007 *Antike Gemmen und ihr Nachleben*. Berlin/New York: De Gruyter.