

THE ARCHAEOLOGY OF EARLY
CONTACT WITH INDIA AND THE
MEDITERRANEAN WORLD, FROM
THE FOURTH CENTURY BC TO
THE FOURTH CENTURY AD

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Introduction

From early in the first millennium AD, elite groups in many parts of Southeast Asia, except in the remote and forested interior of the mainland or in the eastern islands of Indonesia and the Philippines, adopted Hindu and Buddhist cults, political ideologies and ritual language as shown by the many religious monuments, images and inscriptions. There are some ambiguous external historical sources, Chinese and Indian, such as the accounts of the mysterious kingdom of Funan in the Mekong River Delta of present-day Cambodia and Vietnam, translated from Chinese sources and compiled by the French scholar Paul Pelliot, and the *Arthashastra* of Kautilya, which record the process of “Indianization”. The textual data are presented and analysed in numerous books and articles¹ and this historical information is not considered in this chapter, which deals almost exclusively with the surviving material evidence from archaeology.

According to the periods in which they wrote, and the scholars’ background, various explanations have been proposed for this process. Early in the twentieth century, the European colonization of Asia led many scholars to think that the transfer of Indian culture was due to large-scale migration of Indians to Southeast Asia. This scenario was carried to an extreme by supporters of the “Greater India” movement, such that the renowned scholar R. C. Majumdar could assert that “the Hindu colonists brought with them the whole framework of their culture and civilization and this was transplanted in its entirety among the people who had yet not emerged from their primitive barbarism”.² In contrast to this colonialist approach, O. W. Wolters has written of the selective “localization” of Indian cultural elements and emphasized the innovative and dynamic character of Southeast Asian societies.³ In a rather similar vein, Kulke speaks of “convergence” between small principalities on both sides of the Bay of Bengal, linked by a complex network of exchange relations and being partners in a mutual process of civilization.⁴ Nowadays, all regional specialists agree that acculturation in this region, whether one wants to call it “Indianization”, “localization” or “convergence”, was clearly linked to expanding trade networks and more especially to the maritime routes. In

order to understand this process, it is necessary to study the formation and evolution of these networks across an area from the eastern coasts of the Indian subcontinent to the different regions of Southeast Asia.

Exchange networks in South Asia and Southeast Asia*

During the period under study, India witnessed the emergence of several mature states: the Mauryas, Kushanas and the Guptas in North India, and the Satavahanas in the Deccan. South India also contained some powerful chiefdoms such as the Cheras, Cholas and the Pandyas, some of which emerged as urbanized kingdoms such as that of the Pallavas, who ruled modern-day Tamil Nadu during the third/fourth to the ninth centuries AD. Despite the political plurality, what mattered for trade was the codification of crafts under guilds, which acted as banks and places for investment and the monetarization of parts of the economy, as shown by the wide range of coins issued by cities in different areas. Trade based on profit is well described in the *Arthashastra*, and an elaborate bureaucracy developed, especially in the Mauryan state. There was a considerable development of both overland and maritime trade routes, although with many regional variations in the organization of trade. The period also saw the rise of specialized trading communities (*vanijas* and *setthis*) in the middle Ganga Valley, dealing in salt, textiles, metals and pottery.

The newly spreading cults of Buddhism and Jainism accepted the accumulation and reinvestment of wealth; a concept quite alien to the culture of the earlier Vedic period in which reciprocal exchange of the “prestige goods” type had been the normal method of distributing exotic and luxury items. Long-distance trade between the agricultural hinterland of the middle Ganga Valley, ports such as Gange and Tamralipti in the Delta, and those at the mouth of the Narmada Valley on the west coast such as Broach (Barygaza in the *Periplus*), developed rapidly at this time. The gemfields and gold-rich deposits of South India were quickly integrated into these trading systems.⁵

With a lack of written records, we cannot analyse in the same detail as India, the structure of exchange within Southeast Asia for the thousand years from the fifth century BC onwards. Good archaeological documentation is still scarce and we depend over-much on models based on analogies from more recent historical and ethnographic situations. For instance, Bronson, Wheatley, Wolters, Miksic and Wisseman Christie have all proposed evolutionary or structural models for Southeast Asian exchange systems.⁶ Although useful, these are generalized and abstract and, for the most part, lack firm support from empirical data from the past.

However, we know that late prehistoric settlements of the second and early first millennia BC in Mainland Southeast Asia regularly occur in small stream valleys which feed the major river systems. These, perhaps quite isolated, villages were linked by far-reaching exchange networks which saw marine shell ornaments being taken over 1,000 km from the coast, and copper and tin ingots and artefacts entering communities far removed from the ore sources. Marble, marine shell, serpentine and other rare stone material, ceramics and doubtless many perishable items exchanged hands along the river systems. As Higham in chapter 3 makes clear, the middle of the first millennium BC in

*See Chapter 6, Figure 6.3.

Southeast Asia was a period of profound economic, social and political change. The Iron Age in Southeast Asia was marked by increases in wealth and social complexity leading to powerful territorial polities. Large or valuable objects, such as Dong Son bronze drums and nephrite ornaments from Vietnam, arrived by sea to enter long-established exchange routes along the rivers. Thus, it is evident that intra and inter-regional exchange routes were well developed before they were linked to the more developed South Asian trading systems.

Wisseman Christie has argued for the emergence of three clusters of producer-trading states in Peninsular Malaysia during late centuries BC.⁷ But throughout most of Southeast Asia at this time, the highest level of political organization was what might be called chiefly society, or at best some nascent states in which and barter and gift-giving were likely to have been the principal modes of exchange, since there is no evidence for coinage. In central Vietnam, the Sa-Huynh Culture probably represented a culturally-related series of chiefdoms which were closely involved in overseas trade, as shown by the Sa-Huynh, or Sa-Huynh influenced, artefacts and urn burials widely distributed in the Philippines, northern Indonesia and parts of Thailand.

The role of Indo-Roman trade in the articulation of South and Southeast Asian exchange networks

Although our knowledge of intra-regional trading networks is uneven, archaeology provides evidence enough to demonstrate that they were already dynamic and expanding before they became interlinked. These networks were greatly stimulated by their integration into Indian trade to the west. Indo-Roman commerce had generated a rising demand for exotic and prestigious items of consumption and adornment in the urban civilizations of the Mediterranean Basin – that “splendid and trifling” trade in spices, perfumes, precious stones and pearls, silks and muslin, tortoiseshell, ivory and rhinoceros horn, dyes and unguents, ghee, lac and so on scorned by the high-minded historian, Edmund Gibbon, for undermining Roman republican virtues. Unfortunately most of the traded items mentioned in the classical texts were perishable and archaeologists can rely only on those surviving the tropical conditions.

As an example of the demand for exotic products in the west, one need only look at the spice trade and particularly at the trade in cloves, the unopened flower buds of the tree *Eugenia aromatica*, whose home was in the northern Moluccan islands of eastern Indonesia. Cloves were already known in China in the third century BC, and were described by Pliny in Rome in the first century AD. At the production end, the trade in cloves, nutmeg and mace transformed Moluccan society from scattered kin-based communities of hunter-gatherers and shifting cultivators to stratified coastal trading states and petty empires. As one author has pointed out,

It was the spice trade which was partially responsible for the Indianization of Southeast Asia and which later facilitated the spread of Islam. So this western demand for an aromatic flower bud of rather little value to the native peoples of the Moluccas transformed, in the long run, the economic and political face of Asia.⁸

Later in this chapter we emphasize some of the most frequent and enduring materials found in late prehistoric archaeological contexts in India and Southeast Asia which

provide evidence for this contact and exchange; especially pottery and bronze vessels and ornaments of semiprecious stone and glass, coins and seals. However, it must also be remembered that ideas and technologies also travelled; glass-making was one, as some of its products survive to bear witness. We also believe that the techniques of iron-smelting and forging were taken from India to Southeast Asia in the mid-first millennium BC, although no iron products of certain Indian manufacture have so far been identified from Southeast Asian sites. The tradition of making large stone slab tombs and other “megalithic” structures in western Indonesia and the Malay Peninsula may also reflect these early links, although those of Neolithic Beinan in southeastern Taiwan probably have an entirely local origin.

Coins, seals and other rarely found objects

Roman coins of gold, silver and copper have been found in very large quantities in India, particularly in the south, but only a few seem to have been carried further east and the contexts of these finds are always unclear. They include the well-known second century AD medallions of Marcus Aurelius and Antoninus Pius found at Oc Eo, a third-century copper coin of Victorinus from U-Thong in Thailand (Figure 4.1), and another Roman coin, too worn to be properly identified, found at Khuan Lukpad in Peninsular Thailand (see Figure 6.5). Of clear Indian origin is an ivory comb from Chansen Phase II decorated with a pair of horses, a *hamsa* and a “vase of abundance” (Figure 4.2).



Figure 4.1 A copper coin of Western Roman Emperor, Victorinus (AD 268-70) found at U-Thong, Thailand. (Photograph by I. C. Glover).

Carnelian intaglios and seals, two at least of well-known second-century AD Roman types, were found at Khuan Lukpad. Many other seals and sealings, some “classicizing” and others with Brahmi or Kharoshthi inscriptions, or images of boats, have been found

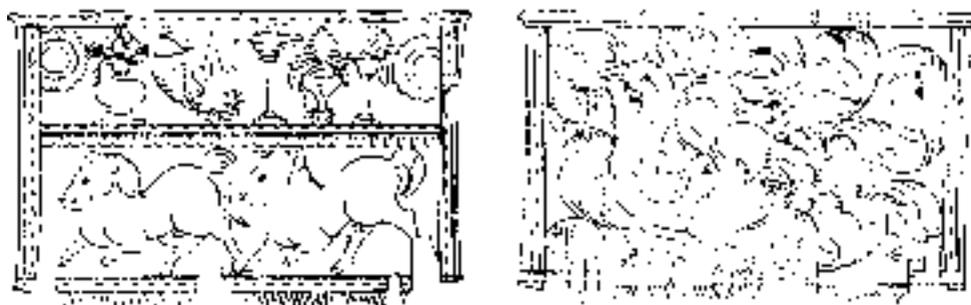


Figure 4.2 Ivory comb from Chansen Phase II, Western Thailand, decorated with a pair of horses, a *hamsa* and a “vase of abundance”. The find was dated to the third century AD. (Drawing courtesy of the publishers of *Asian Perspectives*).

there as well as at a number of other Southeast Asian sites. This material is quite well known and has recently been described in a number of books and articles by Himanshu Ray; it is more thoroughly discussed and illustrated in chapter 6 by Phasook Indrawooth. Unfortunately, very little of this material may be attributed to a specific context and the date of its arrival in Southeast Asia may only be guessed at. What we can be reasonably sure of is that all these western items came to the region from, or via, India; thus they provide support for the development of early contacts across the Bay of Bengal.

Stages in the development of Indian – Southeast Asian exchange links

A study of the different traded materials allows us to confirm the existence of two distinct phases. The first seems to start about the fourth century BC and to end around the second century AD. The scattered evidence of this phase (Phase I) enabled the Dutch historian Van Leur to refer to regular but less intense and archaeologically less-visible contacts that preceded Indianization.⁹ During Phase II (second–fourth century AD), intra and inter-regional exchange intensified. From about the mid fifth century AD, fully Indianized kingdoms appear in Burma, Thailand, Cambodia, coastal Vietnam and western Indonesia, and this theme is taken up in subsequent chapters of the book.

Phase I (fourth century BC to second century AD)

Trade between the classical world and India

Indo-Roman commercial undertakings seem to have been highly organized and are quite well documented in classical writing dating from the second century AD, even though there is much uncertainty about the details. Revisions are regularly proposed for dating the growth of this trade from the evidence provided by archaeology. We argue that virtually all new data on this trade is likely to come from archaeology, which has barely started to research the problem, rather than from literary and historical sources, which seem to be finite and mostly known.

In India, there is abundant physical evidence of trade in the form of Mediterranean amphorae and Italic Arretine ware on the South Indian coast, of Roman gold-coin hoards throughout South India, and of numerous classical intaglios and seals throughout southern India and Sri Lanka. There is also Mediterranean lead in the Satavahana coinage of Central and Eastern Deccan. In the Mediterranean, although Asian imports have largely died (slaves and elephants) or decayed beyond recognition (silks and cotton, wood and lacquer), there exists a remarkable reminder of this trade in the form of the exquisite Indian ivory figurine buried under the ash of Pompeii.¹⁰

But what is lacking in identifiable artefacts is more than made up by the wealth of textual data. For instance, there are detailed contemporary descriptions of the structure of the trade in the *Periplus*, in Strabo's and Ptolemy's *Geographies* and Pliny's *Natural History*.¹¹ There is sufficient detail that historians such as Rashke and archaeologists such as Wheeler have been able to develop a comprehensive and, on the whole, convincing structure for trade between India and the Roman world, as it existed at the beginning of the Christian era.¹² These exchange systems were more developed than those described for Southeast Asia and approximate to the "Middleman", and "Port of Trade" modes. In many cases, particularly at the western ends of the trade routes, these were

entrepreneurial ventures undertaken for commercial profit, facilitated by the use of coinage and underwritten by accumulated capital.

The trade between India and Southeast Asia

In Southeast Asia, very few items may securely be assigned to the western world. Those reaching the region, such as a few coins and intaglios, came through South Asia. The bulk of the archaeological evidence consists of Indian or Indian-made objects, some of which show western influence. In Phase I they are found in non-Indianized contexts. The first evidence of regular exchange consists in glass and stone beads and ornaments, and ceramic and bronze vessels. It seems to us that vessels of this phase are very similar to Indian types, whether imported or locally made. They testify already frequent exchange. Three types of vessels seem to characterize this period; bronze containers with a central knob or cone, pottery rouletted wares, and stamped wares.

SEMI-PRECIOUS STONE BEADS AND PENDANTS

During Phase I, the semiprecious stones agate and carnelian, and to a lesser extent rock crystal and nephrite, were used for most of the beads and pendants widely found in Southeast Asia, replacing the softer materials such as serpentine, limestone, marble and shell used to make ornaments beforehand. These new types of ornament have chiefly been discovered unevenly distributed in burials, indicating that they were probably the valued possessions of an emerging elite who used them in life, as in death, as indicators of status. The rich finds of agate and carnelian beads at sites such as Ban Don Ta Phet (Plate 2), Khao Sam Kaeo and Noen U-Loke in Thailand, at Giong Ca Vo and other Sa Huynh sites in Vietnam, at Gilimanuk in Bali and Leang Buidane in the Talud Islands, Indonesia, show the wide acceptance of these new materials.¹³

In addition to the simple beads of agate and carnelian there are some very unusual lion pendants from Ban Don Ta Phet (Plate 3), Ban U Taphao and Khao Sam Kaeo. (They occur also in Han Period tombs in South China), all of which have close Indian correlates. Alkaline-etched agate and carnelian beads must also be brought into the picture. This very specialized craft tradition originated 4,500 years ago in the Harappan period and such beads were widely manufactured in India from about 600 BC. The presence in the late centuries BC of spectacular decorated stone beads in Burma, Thailand, Vietnam, Yunnan, Indonesia and in the Philippines may best be understood through the operation of exchange networks.

For a long time it has been assumed that all the agate and carnelian found in Southeast Asia in this early period (as with glass ornaments – see below) originated in India. This is because South Asian workshops developed the highly skilled techniques to make fine beads out of these hard stones. The richest sources of microcrystalline quartz rocks known in antiquity are also in the volcanic rocks of the Deccan Plateau. Furthermore, no beads made of these materials have yet been found in Southeast Asian contexts prior to the Iron Age.

Until the early centuries AD, the assumption of Indian origin probably remains true. But from this period onwards we find evidence of local manufacture is found at Khuan Lukpad and Kuala Selinsing, both on the western coast of the Thai-Malay Peninsula, and to a lesser extent at Oc Eo in southern Vietnam. Whether the raw materials came from

South Asia or if Southeast Asians had found and started to exploit local sources, as some recent trace element studies seem to suggest, is not yet known.¹⁴

Agate and carnelian are difficult to work and require skilled techniques including the knowledge of how to heat the stone to make it easier to knap and to induce changes in colour by heating and staining. This led Peter Francis to suggest and Bérénice Bellina to demonstrate, that some Indian craftsmen probably settled in Southeast Asia.¹⁵ When local workshops first developed, and how much Indian influence was involved in the specialized craft of bead-making, are among important topics currently being investigated.¹⁶

GLASS IN SOUTH AND SOUTHEAST ASIA

Glass, mainly in the form of beads, appears commonly in archaeological sites in South and Southeast Asia in the first millennium BC and more or less accompanies the regular adoption of iron. The first finds of true glass from the Indian subcontinent occur in the Iron Age painted grey-ware culture of northern India from about 1,000 BC. From this time onwards glass beads were regularly made in many parts of the subcontinent, although few sites are closely dated and most beads are casual finds lacking specific contexts.¹⁷ Francis identified four regional traditions of early-glass making in India, of which by far the most important for the exchange with Southeast Asia was on the Tamil Nadu coast. Here, Arikamedu and Karakaidu, south of Madras, were the best-known production sites, where the beads were drawn into long hollow tubes and then cut into sections to be annealed. Francis refers to these as “Indo-Pacific Monochrome Drawn Glass Beads”, or more simply “Indo-Pacific Beads”, and they were manufactured in Southern India from at least the fourth century BC. They were widely traded for over 1,500 years to Africa, Japan and Korea, as well as to Southeast Asia. Production was dominated by small opaque monochrome red beads often known as *mutisalah* (“false pearls”) in Indonesia, where they are particularly common.

Based on a study of manufacturing debris from archaeological sites, Francis concluded that beads of this tradition were also made at various times from the first century BC onwards at Mantai and Anuradhapura in Sri Lanka, Khuan Lukpad and Satingpra in southern Thailand, Kuala Selinsing in Malaya, Muara Jambi in Sumatra, and Oc-éo in Vietnam.¹⁸ Two features tend to distinguish early South Asian from West Asian and European glasses, these being a high alumina ($\text{Al}_2\text{O}_3 > 3.5\text{--}4$ per cent) and low lime content ($\text{CaO} < 4.5\text{--}5$ per cent). From compositional analyses it is clear that Indian glass-makers at the turn of the Christian era used a number of distinct batch compositions to produce a range of clear, translucent coloured and opaque glass beads.

EARLY GLASS IN SOUTHEAST ASIA

A number of researchers have recently reviewed the evidence for early (i.e. prehistoric) glass in Southeast Asia and discussed the relationships with India.¹⁹ The first glass is found in the middle of the first millennium BC at Iron Age sites in Peninsular and Central Thailand. Its spread closely matches that of iron. Indo-Pacific beads are the most common type, and among them opaque brown-red and orange-red *mutisalah* are most frequently found. In Thailand, they have been found in sites such as Ban Chiang, Ban Na Di, Non Muang, Ban Tha Kae, Ban Don Ta Phet, Prasat Muang Singh, Khao Sam Kaeo and Kok Ra Ka. They have also been found at Kuala Selinsing in Peninsular Malaysia and

at Sembiran in Bali. Oc Eo in Vietnam has yielded the largest number of glass beads of any site in Southeast Asia and there was some local manufacture there, although some importation is also likely.

Ban Don Ta Phet (Kanchanaburi, Thailand) is important because it has yielded the best dated and widest range of glass beads with secure contexts of any site in Southeast Asia. A few bangles and distinctive ear ornaments were also found, and one typical Sa Huynh style two-headed animal ear pendant of nephrite from Vietnam (Figure 4.3). The site is an Iron Age secondary burial location dated to the early part of the fourth century BC (360–390 BC), with



Figure 4.3 Sa Huynh style two-headed animal ear pendant of nephrite from Vietnam. Excavated at Ban Don Ta Phet, 1985. (Photograph by I. C. Glover).

many semiprecious stone and glass beads, bronze vessels and ornaments, iron tools and weapons. Glover mentions that a number of the translucent glass beads at Don Ta Phet have cubic, bi-pyramidal, square prismatic or hexagonal prismatic shapes (Figure 4.4) and imitate the forms of natural mineral crystals, especially the famous beryl crystals of South India. Such crystal-shaped glass beads have been recorded only rarely in Southeast Asia.²⁰

Early Southeast Asian glass beads may be grouped into two broad compositional types: mixed-alkali glass, and potash glass. The mixed alkali glass beads are all opaque red *mutisalah* beads with a high copper content, probably of Indian manufacture. The potash glasses include all colours and degrees of opacity and it is now generally thought that some were made locally in Southeast Asia, even at this early date, since they include forms never found in India. Khuan Lukpad, Tha Muang (U-Thong) and Oc Eo were glass bead manufacturing sites during the early centuries AD, but they have been much disturbed by bead diggers. There is as yet no unequivocal evidence to date the manufacture of raw glass back to the prehistoric period in Southeast Asia, although raw glass cullet may have been imported earlier than this and worked into beads and other ornaments.

BRONZE VESSELS WITH A CENTRAL CONE

This appears to be the most ancient container type indicating links between India and Southeast Asia, occurring at a few sites in central and western Thailand such as in Ban Don Ta Phet, a cave at Khao Kwark in Ratchaburi Province (where a Dong Son Drum was also recovered) and from looted sites around Lopburi. At Ban Don Ta Phet about 30 high-tin bronze containers were excavated, many incomplete and very fragmentary. They have relatively flat bases and some have a number of concentric circles surrounding a central cone (Figure 4.5). The vessel walls are very thin – sometime less than 1 millimetre – and usually, but not always, have rather low sides, slightly curved to the exterior.²¹ Metal vessels, probably bronze, also with a central cone, were found in the 1930s by the Swedish archaeologist Olov Janse in brick-built tombs of Chinese Han style at Dong Son, Thanh Hoa Province, dated to about the first century AD. Other, rather similar high-tin bronze bowls, but without the conical boss, have been found during tinnedredging operations in West Malaysia.

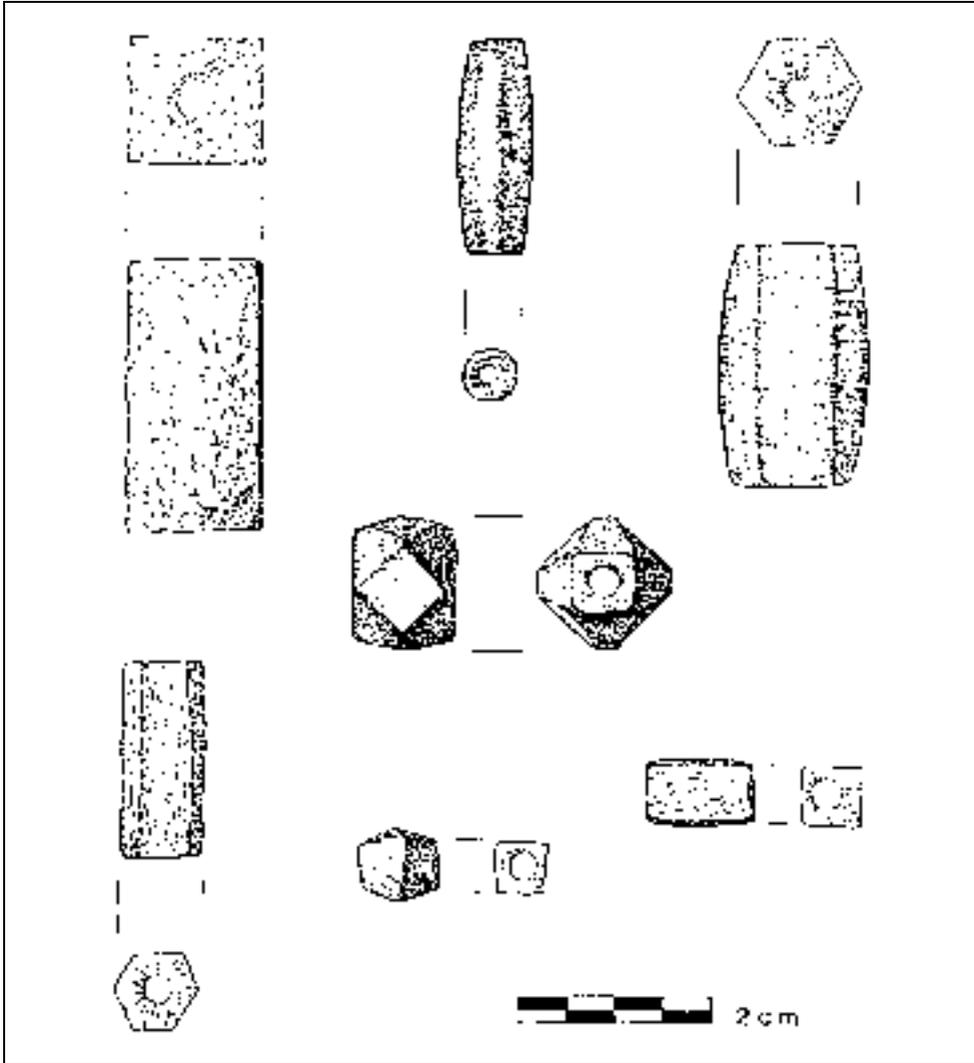


Figure 4.4 Translucent glass beads from Ban Don Ta Phet with cubic, bi-pyramidal, square prismatic or hexagonal prismatic shapes imitating the forms of natural mineral crystals, especially the famous beryl crystals of South India. (Drawing by A. Farrer).

Examples of this type of container made from pottery, stone, bronze and silver have been found widely distributed in many different cultural settings in the Indian subcontinent. In pottery they occur in levels of the last centuries BC at Taxila in Pakistan, Varanasi in Uttar Pradesh, Nevasa in Maharashtra, Sisulpalgarh in Orissa, in Bengal and Bangla Desh, in Andhra Pradesh, and at Arikamedu in Tamil Nadu. At Mahastangarh, in Bangla Desh, vessels of this type in Northern Black Polished Ware are dated to the third–second centuries BC. One complete specimen made from black granite was recovered in the nineteenth century from the reliquary chamber of a

ruined early Buddhist *stupa* near Taxila (Figure 4.6).

A great variety of silver, copper and bronze knobbed-base bowls were also found at both the Bhir and Sirkap mounds in Taxila. In southern India, bronze bowls of this type occur in megalithic graves in the Nilgiri Hills of Tamil Nadu. Casal excavated one at Souttoukeny dated to about the second century BC. Janse referred to a comment by Bruce Foote to the effect that such vessels “greatly resemble Graeco-Roman art works”. In summary, these distinctive bowls, though far from common in Southeast Asia, can be said to be widespread in the subcontinent. It seems highly probable that the form has its origins in the West, even though the Asian examples exhibit shapes and decorative variations not known there. Janse compared the Vietnamese examples with the Megarian type of bronze bowl found in Macedonia, and when Marshall described the knobbed base vessels from Taxila he suggested that they may have been stylized versions of a Greek ceramic type known as the *phiales* bowl, common in the Mediterranean world in the third and second centuries BC.

If the ultimate origin of this vessel form was among the western classical civilizations, they quickly spread into South Asia and soon after that into Southeast Asia. Arrival in India by the maritime route is unlikely owing to their absence on the western coast and it is more likely that they came by a land route. Gardin who studied the pottery from Aï Khanum, commented that Hellenistic pottery forms, including Megarian bowls, very quickly reached Central Asia;²² and it is possible to follow and date their spread via the Near East, Afghanistan and Pakistan, along the Ganga Valley, and then down the east coast of India into Tamil Nadu. Once they reached South Asia, the knobbed base bowl with a central cone underwent modifications in form and probably in function. Specification of the route(s) for the transmission of this vessel type to Southeast Asia remains for the future.

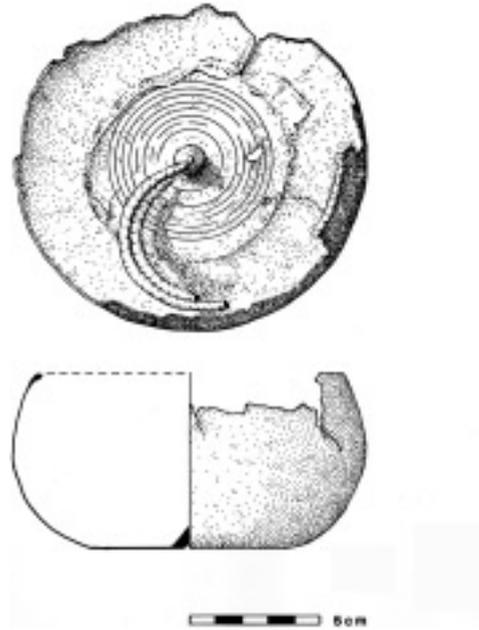


Figure 4.5 High-tin bronze bowl with central cone and concentric rings from Ban Don Ta Phet. (Drawing by Anne Farrer).

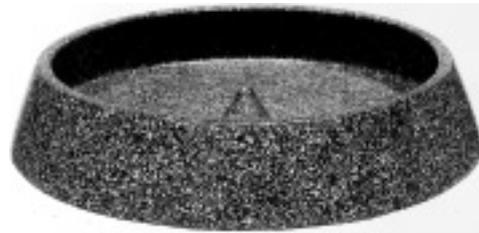


Figure 4.6 Black granite bowl with central cone from the reliquary chamber of a stupa near Taxila, Pakistan. (Photograph courtesy of The British Museum).

ROULETTED WARE

This wheel-made pottery constitutes a very significant item in the evidence for exchange between South and Southeast Asia. It has been well known in India since the excavations of Wheeler at Arikamedu in the 1940s. The most common form is a flat-based shallow dish, about 6 centimetres deep and up to 32 centimetres in diameter. The bevelled rim curves slightly inwards. The surface is highly polished, brown to red-grey in colour, and the interior body mainly grey. Decoration comprises one to three interior bands of impressed rouletted designs.²³ The flat vessel shape derives from the forms of protohistoric Black and Red Ware pottery (BRW) found in the earliest levels at Arikamedu which, together with Northern Black Polished Ware (NBPW), spread from the Ganga Valley into southern India during the Mauryan period.

Rouletted ware is found in many sites in the subcontinent, from the south to the northeast. Among these are Anuradhapura, Kantarodai and Mantai in Sri Lanka; Arikamedu, Karakadu and Kodumanul in Tamil Nadu; Amaravati and Brahmagiri in Andhra Pradesh; Sisulpalgarh in Orissa; Tamluk and Chandraketugarh in Bengal; and Mahasthangarh in Bangla Desh. This distribution shows a pattern of trade along the east coast.

A tight chronology for rouletted ware remains a matter of debate. Wheeler dated it to the first and second centuries AD. Begley placed its appearance in the second century BC and suggests that it could have lasted until the first century AD. In Sri Lanka, Deraniyagala suggested an even earlier origin based on radiocarbon dates for the oldest levels of Period IV at Anuradhapura, between 500 and 250 BC. However, such early dates need confirmation before they can be accepted. It is generally agreed that rouletted ware was locally made in only a few centres, probably in Tamil Nadu,²⁴ since the fabric is very homogenous. These centres are still to be identified and we find it difficult to accept Gogte's arguments that it all came from Bengal where very little, and that not typical rouletted ware, has been found.²⁵

In Southeast Asia, rouletted ware has been excavated, sometimes in dated contexts, in Bali, Java and Vietnam. Walker and Santoso were the first to identify three rouletted ware bowls from sites of the Buni Complex on the north coast of Java.²⁶ Two of these are of the classic Indian type (Figure 4.7) while the third is better compared to an Indian ceramic type called "russet coated painted Andhra ware", contemporary with rouletted ware. Sembiran, a coastal site on the north coast of Bali, is especially rich in rouletted ware sherds, Arikamedu Type 10 stamped ware (see Figure 2.7) and Indo-Pacific beads. This site was excavated by Ardika and Bellwood and dates from the last centuries BC to the early centuries of the Christian Era.²⁷ The vessels are wheel-made with a fine fabric and decorated with two or three bands of rouletting. Some sherds were examined by neutron activation analysis and compared with samples from Arikamedu, Karaikadu and Anuradhapura. The results showed a great similarity between the rouletted ware from all these sites, confirming the concept of a single source.²⁸ Finally, one sherd of dark grey rouletted ware was found in Phase 1 at Tra Kieu in Central Vietnam, dated to the first century BC and the first half of the first century AD. Mineralogical analysis by Prior confirmed that the fabric was indistinguishable from that of sherds from Wheeler's excavations at Arikamedu.²⁹

Thus, the presence of Indian-made rouletted ware in Southeast Asia puts the matter of contact between these regions beyond question. Although the chronology for these

imports needs greater precision, it seems likely that the appearance of rouletted ware in Southeast Asia was just a little later than the knobbed bronze vessels.

MEGALITHS IN SOUTHEAST ASIA

Megalithic graves are generally thought to be collective tombs for clans or other kin groups (Figure 4.8). Such tombs, and sometimes alignments and other structures, are relatively common in south-central Sumatra, the Malay Peninsula, parts of Java and some of the eastern Indonesian islands. They are very rare in most of Mainland Southeast Asia. Links with the well-known Iron Age megalithic graves of southern India have long been proposed. In the 1930s, van der Hoop carefully surveyed and excavated in Java and Sumatra a range of stone images, dolmens, menhirs, circles, terraces and slab graves. He showed that they were, for the most part, constructed by indigenous iron-using peoples. However, he also recognized external contact in the form of the glass and stone beads to which he attributed an Indian origin, and the carvings of Vietnamese Dong Son drums on the stone reliefs at Batu Gajah and Airpurah on the Pasemah Plateau in southern Sumatra.

Because of the lack of well-dated megalithic structures, the exact timing for the arrival of these external cultural traits and materials is still unresolved, but it seems probable that they belong to the early Metal Age of the late centuries BC to early centuries AD, when prestige items such as Dong Son bronze drums and semiprecious stone and glass beads were coming through the developing exchange networks.³⁰ At this time it seems that links between Sumatra and southeastern India, the centre of the Indian Iron Age megalithic tradition, were particularly close. The Sumatran megalithic graves regularly contain agate, carnelian, crystal and glass beads of exactly

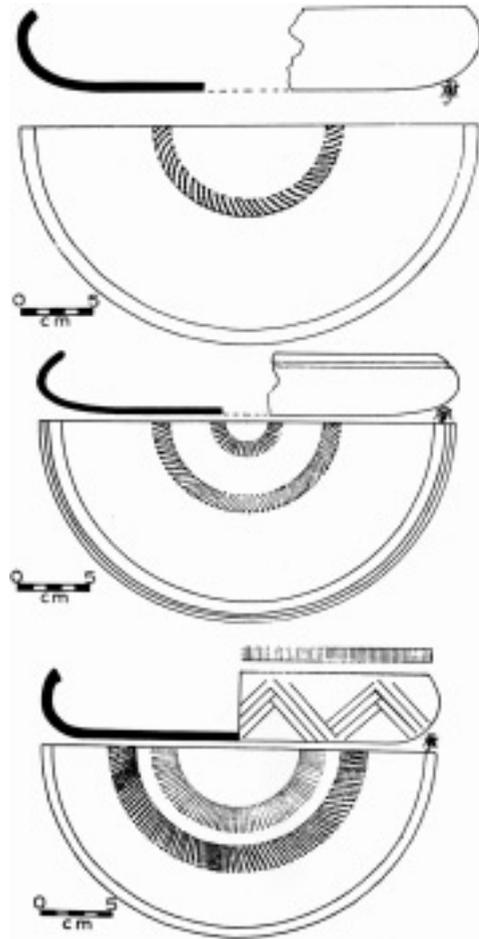


Figure 4.7 Rouletted ware bowls from Kobak Kendal and Cibutak, Java. (Courtesy of the National Museum, Jakarta).



Figure 4.8 Megalithic stone circle at Batu Kantan, West Java, Indonesia. (Photograph courtesy N. Y. Kim).

the same varieties as those found in India, so it seems reasonable to see the fashion for building such tombs as introduced at this time.

Phase II (second to fourth centuries AD)

During the second phase, inter and intra-regional exchange intensified and is marked by a lesser diversity but greater quantity of items available for study. Most of the archaeological evidence now consists of Southeast Asian-made ceramics inspired by Indian models. These include the *kundika* and *kendi* pottery types, and stamped and moulded ceramics, which clearly show the adoption of Indian forms and decorative techniques. From this time, objects in contexts referred to as “Indianized” may be found. Glass and stone beads still came from India along the oceanic trade routes, but local manufacturing in an Indian tradition is now beyond doubt and it is difficult to separate imported from locally-made products on the data so far available.

The Kundika

This is a form of pitcher with a long neck and a spout swelling at the base (Figure 4.9). The *kundika* (sometimes referred to as a “sprinkler”) is an Indian ceramic form extensively adopted in Southeast Asia from the last centuries BC, but only for a brief period. It is a specialized form of the more common spouted vessel commonly known in Southeast Asia as the *kendi*.³¹ The *kundika* becomes rare in South Asia after the sixth–seventh centuries and was primarily associated with Hindu rituals. However, it has also been found in Buddhist sites dating from the beginning of the historical period and was frequently made in the distinctive Red Polished Ware. Easily identifiable *kundika* vessels occur in Pyu sites in Burma, such as Beikthano, in the Mon site of Winka south of Thaton on the Tenasserim coast, in Dvaravati sites in Central Thailand (Chansen and Ban Khu Muang), at Oc Eo in South Vietnam, at Tra Kieu in Central Vietnam and in Central Java.

Stamped and moulded ceramics

Southeast Asian pottery with stamped or moulded designs (Figure 4.10) also derives from Indian prototypes which remain to be studied in detail. In South Asia such forms occur for the first time during the

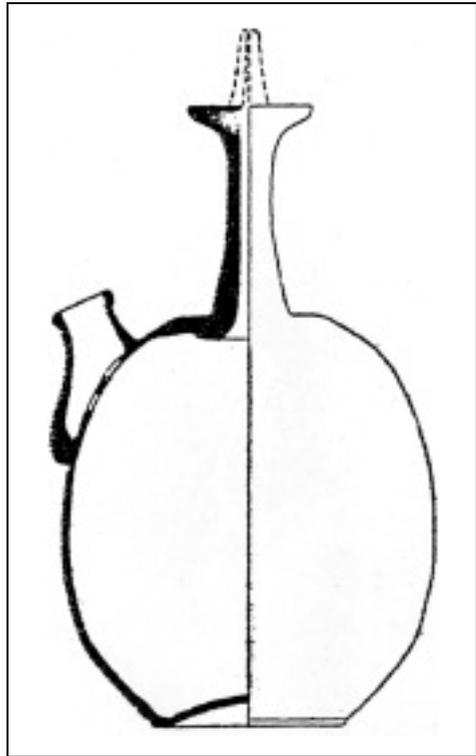


Figure 4.9 Kundika from Kausambi, UP, India. (Drawing by B. Bellina from Sharma 1969: 178).



Figure 4.10 Stamped pottery from Beikthano, Burma/Myanmar. (Drawn by B. Bellina from Aung Thaw 1968, fig. 71).

last centuries BC and last until the sixth–seventh centuries. They are found in major early historic sites such as Mathura, Ujjain, Chichli and Paithan. Most often, this ceramic is red and the stamped or moulded decoration, located on the shoulder, consists of symbolic motifs like the *srivatsa* (vase of abundance), the wheel, the *svastika*, the *hamsa* (goose), plant motifs like rosettes and leaves, or geometrical motifs. At Mathura, for example, this type of ceramic appears in the Kushana levels and continues into the Gupta levels of the fourth–fifth centuries. A moulded pitcher found in the Gupta levels displays on its shoulder three decorated bands ranged in tiers. A bowl found in Ujjain phase III, first century BC to sixth/seventh centuries AD, displays a series of *astamangala*.

The Burmese stamped ceramics show strong similarities to those discovered in India and are commonly found in early Buddhist sites such as Beikthano, Halin and Sri Ksetra. Other local adaptations of this stamped or moulded ceramic type are found in Thailand, in Dvaravati sites such as Chansen Phase V (see chapter 6). As in Pyu sites, the decoration comprises a series of rectangular frames, each separated by a vertical dotted band, enclosing an animal such as an elephant or a cow, a floral motif, or a scene with a horse and rider or a dancer. Sherds with a band of rosettes from Phra Praton in Central

Thailand strongly resemble examples excavated in Kondapur, Andhra Pradesh. Although occasional vessels may have been imported from India, we believe that the Southeast Asian stamped ceramics are a local product, one that reflects the adoption and adaptation of Indian techniques and style.³²

Moulded ware ornamented with radiating flower petals

The type of pottery has been found in the Pyu site of Beikthano (Figure 4.11) and also seems to be a local product derived from an Indian model. The Beikthano sherds are decorated with bands of lotus or acanthus flowers radiating towards the edge of the vessel. Such radiating lotus flower decoration is common in South Asia, as for instance on the Kundla vase, and is also seen on some of the earlier bronze bowls found at Ban Don Ta Phet and Khao Jamook in Thailand. A stone vessel with such a design comes



Figure 4.11 Sherds stamped with radiating petal motifs from Beikthano, Burma/Myanmar. (Drawing by B. Bellina).

from Taxila, but the most significant comparison is between the pottery from Beikthano and Ter in Maharashtra.

Mould-decorated pottery has a long history in South Asia and has been found primarily in the western Deccan, with only one fragment coming from Kanchipuram in Tamil Nadu. Characteristic vessels of this type, made with two vertical moulds, come from Nevasa, Ter, Kondapur and Kolhapur. Begley has suggested an origin for this ware in an earlier Hellenistic tradition. However, in considering its origins we must also take into account the evidence from Ai Khanum in Afghanistan. Here, fragments of moulds for producing imitation megarian bowls have been dated to the last quarter of the third century BC and these could well be prototypes for the South Asian Moulded Ware.

Conclusions

The discovery of Indian-made, or Indian-influenced, objects in archaeological sites in Southeast Asia in the late centuries BC enables examination of the formation and evolution of regional and inter-regional trading networks. During Phase I, this material occurs in non-Indianized sites. During Phase II, the stamped and moulded ceramics and seals provide valuable data which complement those gained from art history and epigraphy. Art historical research for this later phase shows that the Indian influences into Southeast Asia were multiple and did not originate in any one area. The material evidence from archaeological sites for Phase I also suggests that almost every coastal region of South Asia was involved in these trading networks, although most emanated from the east coast and Bengal. During the last centuries BC the local networks of regional exchange were linked together such that, with the exception perhaps of Indonesia, which seems to have had closer contacts with southern India and Sri Lanka, it has not been possible to identify any direct and exclusive link between any region of the Indian subcontinent and any region in Southeast Asia.

A generation ago, on the basis of the few items then known to be derived from India or the Roman world, Wheeler was perhaps correct to argue that there were only sporadic exchange visits between communities situated on both sides of the Bay of Bengal. Enough evidence is now at hand to refute this interpretation and to show that, by the late centuries BC, Southeast Asia was already part of a world trading system linking the civilizations of the Mediterranean Basin and Han China. Thus, the process of Indianization had long roots reaching back into prehistory.

Notes

- 1 Coedès 1968; Kangle 1988; Kulke 1990; Mabbett 1977; Pelliot 1903; Wheatley 1983.
- 2 Majumdar 1952.
- 3 Wolters 1999.
- 4 Kulke 1990.
- 5 Ray 1991, 1994.
- 6 Bronson 1977; Wheatley 1983; Wolters 1967; Miksic 1984; Wisseman Christie 1990.
- 7 Wisseman Christie 1995.
- 8 Ellen 1977: 25.
- 9 Van Leur 1955.
- 10 During Caspers 1981.
- 11 Casson 1989.

- 12 Wheeler 1954; Raschke 1978.
- 13 Glover 1990; Francis 2002.
- 14 Theunissen *et al.* 2000; Bellina 2001.
- 15 Francis 1991.
- 16 Bellina 2001.
- 17 Glover and Henderson 1995.
- 18 Francis 2002: Part 2.
- 19 Basa 1991; Glover and Henderson 1995.
- 20 Glover, (1990a) dated the burials at Ban Don Ta Phet to the early fourth century BC using AMS dates on rice fragment inclusions in the pottery. However, Bellina, on the basis of stylistic comparisons with materials found in India, prefers to date this material to the third or second century BC. More evidence is needed to put the early dating beyond doubt.
- 21 Janse 1962.
- 22 Gardin 1985.
- 23 Begley (1986) argues that, contrary to the common opinion, the decoration was not made with a roulette but with a pointed tool held against the body which “chattered” on the interior surface while the vessel was turned. Nevertheless, as it is in common use, we still use the term “rouletted ware”.
- 24 Both Wheeler (1954) and Casal (1956) believed that rouletted ware was directly imported from the Mediterranean, but it seems that only a few recent excavators in India accept this.
- 25 Gogte 1997.
- 26 Walker and Santoso 1980.
- 27 Ardika and Bellwood 1991.
- 28 Ardika and Bellwood *et al.* 1993.
- 29 Prior 1998: 106.
- 30 Megalithic structures of course continued to be built into modern times in many parts of Indonesia. Here we are concerned only with the earliest forms.
- 31 Adhyatman 1987.
- 32 Bellina 1999.

Select Bibliography

The bibliography presents a reasonably comprehensive introduction to the main publications on the subject matter discussed organized by theme, and roughly in the order they are discussed in the chapter. Most of the books listed and some of the articles touch on more than one theme but they are included here under the most relevant heading. The books and articles themselves contain many additional bibliographic references for readers who want to go further into the beginnings of economic exchange and cultural contacts between India, the classical world of the Mediterranean and the various countries making up modern Southeast Asia.

Indianization/localization

- Bellina, B. (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 (VI^e siècle avant notre ère à VI^e siècle de notre ère)”, thèse de doctorat, Université Sorbonne Nouvelle, Paris III.
- Coedès, G. (1968) *The Indianized States of Southeast Asia*, (ed.) W. F. Vella, trans. S. B. Cowing, Canberra: Australian National University Press.
- Dagens, B. (1994) “Le temple indien en Asie du Sud-Est: archéologie d’une forme”, in F. Bizot (ed.) *Recherches nouvelles sur le Cambodge*, Paris: École Française d’Extrême-Orient, pp. 259–72.
- Kangle, R. P. (1988) *The Kautilya Arthashastra*, Delhi (reprint edition).

- Kulke, H (1990) "Indian colonies, Indianization, or cultural convergence? Reflections on the changing image of India's role in South-East Asia", in H. Schulte Nordtholt (ed.) *Onderzoek in Zuidoost-Azië: Agenda's voor de Jaren Negentig*, pp. 8–32. Leiden: Rijksuniversiteit te Leiden, Vakgroep Talen en Culturen van Zuidoost-Azië en Oceanië.
- Mabbett, I. W. (1977) "The 'Indianization' of Southeast Asia: reflections on historical sources", *Journal of Southeast Asian Studies* 8 (1 & 2): 1–14, 143–61.
- Majumdar, R. C. (1952) *Greater India*, Delhi: Motilal Banararsidas.
- Malleret, L. (1960–62) *L'Archéologie du Delta du Mekong*, Tomes. II–III, Paris: Publications de l'Ecole Française d'Extrême-Orient 43.
- Pelliot, P. (1903) "Le Founan", *Bulletin de l'Ecole Française d'Extrême-Orient* 2: 248–333.
- Wheatley, P. (1983) "Nagara and Commandery: Origins of Southeast Asian Urban Traditions", research papers 208–8, Department of Geography.
- Wolters, O. W. (1999) "History, Culture and Religion in Southeast Asian Perspectives", *Studies on Southeast Asia No.26*, Singapore, Institute of Southeast Asian Studies.

South Asian exchange

- Datta, A. (1998) "Ancient ports of coastal Bengal and its overseas trade with Southeast Asia: an archaeological overview", in M. J. Klokke and T. de Bruijn (eds) *Southeast Asian Archaeology 1996*, Hull, Centre of South-East Asian Studies, University of Hull, pp. 87–98.
- Ray, H. P. (1989) "Early maritime contacts between South and Southeast Asia", *Journal of Southeast Asian Studies* XX (1): 42–54.
- Ray, H. P. (1991a) "In search of Suvanabhumī: early sailing networks in the Bay of Bengal", in P. Bellwood (ed.) *Indo-Pacific Prehistory 1990*, Vol. 1, pp. 557–65, Canberra and Jakarta: Indo-Pacific Prehistory Association.
- Ray, H. P. (1991b) "Seafaring in the Bay of Bengal in the early centuries AD", *Studies in History* 6 (1): 1–14.
- Ray, H. P. (1994) *The Winds of Change – Buddhism and the Maritime Links of Early South Asia*, Delhi: Oxford University Press.

Southeast Asian exchange

- Bellina, B. (1997) "Les témoignages archéologiques d'échanges entre le sous-continent indien et l'Asie du Sud-Est (VI^e siècle avant notre ère –VI^e siècle de notre ère)", unpublished dissertation for the DEA, Université Sorbonne-Nouvelle, Paris III.
- Bellina, B. (1998) "La formation des réseaux d'échanges reliant l'Asie du Sud et l'Asie du Sud-Est à travers le matériel archéologique (VI^e siècle av. J.-C. – VI^e siècle ap. J.-C.). Le cas de la Thaïlande et de la Péninsule Malaise", *Journal of the Siam Society* 86 (1 & 2): 89–105.
- Bronson, B. (1977) "Exchange at the upstream and downstream ends: notes towards a functional model of the coastal state in Southeast Asia", in K. Hutterer (ed.) *Economic Exchange and Social Interaction in Southeast Asia: perspectives from Prehistory, History and Ethnography*, Michigan Papers on South and Southeast Asia 13: 39–52.
- Cribb, J. (1981) "The date of the symbolic coins of Burma and Thailand – a re-examination of the evidence", *Seaby Coin and Medal Bulletin* 75: 224–6.
- Glover, I. C. (1990a) "Early Trade between India and Southeast Asia – a link in the development of a World Trading System", Occasional Paper No. 16, University of Hull: Centre for South-East Asian Studies (2nd revised edition).
- Higham, C. F. W. (1996) *The Bronze Age of Southeast Asia*, Cambridge. Cambridge University Press.
- Leur, J. C. van (1955) *Indonesian Trade and Society: Essays in Asian Social and Economic History*, The Hague: W. van Hoeve.
- Miksic, J. (1984) "A comparison between some long distance trading institutions of the Malacca Straits area and the Western Pacific", *Southeast Asian Archaeology at the XVth Pacific Science Congress*, University of Otago Monographs in Prehistoric Anthropology, 16: 235–53.

- Wissemann Christie, J. (1990) "Trade and State Formation in the Malay Peninsula and Sumatra, 300 BC-AD 700", in J. Kathirithamby-Wells and J. Villiers (eds) *The Southeast Asian Port and Polity: rise and demise*, Singapore: Singapore University Press. pp. 39-60.
- Wissemann-Christie, J. (1995) "State formation in Early Maritime Southeast Asia: a consideration of the theories and the data", *Bijdragen tot de Taal-, Land- en Volkenkunde* 151(2): 235-88.
- Wolters, O. W. (1967) *Early Indonesian Commerce: a study of the origins of Srivijaya*, Ithaca: Cornell University Press.

Indian trade with the classical world

- Begley, V. (1983) "Arikamedu reconsidered", *American Journal of Archaeology* 87: 461-81.
- Begley, V. and R. D. De Puma (eds) (1991) *Rome and India – the Ancient Sea Trade*, Madison, Wisconsin: University of Wisconsin Press.
- Brown, R. L. and A. M. MacDonnell (1989) "The Pong Tuk Lamp: a reconsideration", *Journal of the Siam Society* 77(2): 9-20.
- Casson, L. (ed.) (1989) *The Periplus Maris Erythraei*, Princeton: Princeton University Press.
- During Caspers, E. C. L. (1981) "The Indian ivory figurine from Pompeii – a reconsideration of its functional use", pp. 341-53, in H. Hartel (ed.) *South Asian Archaeology 1979*, Berlin: Dietrich Reimer Verlag.
- Ellen, R. F. (1977) "The trade in spices", *Journal of the Indonesia Circle* 12: 21-5.
- Gardin, J. C., (1985) "Les relations entre la Méditerranée et la Bactriane dans l'Antiquité, d'après des données céramologiques inédites", in *De l'Indus aux Balkans; recueil à la mémoire de J. Deshayes*, (contributions rassemblées et éditées par J.-L. Huot, M. Yon et Y. Calvet) Paris, Éditions Recherches sur les civilisations, pp. 447-60.
- Miller, J. I. (1969) *The Spice Trade of the Roman Empire, 29 BC-AD 641*, Oxford University Press.
- Raschke, M. G. (1978) "New Studies in Roman Commerce with the East", in *Aufstieg und Niedergang der Römischen Welt* II.9, pp. 604-1378, Berlin and New York: de Gruyter.
- Turner, P. (1989) "Roman Coins in India", Occasional Paper No.12, London: Institute of Archaeology.
- Warmington, E. H. (1928) *The Commerce between the Roman Empire and India*, Cambridge University Press.
- Wheatley, P. (1983) *Nagara and Commandery: Origins of the Southeast Asian Urban Traditions*. Department of Geography Research Papers 207-8, University of Chicago.
- Wheeler, R. E. M., Ghosh, A. and Deva, Krishna (1946) "Arikamedu: an Indo-Roman trading station on the east coast of India", *Ancient India* 2: 17-124.
- Wheeler, R. E. M. (1954) *Rome Beyond the Imperial Frontiers*, Harmondsworth: Penguin.

Semiprecious stone beads

- Bellina, B. (2001) "Témoins 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 (VI^e siècle avant notre ère à VI^e siècle de notre ère)", thèse de doctorat, Université Sorbonne Nouvelle, Paris III.
- Francis, P. (1982) "When India was bead maker to the World", *Ornament* 6(2): 33-4 and 56-7.
- Francis, P. (2002) *Asia's Maritime Bead Trade – 300 BC to the Present*, Honolulu: University of Hawaii Press.
- Glover, I. C. (1990b) "Ban Don Ta Phet: the 1984-85 excavation", in I. C. and E. A. Glover (eds) *South Asian Archaeology 1986*, Oxford: BAR S-561, pp. 139-84.
- Possehl, G. (1981) "Cambay beadmaking", *Expedition* 23(4): 39-47.
- Theunisson, R., Grave, P. and Bailey, G. (2000) "Doubts on diffusion: challenging the assumed Indian origin of Iron Age agate and carnelian beads in Southeast Asia", *World Archaeology* 32: 184-105.
- Veraprasert, M. (1992) "Khlong Thom: an ancient bead and manufacturing location and an ancient entrepôt", in I. C. Glover, P. Suchitta and J. Villiers (eds) *Early Metallurgy, Trade and Urban Centres in Thailand and Southeast Asia*, Bangkok: White Lotus, pp. 149-61.

Glass in South and Southeast Asia

- Basa, K. K. (1991) "The Westerly Trade of Southeast Asia From C.400 BC to C. AD 500 With Special Reference to Glass Beads", PhD Thesis, University of London. Francis, P. (1991) "Beadmaking at Arikamedu and beyond", *World Archaeology* 23(1): 28–43.
- Glover, I. C and Henderson, J. (1995) "Early glass in South and Southeast Asia and China", in R. Scott and J. Guy (eds) *China and Southeast Asia – Art, Commerce and Interaction*, London: Percival David Foundation of Chinese Art, pp. 141–69.
- Salisbury, A. and Glover, I. C. (1997) "New analyses of early glass from Thailand and Vietnam", *Bead Study Trust Newsletter* 30: 7–14.
- Shuhaimi, Nik Hassan (1991) "Recent research at Kuala Selinsing, Perak", in P. Bellwood (ed.) *Indo Pacific Prehistory 1990*, Vol. 2. Canberra and Jakarta: the Indo-Pacific Prehistory Association, pp. 141–52.

Bronze vessels

- Batchelor, B. C. (1978) "Post 'Hoabinhian' coastal settlement indicated by finds in stanniferous Langat River Alluvium near Dengkil, Selangor, Peninsular Malaya", *Federation Museums Journal* (n.s.) 2: 1–55.
- Bennett, A. N. and Glover, I. C. (1992) "Decorated high-tin bronzes from Thailand's prehistory", in I. Glover (ed.) *Southeast Asian Archaeology 1990*, Hull University: Centre for Southeast Asian Studies, pp. 187–208.
- Breeks, J. W. 1873 *An Account of the Primitive Tribes and Monuments of the Nilgiris*, London: William H. Allan.
- Gardin, J. C. (1985) "Les relations entre la Méditerranée et la Bactriane dans l'Antiquité, d'après des données céramologiques inédites", in *De l'Indus aux Balkans; recueil à la mémoire de J. Deshayes*, Paris: Éditions Recherches sur les civilisations, pp. 447–60.
- Janse, O. R. T., (1962) "Quelques réflexions à propos d'un bol de type mégaréen trouvé au Vietnam", *Artibus Asiae* XXV(4): 280–92.
- Marshall, J. (1951) *Taxila: an illustrated account of the archaeological excavations*, Cambridge University Press.
- Rajpitak, W. and Seeley, N. (1979) "The bronze bowls from Ban Don Ta Phet: an enigma of prehistoric metallurgy", *World Archaeology* 11(1): 26–31.

Rouletted ware

- Ardika, I. W. and Bellwood, P. (1991) "Sembiran: the beginnings of Indian contact with Bali", *Antiquity* 65(247): 221–32.
- Ardika, I. W., Bellwood, P., Eggleton, R. A. and Ellis, D. J. (1993) "A single source for South Asian export-quality Rouletted Ware?", *Man and Environment* 18(1): 101–9.
- Begley, V. (1986) "Rouletting and chattering: decoration on ancient and present day pottery in India", *Expedition* 28(1): 47–54.
- Begley, V. (1991) "Ceramic evidence for Pre-Periplus trade on the Indian coasts", in V. Begley and R. D. De Puma (eds) *Rome and India – the Ancient Sea Trade*, Madison, Wisconsin: University of Wisconsin Press, pp. 157–196.
- Begley, V. (1996) *The Ancient Port of Arikamedu: new Excavations and Researches, 1989–92*, Pondichery/Paris,
- Casal, J.-M. and ???????, G. (1956) *Site urbaine et sites funéraires des environs de Pondichéry*, Paris: Presses Universitaires de France.
- Deraniyagala, S. (1992) "The proto- and early-historic radiometric chronology of Sri Lanka", in, *The Prehistory of Sri Lanka: an ecological perspective (addendum 2)*, Colombo, Archaeological Survey Department of Sri Lanka, pp. 707–38.
- Gogte, V. D. (1997) "The Chandraketurgarh–Tamluk region of Bengal: source of the Early Historic Rouletted Ware from India and Southeast Asia", *Man and Environment* 22(1): 69–85.

- Prior, R. (1998) "The ceramics from early historic sites in Vietnam", in P.-Y. Manguin (ed.) *Southeast Asian Archaeology 1994*, Hull: Centre for South-East Asian Studies, pp. 94–110.
- Walker, M. and Santoso, S. (1980) "Romano-Indian rouletted pottery in Indonesia", *Asian Perspectives* 20(2): 228–35.

Megaliths

- Glover, I. C., Bronson, B. B. and Bayard, D. T. (1979) "Comment on 'Megaliths' in South East Asia", in R. B. Smith and W. Watson (eds) *Early South-East Asia: essays in Archaeology, History and Historical Geography*, Oxford University Press, pp. 253–4.
- Heine-Geldern, R. (1928) "Die Megalithen sudostasiens und ihre Bedeutung für die Megalithenfrage in Europa und Polynesia", *Anthropos* 23: 276–315.
- Heine-Geldern, R. (1959) "Das Megalithproblem", *Beiträge Österreichs zur Erforschung der Vergangenheit und Kulturgeschichte der Menschheit*, Symposium 1958, pp. 162–82.
- Hoop, A. N. J. Th. van der (1932) *Megalithic Remains in South Sumatra*, Zutphen: Thieme.
- Kim, Myung-jin (1988) *Megaliths in East Asia with Particular Reference to Indonesia*, Seoul: privately printed.
- Perry, W. J. (1918) *The Megalithic Culture of Indonesia*, Manchester University Press.
- Smith, G. Elliot (1916) *The Influence of Ancient Egyptian Civilization in the East and America*, Manchester.
- Soejono, R. P. (1982) "On the megaliths in Indonesia", in B.-m. Kim (ed.) *Megalithic Cultures in Asia*, Monograph 2, Seoul: Hanyang University Press, pp. 73–98.

Kundika and Kendi

- Adhyatman, S. (1987) *Kendi. Wadah air minum tradisional* (The Kendi: the traditional drinking water container), Jakarta: Himpunan Keramik Indonesia.
- Coomaraswamy, A. K. and F. S. Kershaw (1928–9) "A Chinese Buddhist water vessel and its Indian prototype", *Artibus Asiae* 3: 122–41.
- Sharma, G. R. (1969) *Excavations at Kausambi 1949–50*, Memoir of the Archaeological Survey of India 74, Delhi.

Stamped and moulded ceramics

- Aung Myint (1970) "The excavation at Halin", *Journal of the Burma Research Society* 2: 55–64.
- Aung Myint (1977) "The capital of Suvannabhumi unearther(r)d?", *Shiroku* 10: 41–53.
- Aung Thaw (1968) *Report on the Excavations at Beikthano*, Rangoon: Ministry of Culture.
- Bellina, B. (1999) "La vaisselle dans les échanges entre le sous-continent indien et l'Asie du Sud-Est", *Bulletin de l'École Française d'Extrême-Orient* 86: 161–84.
- Bronson, B. (1979) "The later prehistory and early history of Central Thailand", in R. B. Smith and W. Watson (eds) *Early South-East Asia – Essays in Archaeology, History and Historical Geography*, Oxford University Press, pp. 313–36.
- Bronson, B. and Dales, G. F. (1972) "Excavations at Chansen, Thailand, 1968 and 1969: a preliminary report", *Asian Perspectives* 15(1): 15–46.
- Élaigne-Pardon, S. (1996) *Étude des céramiques fines de Mahastangarh (Bengale) aux époques maurya et shunga dans les perspectives techniques et culturelles*, Lyon: Université de Lyon.
- Härtel, H. (1989) "Pottery of Mathura", in D. M. Srinivasan (ed.) *Mathura. The Cultural Heritage*, New Delhi: Manohar/American Institute of Indian Studies, pp. 181–92.
- Härtel, H. (1993) "Excavations at Sonkh. 2500 years of a town in the Mathura District", *Monographien zur indischen Archäologie, Kunst und Philologie, Band 9*, Berlin: Dietrich Reimer Verlag.
- Indrawooth, P. (1985) *Index Pottery of Dvaravati Period*, Bangkok: Silpakorn University.
- Indrawooth, P. (1999) *Dvaravati. A Critical Study based on Archaeological Evidence*, Bangkok: Silpakorn University.

- Stargardt, J. (1990) *The Ancient Pyu of Burma, Vol. 1 Early Pyu Cities in a Man-made Landscape*, Cambridge/Singapore: PACSEA/ISEAS.
- Wheeler, R. E. M., Gosh, A. and Krishna Deva (1946) "Arikamedu: an Indo-Roman trading station on the East coast of India", *Ancient India, Bulletin of the Archaeological Survey of India* 2: 17-125.