Edited by Franck Billé, Sanjyot Mehendale and James W. Lankton

The Maritime Silk Road

Global Connectivities, Regional Nodes, Localities

Amsterdam
University
Press

The Maritime Silk Road

Asian Borderlands

Asian Borderlands presents the latest research on borderlands in Asia as well as on the borderlands of Asia – the regions linking Asia with Africa, Europe and Oceania. Its approach is broad: it covers the entire range of the social sciences and humanities. The series explores the social, cultural, geographic, economic and historical dimensions of border-making by states, local communities and flows of goods, people and ideas. It considers territorial borderlands at various scales (national as well as supra- and sub-national) and in various forms (land borders, maritime borders), but also presents research on social borderlands resulting from border-making that may not be territorially fixed, for example linguistic or diasporic communities.

The Maritime Silk Road

Global Connectivities, Regional Nodes, Localities

Edited by
Franck Billé,
Sanjyot Mehendale and
James W. Lankton

Amsterdam University Press

Table of Contents

Localities

List of Figures

Acknowledgments

The Maritime Silk Road:
An Introduction

Franck Billé, Sanjyot Mehendale, and James Lankton

The term "Maritime Silk Road" (MSR)—just as its terrestrial counterpart "Silk Road"—is highly fraught and politically laden. In recent years it has been actively mobilized by China in the context of the Belt and Road Initiative (BRI) as a powerful narrative framing and underlying China's global economic clout (see Frankopan 2018; Winter 2019; Zheng et al. 2018). As a result, academics have largely been reluctant to use the notion of Silk Road as a framework for their research. Indeed, even before its recent political reactivation, the term was seen as a romantic and orientalist construct, as well as an oversimplification of forms of cultural exchange across Eurasia, and poorly suited to scholarly discussion. The concept of "Silk Road," coined in 1877 by geographer Ferdinand von Richthofen, was employed to discuss the early period of trade between the Roman Empire and Han China, specifically the route described by Marinus of Tyre, and it is only later that its reach was expanded to other trade routes and involving other material goods (Chin 2013).

Given its origins, cultural assumptions, and political reverberations, it might seem counterintuitive to adopt it here. Yet, as Susan Whitfield has recently noted (2018, 252), the fact that the term was coined narrowly around exchange focused on silk between China and Rome should not distract scholars from more productive investigations of the interregional networks trading in commodities other than silk (see also Frankopan 2015).[1] Along similar lines we argue in this volume that rather than eluding the concept, it is precisely the *constructed* nature of the Silk Road that makes it such a fertile organizing concept for scholarship: by (constructed) definition, it

---

[1] For a study of contemporary connectivities through networks and informal institutions beyond and separate from those driven by nation states, such as China's Belt and Road Initiative, see Marsden (2021).

both permits and encourages transnational, transregional, cross-cultural, and cross-disciplinary approaches to research. Much too often, scholarship remains pigeonholed and constrained by disciplines and regions of expertise. By contrast, the notion of "Silk Road," problematic as it might be, resists national and regional encompassment. As such, it constitutes a potent vector of cross-regional and cross-disciplinary exchange and can shed a light on the mechanics of border-making—what we refer to as "bordering" as well as, following anthropologist Madeleine Reeves (2014), "border work." Bringing together the scholarship of world-renowned archaeologists and promising younger scholars under the rubric of "Silk Road," this edited collection presents a unique picture of early global trade in all its complexity (see also Seland 2021).

The Maritime Silk Road proposes to foreground the numerous networks that have been woven across oceanic geographies, tying world regions together often far more extensively than land-based routes. The Maritime Silk Road is in fact much more than just a seaward extension of overland trading networks. Unlike the latter which connected nearby regions to each other and which was often a staggered process of exchange, ocean trade was capable of spanning the entire route, linking previously disconnected regions more directly. If ocean-faring vessels also had to face numerous perils, notably weather and piracy, maritime routes were less affected by political instability and could more easily circumvent conflict zones (Park 2012). Ships are also more amenable to transporting larger cargoes, leading to greater impact on cultures and economies. The types of commercial and cultural exchange carried by sea thus differed from overland routes in extent and in scope. This had a consequential impact for the way in which the world was imagined. While the modern concept of borders did not have currency in the premodern period discussed in this book, people traveling along the maritime Silk Road were, possibly for the first time, confronted with forms of spatial, social, and cultural discontinuities that echo the inflexible partitioning characteristic of modern borders. The existence of large port-cities was also decisive in bringing different ethnic groups together (Bellina 2017), and similarly offered a view of the world that was culturally and ethnically very diverse rather than continuous.

This collection of essays offers a unique perspective on the commercial, cultural, and social exchanges fostered and sustained by the Maritime Silk Road. Routes and sites in broad expanses of dry land tend to leave much better-defined traces than those on or next to water. However new information has emerged in the last two decades in the form of archaeological findings, as well as through new techniques such as geographic information

system (GIS) modeling. On the strength of this new data, what the authors collectively demonstrate is the existence of a very early global maritime trade. From architecture to cuisine, and language to clothing, evidence points to early connections both within Asia and between Asia and other continents—well before European explorations of the Global South.

Most studies have tended to take this connectivity for granted, overlooking the spatial and physical dimension of exchange (see, for instance, Acri, Blench & Landmann 2017). In addressing the materiality of the ocean, the *Maritime Silk Road* speaks to a growing border studies literature seeking to place in productive tension notions such as terrain, territoriality, borders, and material space (Braverman and Johnson 2020, Billé 2020, Peters, Steinberg and Stratford 2018). As the contributions illustrate, not only did early exchange span vast distances, it was also subject to seasonal weather systems, hazardous waters, arid and sparsely populated coastlines with few suitable harbors, as well as limits imposed by technology and infrastructure (see in particular Seland, Chapter 1, this volume). While these early maritime networks were very extensive, they were also, like indeed all networked systems, restricted by frictions, obstructions, chokepoints, and disconnects in spite of their global reach (see Tsing 2004; Starosielski 2018; Carse, Cons, and Middleton 2018). The development of long-distance maritime exchange linkages, including what we gloss in this volume as the Maritime Silk Road, went hand-in-hand with improved maritime technologies, including shipbuilding and navigation (Kimura 2016), the ability to produce goods that were scarce either because of their natural ingredients or the special technology required for their manufacture, and the identification or production of people's desire to possess these goods far from their place of origin (see Park, Chapter 2, this volume; Lankton, Chapter 3, this volume). The evolution and development of seaworthy watercraft for mass shipment in particular enabled the broader distribution of both seaborne commodities and people throughout this vast region (see Kimura, Chapter 4, this volume).

The tripartite division of the book, separating the contributions into global, regional, and local scales of analysis, is primarily organizational; if each contribution tends to privilege one scalar aspect, they all speak to the entanglement between global and local perspectives. As the material presented in the various chapters demonstrates, transoceanic exchanges were made possible thanks to extensive established regional networks while, conversely, local cultures were shaped by commercial exchanges reaching thousands of miles. The collection charts nonetheless an overall narrative arc taking the reader from the general to the specific, and from the macro to the micro. Our decision to present the data along this particular axis

reflects our ambition to tell the story of the Maritime Silk Road as one of early, truly global, exchange yet simultaneously seeking to challenge the implicit linearity and simplicity of the concept to paint a fuller, multiscalar, and multidirectional, model.

The book's first section, "Global Connectivities," focuses on the transcontinental scale of these commercial and cultural exchanges, able for the first time to link directly distant parts of the world such as Asia, Europe, and Africa. The chapters in this section illustrate how progress in material transportation coincided with, and greatly facilitated, the rise of maritime commerce in Asia and beyond during the last quarter of the first millennium. The increase in volume of maritime trade was the result of the integration of subregional networks, the rise of maritime polities and port-cities, and the maturity of shipbuilding technologies (Kimura, Chapter 4). In his chapter, Eivind Seland contests the prevalent view that the Indian Ocean before the establishment of European transoceanic trade was a nonterritorial, cultural void. Theorizing his material through Ed Soja's notion of "thirdspace" (1996), he demonstrates that it was in fact a highly integrated and culturally dense space. More than simply a medium for long-distance transport, it was a place of everyday social interaction, as testified by the semantic equivalencies in the names of salient geographic nodes in Greek and Arabic, or the approximately 200 inscriptions left by merchants and sailors on the remote island of Socotra off the coast of Yemen. While most of these were written in a Western Brahmi script dating from the second to the fifth century CE and suggest an origin in western India, others, whether in South Arabian, Ethiopian (Aksumite), Palmyrene, or Greek, indicate multiple origins and mixed populations (Strauch 2012). Thinking in terms of spatiality, Seland argues, allows us to relocate the Indian Ocean to the center of its own world rather than as a periphery to the Mediterranean world.

In the following chapter, Hyunhee Park discusses the establishment, as early as the eighth century CE, of a transoceanic route spanning the Indian Ocean to become the longest, most regularly, and most heavily traveled sea route in the world until at least 1492, i.e., before the advent of global European travel. Building and maintaining regular interaction between China and the Islamic World—two highly developed societies that have left behind abundant written and cartographic records—she argues, demanded a shared conception of sea-space that could only be achieved by regular exchanges of ideas and convergences of interests among maritime societies developed over centuries. Indeed, examining Chinese and Islamic attempts to gain geographical knowledge through cross-cultural exchange and then leveraging it to theorize the shape of the oceans, Park identifies

patterns of continuity and change in the spatial understandings displayed by these authors. As she then demonstrates, these exchanges produced bodies of knowledge about the maritime realm that came to shape popular worldviews in both societies for centuries.

Making a case for the study of material culture as a way to track not only the exchange of finished products and raw materials but also the movement of people along the same long-distance maritime routes, James Lankton provides in Chapter 3 a fascinating overview of the glass trade. In doing so, he explores the early development of the Maritime Silk Road, going from regional circuits in the second half of the first millennium BCE to the first phase of exchange along the full expanse of ancient maritime routes from the Roman Empire to India, Southeast Asia, China, and northeast Asia during the first half of the first millennium CE. The author demonstrates that the trade in Roman glass to India built on a tradition of Hellenistic and Roman Mediterranean maritime exchange; the exchange of Roman products within Asia, particularly beyond India to Southeast and Northeast Asia, being based on preexisting maritime networks. On the strength of these early networks, Roman products could be rapidly incorporated, allowing the spread of both Roman and Chinese goods to Southeast Asia and beyond. As Lankton convincingly argues, these earlier maritime links provided the infrastructure, not only in terms of maritime technologies but also in the imagination of what long-distance trade could be, for what would become the Maritime Silk Road discussed in this volume.

The second section of the book, "Regional Nodes," complicates the narrative in that the maritime Silk Road was in fact plural and diverse. In spite of its global reach, this was a heterogeneous environment, constituted of interconnected regional nodes—each with its own social and cultural specificities. This heterogeneity can be seen in the several types of shipbuilding that coexisted across the expanse of the MSR, as discussed by Jun Kimura in Chapter 4. While some of the earliest extant shipwrecks provide tantalizing evidence of construction similarities between a ship found on the western Thai coast and Phoenician and Greco-Roman vessels, by the mid-first millennium CE there were distinct Indic and Southeast Asian shipbuilding traditions indicating regionality in technology if not in the scope of sea voyage. The latter may be suggested by the early fifth-century travel record of the Chinese Buddhist monk Faxian, who crossed the Indian Ocean on an Indic ship but the South China Sea on a Southeast Asian vessel during his return from Sri Lanka to China. In shipping, as elsewhere, the regionality of shipbuilding technology is challenged, for example by the seventh-century Phanom Surin shipwreck found in Thailand; while the

sewn-construction technique was decidedly Indian, most of the wood was from Southeast Asia. By the thirteenth or fourteenth century, there is clear evidence for hybridization of regional construction techniques, for example in the blending of East China Sea and South China Sea shipbuilding methods.

Port-cities of the same time period, and to some extent the hinterlands that they served, exhibit similarities in their material cultural matrix even if they are separated by space (see also Heng, Chapter 8). As crucial nodal points in the Maritime Silk Road trade network, port-cities prospered and often developed into international and even global trade centers. Port-cities as far apart as Guangzhou and Siraf had ethnically and culturally diverse merchant populations that were in many ways comparable in their heterogeneity—though every port-city had its own specific raison d'être and was beholden to particular local demands and circumstances.

Yet even if port-cities of the same time period, and to some extent the hinterlands that they served, exhibit similarities in their material cultural matrix, the picture we get at that level of analysis is one where each node in the network was demographically, socially, and economically unique, impacted by such factors as geography, politics, and ethnicity. The different patterns of trade, dependent on the socio-political and cultural background of each region, are in fact traceable through a spatial analysis of the artifacts that were imported, exported, or imitated (see also Seland, Chapter 1, this volume). Goods traveling across vast spaces would frequently end up taking on new cultural values or be replicated using different techniques or materials.

In Chapter 5, Ariane de Saxcé's discussion of commercial and cultural exchange in the western Indian Ocean contrasts the long-distance nature of trade coming from the Red Sea and northeast Africa with the importance of regional nodes and networks within the Indian subcontinent. Not all goods were welcomed in every region, and port-cities like Barygaza on the west central coast and Muziris in the south had an important role to provide physical and conceptual borders between the grand sweep of ocean travel and distinct regional zones showing important differences in the distribution and adoption of imported containers, ornaments, and valuables. In addition to the cultural determination of desired trade goods, archaeological and textual evidence points to regional differences in how foreign traders and others might pass through or be restrained to border zones.

The chapters in this section, as well as other chapters in the book (see Heng, Chapter 8; Miksic, Chapter 7, both in this volume) discuss the ways in which trade circuits and spheres of influence were bounded in specific ways, politically and culturally. As these authors demonstrate in their analyses, linkages between China, India, the Middle East, and Africa were supported

by very dense networks of local and regional exchanges that were deeply enmeshed in one another. There is a tendency for instance to overemphasize the importance of Chinese trade with Southeast Asia during the Song–Yuan period (960–1367) and argue that it led to the political dominance of ports in the Straits of Melaka. Instead, data indicate that the hinterland of Sumatra remained a center of political and economic power until the early colonial period (*Miksic*, Chapter 7). Similarly, a focus on Euro- and Sinocentric prestige goods, such as gold for instance, has created the impression that places such as southern Africa, where copper was a material more valuable than gold, were merely receiving peripheries. A reconsideration of circulatory knowledge involved in the Indian Ocean exchanges reveals that communities in southern Africa had agency in selecting what objects to incorporate, reject, or give away, as Shadreck Chirikure argues in Chapter 6.

While laying bare the destructive legacy of colonialism, Chirikure refutes the monotheistic application of core-periphery theory to understand the interaction between people in the African interior and foreign merchants at ports along the coast. Emphasizing the role of local agency and internal trade in both everyday and precious commodities, the author centers the development of social complexity seen at such sites as Great Zimbabwe and Mapungubwe on regional and local factors rather than on the simplistic notion that Indian Ocean trade in foreign exotics resulted in the development of coastal and inland elites. Instead, the regional trade networks for grain, cattle, salt, metals, ornaments, and ivory already developed between communities spatially and culturally distinct provided the framework by which Indian Ocean products might also be exchanged. Here, local agency was paramount in establishing which goods were accepted and how these were used in localized cultural contexts. While the South African littoral formed a geographic boundary between the coast and the hinterland, the resulting coastal borderland was not only permeable to objects coming in and those, like ivory, going out, but communities between the coast and the interior likely played a role as well, introducing fluidity and local complexity into how external borders might be understood.

Over the past several decades, considerable academic research has focused on the impact of globalization on local cultures and societies at a granular level, including material culture and social and cultural norms. Less attention has been paid, particularly in archaeology, to the ways in which exogenous materials were embedded differently in various specific locales, and how these differentiations could make for great variation in the uses and accompanying meanings of objects, and therefore in their value and significance, from their original design and/or intent.

The essays collected as Section 3, "Localities," expand on the argument that communities along the MSR were not merely passive recipients of foreign goods and ideas but active participants in the nature and extent of their inclusion and exclusion and were central participants in the process of cross-fertilization engendered by early globalization. Building on aspects alluded to by Chirikure (Chapter 6, this volume) and turning to specific archaeological and art historical datasets from sites along the MSR, the authors in this section focus on the power of "place" in discourses on ancient globalization where social, cultural, and economic practices that anchor communities to particular locales, and that provide those communities with a sense of belonging (Harmanshah 2014), are defining factors. Though not explicitly, the arguments informing the contributions in this section thus dovetail with Edward Casey's (2010) statement that "space," much too abstract and general, can only be experienced by human beings as "place."

Examining the local distribution pattern of Chinese ceramics, which were shipped widely along the MSR and are useful for the reconstruction of various global and regional trading networks out of China, John Miksic outlines the growth of trade in such objects, in particular during the first half of the second Millennium CE, in what he defines, leveraging Willem van Schendel's concept of Zomia (2002), as four ecological zones across South East Asia. He demonstrates how similar items were discovered in varied elite and nonelite contexts in different locations, including as auspicious objects in temples, funerary goods, and ritual objects but also for mundane, quotidian use, arguing that specific symbolic functions which became attached to these ceramics were detached from their original functions. As a consequence, these markets not only spurred increases in volume of production but also the creation of different types of ceramics to meet distinct local demands. In this regard, "places" were not only influenced by foreign trade but in their turn also helped determine the specific ways in which objects and attendant ideas could penetrate these regions.

Also moving from the general (the wide distribution of imported goods) to the particular (localization), Derek Heng's use of spatial analysis of data from two sites in the Malay region provides another micro-level approach to the study of places and the relationships between them. Looking at the distribution pattern of both foreign and domestic artifacts, he shows how certain assemblages could be associated with different types of economic activity, be informed by aesthetic taste, and/or result from asymmetrical access, providing insight into sociocultural and socioeconomic distinctions and interactions between groups that inhabited port-settlements and hinterland sites. Relatedly, port-cities of the MSR are often viewed as

sharing similarities with their counterparts across regional and international trading networks, defined by specific types of mixed communities and by their administrative and redistributive functions. At the same time, however, the contributions in this section argue that port-cities are not to be seen as entirely separate from their neighboring hinterlands, and that the margins (borders) between them functioned as important places of movement or interaction.

As part of their embeddedness in "place," artifacts acted as important cultural vectors for ideas, philosophies, and religions. The coins, ceramics, pottery, glassware, and seals that facilitated global trade were themselves supports for religious iconography, thereby disseminating worldviews and philosophies well beyond their points of origin and even beyond the bounds of the mercantile networks. As articulated by Matthew Canepa (2010, 14), "while an art object, architectural form, or ornamental motif had no meaning outside the uses and estimation of a patron, consumer, or viewer, visual material itself could introduce new ways of seeing, or 'visualities,' to a host culture."

Osmund Bopearachchi, in the ninth and last chapter, demonstrates how religious iconographies, developing in a cross-fertilized context, frequently incorporated the sentiments and aesthetics of each of their respective populations. In particular, he outlines the close relationship between Buddhism and trade and demonstrates how trading networks were not only important for the distribution of goods across maritime Asia but also for the spread of Buddhism from its place of origin in India to Sri Lanka and beyond. Buddhist monks often accompanied these mercantile journeys and many Buddhist traders became patrons of Buddhist monastic and cultic sites. As patron-donor-practitioners, they were important purveyors of Buddhist art and iconography which in turn, through "object agency" (Canepa 2010), inspired local artisans to create their own new forms of art. Analyzing the various artistic components that appear in a variety of places allows one to reconstruct the expansion of the maritime networks and to view them as vectors not only for the transmission of religion but also for its local transformation. The maritime trade networks of the Silk Road were in this sense highly syncretic, complicating the assumptions of unidirectional exchange that have been put forth by various nationalist discourses—in China and elsewhere.

With its three-pronged approach—global, regional, and local—*The Maritime Silk Road* seeks to challenge the linearity and one-sidedness of these exchanges. Unlike the majority of analyses that focus on cross-linkages between two regions, or on one country's relations to the rest of the world,

this collection brings together diverse regions of the world (China, Korea, Japan, East Africa, India, Sri Lanka, Thailand, Malaysia, the Persian Gulf, Egypt, and Rome) and sheds light on the multimodal and multidirectional nature of historical exchanges. Separating myth from fact, the *Maritime Silk Road* looks at maritime exchange globally, on the basis of GIS modeling and other new technologies. The essays in this book are therefore implicitly critical of nationalist narratives positing one particular country as central to these exchanges.

The data and analyses in this book also support the view that the global trade of the Maritime Silk Road was not simply a story of connectivity and mutually beneficial cultural exchange. The central place occupied by Asia in this collection, as a hub of exchange links reaching as far as Europe and Africa, makes the book a story of *truly global* exchange. But it is also, as mentioned earlier, a story embedded in extant trade circuits and social networks, and also one that was organized around the material realities of oceanic space (sea currents; the existence of islands and archipelagoes, etc.), and narrated through dominant cultural paradigms and hierarchies. As Steve Mentz reminds us (2015: xxviii), the "eruption of global maritime trade and the integration of European, American, African, and Asian economies and ecologies created wealth *and* poverty, winners *and* losers" (our emphasis). The connectivity made possible by European (and to some extent Asian) global expansion felt downright disastrous to a large portion of the world population. The trope of the shipwreck, for Mentz, is in this sense a more accurate representation of the disruptive new world of global connectedness than the ship itself (2015). In Chapter 6, Shadreck Chirikure touches upon this imbalance as he offers an analysis of this global exchange through an African perspective, suggesting that the name "Maritime Ivory Route" might be used in parallel with "Maritime Silk Road" in order to restore both African agency and a narrative which has long been forcefully silenced, yet continues to haunt its descendants (see Sharpe 2016).

Finally, another fundamental contribution *The Maritime Silk Road* seeks to make is to shed an important light on early cross-regional exchanges—exchanges taking place well before the advent of modern political borders and in that sense offering a glimpse into premodern understandings of bordering. Of course, as Anne-Laure Amilhat Szary (2020, 25) has recently argued, attempting to read back borders transhistorically is potentially dangerous and risks anachronism. Because political borders have become second nature and it is now difficult if not impossible to imagine our world without them (Ludden 2003), we can easily forget that they are a modern

concept. The pre-Westphalian political order looked very different, with fuzzier borders and political formations frequently melting into one another (Billé 2021; Gellner 1997). Yet the idea of spatial division is not new, and people have always drawn lines of separation between themselves and others (see Amilhat Szary 2020, 32–36; Friedman 2000). What the contributions in the book suggest is that the forms of spatial division along and across the Maritime Silk Road were more complex than simple lines on the ground. The concatenation of global linkages, regional hubs, and local enmeshments call for a reimagination of bordering, a more dynamic template that is indeed emerging in geography and anthropology, where spatial models such as the fractal (Green 2009), the spiral (Sur 2019), the eddy (Richardson 2019), as well as the three-dimensional (Billé 2020) are challenging, in a contemporary context, a static view of geography.

The data-led analyses provided in this book shed important light on human stories which had not, and could not, be told until the advent of new technologies like GIS modeling and satellite imagery (McCoy 2020). As Patrick Ellis has recently argued (2021, 14–15), archaeology has habitually (and historically) ignored boundaries of nation and state. As such, it is uniquely equipped to make a valuable contribution to the growing field of border studies. The human stories presented here offer insights into both the extent and limits of global exchange, showing how goods and people traveled vast distances, how they were embedded in regional networks, and how local cultures were shaped as a result.

References

Acri, Andrea, Roger Blench, and Alexandra Landmann. 2017. *Spirits and Ships: Cultural Transfers in Early Monsoon Asia*. Singapore: ISEAS Publishing.

Amilhat Szary, Anne-Laure. 2020. *Géopolitique des frontières: Découper la terre, imposer une vision du monde*. Paris: Le Cavalier Bleu.

Bellina, Bérénice. 2017. *Khao Sam Kaeo. An Early Port-City Between the Indian Ocean and the South China Sea*. Mémoires Archéologiques 28. Paris: École Française d'Extrême-Orient.

Billé, Franck. 2020. *Voluminous States: Sovereignty, Materiality, and the Territorial Imagination*. Durham, NC: Duke University Press.

Billé, Franck. 2021. "Auratic Geographies: On Backyards and Concorporeality." *Geopolitics*. https://doi.org/10.1080/14650045.2021.1881490

Braverman, Irus, and Elizabeth R. Johnson. 2020. *Blue Legalities: The Life and Laws of the Sea*. Durham, NC: Duke University Press.

Canepa, Matthew. 2010. "Theorizing Cross-Cultural Interaction among the Ancient and Early Medieval Mediterranean, Near East and Asia." *Ars Orientalis* 38: 7–29.

Carse, Ashley, Jason Cons, and Townsend Middleton. 2018. "Preface: Chokepoints." *Limn* 10. https://limn.it/articles/preface-chokepoints

Casey, Edward. 2009. *Getting Back Into Place: Toward a Renewed Understanding of the Place-World.* Bloomingron: Indiana University Press.

Chin, Tamara. 2013. "The Invention of the Silk Road, 1877." *Critical Inquiry* 40 (1): 194–219.

Ellis, Patrick. 2021. *Aeroscopics: Media of the Bird's-Eye View.* Oakland: University of California Press.

Frankopan, Peter. 2015. *The Silk Roads: A New History of the World.* London: Bloomsbury.

Frankopan, Peter. 2018. *The New Silk Roads: The Present and Future of the World.* London: Bloomsbury.

Friedman, John Block. 2000. *The Monstrous Races in Medieval Art and Thought.* Syracuse, NY: Syracuse University Press.

Gellner, Ernest. 1997. *Nationalism.* London: Phoenix.

Green, Sarah. 2009. *Notes from the Balkans: Locating Marginality and Ambiguity on the Greek-Albanian Border.* Princeton, NJ: Princeton University Press.

Harmanshah, Omur. 2014. "Introduction: Towards an Archaeology of Place" in *Of Rocks and Water: Towards an Archaeology of Place*, edited by Omur Harmansha, 1–12. Havertown, PA: Oxbow Books.

Kimura, Jun. 2016. *Archaeology of East Asian Shipbuilding.* Gainesville: University Press of Florida.

Ludden, David. 2003. "Maps in the mind and the Mobility of Asia," *The Journal of Asian Studies* 62 (4): 1057–1078.

Marsden, Magnus. 2021. *Beyond the Silk Roads: Trade, Mobility and Geopolitics across Eurasia.* Cambridge: Cambridge University Press.

McCoy, Mark D. 2020. *Maps for Time Travelers: How Archaeologists Use Technology to Bring Us Closer to the Past.* Oakland: University of California Press.

Mentz, Steve. 2015. *Shipwreck Modernity: Ecologies of Globalization, 1550–1719.* Minneapolis: University of Minnesota Press.

Park, Hyunhee. 2012. *Mapping the Chinese and Islamic Worlds: Cross-Cultural Exchange in Pre-Modern Asia.* Cambridge: Cambridge University Press.

Peters, Kimberley, Philip Steinberg, and Elaine Stratford. 2018. *Territory beyond Terra.* London: Rowman and Littlefield.

Reeves, Madeleine. 2014. *Border Work: Spatial Lives of the State in Rural Central Asia.* Ithaca, NY: Cornell University Press.

Richardson, Paul B. 2019. "Eddy," *Society & Space*, March 17. https://www.society-andspace.org/articles/eddy

Seland, Eivind Heldaas. 2021. *A Global History of the Ancient World: Asia, Europe and Africa before Islam*. London: Routledge.

Sharpe, Christina. 2016. *In the Wake: On Blackness and Being*. Durham, NC: Duke University Press.

Soja, Edward W. 1996. *Thirdspace : Journeys to Los Angeles and Other Real-and-Imagined Places*. Cambridge, MA: Blackwell.

Starosielski, Nicole. 2018. "Strangling the Internet." Special issue on chokepoints, edited by Ashley Carse, Jason Cons, and Townsend Middleton, *Limn* 10, 4–7.

Strauch, Ingo. 2012. *Foreign Sailors on Socotra: The inscriptions and drawings from the cave Hoq* (*Vergleichende Studien zu Antike und Orient 3*). Bremen: Hempen Verlag

Sur, Malini. 2019. "Spiral," *Society & Space*, March 17. https://www.societyandspace.org/articles/spiral

Tsing, A. 2004. *Friction: An Ethnography of Global Connection*. Princeton, NJ: Princeton University Press.

van Schendel, Willem. 2002. "Geographies of Knowing, Geographies of Ignorance: Jumping Scale in Southeast Asia." *Environment and Planning D: Society and Space* 20 (6): 647–668.

Whitfield, Susan. 2018. "On the Silk Road: Trade in the Tarim?" In *Trade and Civilisation: Economic Networks and Cultural Ties, from Prehistory to the Early Modern Era*, edited by Kristian Kristiansen, Thomas Lindkvist, and Jansen Myrdal, 251–278. Cambridge: Cambridge University Press.

Winter, Tim. 2019. *Geocultural Power: China's Quest to Revive the Silk Roads for the Twenty-First Century*. Chicago: University of Chicago Press.

Zheng, Chongwei, Ziniu Xiao, Wen Zhou, Xiaobin Chen, and Xuan Chen. 2018. *21st Century Maritime Silk Road: A Peaceful Way Forward*. Singapore: Springer.

Global Connectivities

Berenike

Gulf of Aden

Socotra

Muziris

Bay of
Bengal

Indian Ocean

1   Spaces, Places and Things

The Spatial Dimension of Early Indian Ocean Exchange

Eivind Heldaas Seland

Abstract
Early exchange along the maritime Silk Road not only spanned immense distances, but was also subject to—among other things—seasonal weather systems, hazardous waters, arid and sparsely populated coastlines with few suitable harbours, and limits imposed by infrastructure and technology. Juxtaposing theoretical models for the spatial organisation of premodern exchange with the fragmentary record of experiences handed down in historical sources, and modern digital methods for the analysis of spatial relations, this chapter addresses how we can approach the space-place-things conundrum in the context of early Indian Ocean exchange.

Keywords: Indian Ocean, spatiality, navigation, trade, maps, religion

Introduction: Historical Space

Flemish cartographer Abraham Ortelius (1527–1598) lived at the height of the early modern cartographic revolution. Spending most of his professional life in the service of the Spanish Habsburg monarchy, he became a key actor in the process of measuring, recording, and depicting the world, known as the cartographic revolution, through European eyes (Buisseret 1992; Parker 1992). Toward the end of his career, he gradually developed his *Parergon* (embellishment), a historical atlas consisting of maps of the ancient world to supplement his more famous world atlas *Teatrum Orbis Terrarum*. One of the historical maps covered the Indian Ocean (Ortelius 1597). It was based primarily on the first-century Greek text known as the *Periplus of the Erythraean Sea*. The Erythraean Sea at the time referred to what we know now as the Indian Ocean. The *Periplus* had been translated into Italian and

printed by the Venetian scholar Giovan Battista Ramusio some decades earlier (Ramusio 1550). Ortelius's map contains textual and visual references to its sources, such as small sea snakes shown off the coast of western India. These were not mythical sea monsters as were popular in early modern cartography (Van Duzer 2013), but they are mentioned in the *Periplus* as a sign to travelers that the coast is approaching (PME 40, ed. Casson 1989). The snakes are commented upon also by travelers such as Pietro Della Valle (1665) and Carsten Niebuhr (1774, 452). Their publications serve as a point of convergence between text, maps, and experiences, past and present. Even if Ortelius's map is hundreds of kilometers off target in some instances, it is broadly consistent with modern historical maps of the Indian Ocean. The purpose is visualization of knowledge, not navigation or visit on the ground. In fixing a textual narrative in a visual representation of geographical space, Ortelius combined and reconciled the geographical knowledge accumulated over a century of European trade and exploration in the Indian Ocean in his own times with the rediscovered knowledge of ancient times. This added a command of history to the program of European and Habsburg religious and political world domination, of which the *Teatrum Orbis Terrarum* was part.

In Ortelius's day, geography and history were considered interdependent, but the disciplines took largely separate trajectories through to the twentieth century (Lewis 2011; Winder 2015). In recent decades, however, "the spatial turn" has changed this situation. Geographic information system (GIS) tools allow us to understand how historical and archaeological data correlate with their spatial environment. Scholars have also become increasingly aware that to understand change, we need to investigate interaction as much as the agents themselves. And that interaction does not depend solely on contact between people; it is also mediated through objects or places. This development arguably amounts to a "relational turn" (Teigen and Seland 2017), which, among other things, has brought network theory and network analysis to prominence in the historical disciplines (Collar et al. 2015; Knappett 2011; Malkin 2011). Critical geographers, on the other hand, have warned that the history-geography-society triad needs to be fully integrated in order to allow the transition from geographical place to space. In difference to place, they argue, space has a physical existence and social and temporal dimensions and appears as a result of interaction between them (Massey 2005; Soja 1996).

Philip Steinberg (2001) starts his study of how oceans have been used, regulated, and represented in the modern period with descriptions of three earlier systems; namely, the Indian Ocean (ca. 500 BCE to 1500 CE), traditional Micronesian practices, and the Roman Mediterranean. For

Figure 1.1   Ortelius's historical map of the Indian Ocean, with sea snakes off the coast of India (detail)

Credit: Eivind Heldaas Seland

Steinberg, the Indian Ocean before the Europeans was conceived as a nonterritorial void. It was used as a medium for long-distance transport, not for everyday social interaction. The ocean was immune to territorial claims and government regulation, apart from occasional actions against pirates. The Indian Ocean was represented as a space outside society, hostile by nature but usable for transport (Steinberg 2001, 41–52). Steinberg's main interest is the modern world, and he is undoubtedly right to highlight differences and discontinuities. Nevertheless, recent scholarship on early Indian Ocean history has demonstrated that the region was very much home to maritime communities before the arrival of European powers and that cross-ocean contacts were accompanied by tightly knit regional and local networks (e.g., Margariti 2007; Ray 2003; Schottenhammer 2019; Strauch 2012). Egyptian, Roman, Arabian, Axumite, Iranian, and Indian imperial ambitions were at times projected across the sea and along coasts by military means (Park, Chapter 2 of this volume). It follows that the representation of the Indian Ocean as a space outside society is in need of nuance. Part of the problem is that most historical sources describing the region in the early period were produced by literate elites with little personal knowledge and experience of the region. I argue below that we may nonetheless be able to approach the historical space that was the Indian Ocean. Stepping into this space allows us to appreciate how people, places, things, and time interacted across large distances and cultural divides. We may thus get closer to understanding the premodern Indian Ocean on its own terms, rather than on the terms of an ancient geographer describing a remote and dangerous region or a cartographer working in Antwerp at the end of the sixteenth century.

One way of approaching historical space is offered by the work of American geographer Edward Soja. Soja, in turn, draws on the work of the French philosopher Henry Lefebvre, and uses three categories of space. Firstspace is perceived space (or spatial practice). Secondspace is conceived space (or representations of space), and thirdspace is lived space (or spaces of representation) (Soja 1996, 66–82). These categories offer ways of using different kinds of available data and source materials in order to address the spatiality of early Indian Ocean exchange.

To Soja (1996, 66), perceived space is the observable spatial patterns of people, places, and things in time. These are things we can see, count, and measure. This is what geographers have been doing since Ortelius's days and before, and which archaeologists have become increasingly good at over the last decades with the increased use of GIS technology, remote sensing, and quantitative/archaeometric methods (e.g., Lankton, Chapter 3, this volume). In an Indian Ocean context, we might study in great detail, for instance,

Figure 1.2   The production of historical space
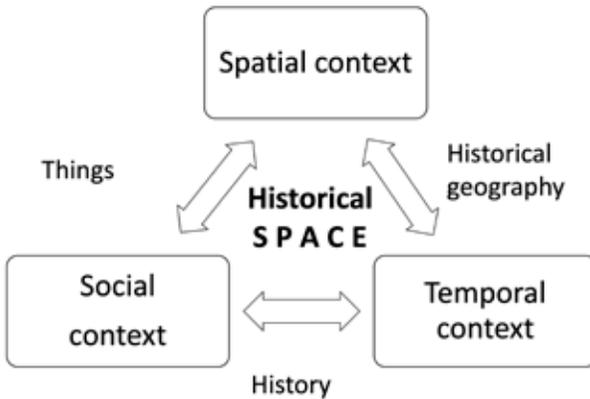
Based on Soja 1996 and Massey 2005

how ports were distributed along Indian Ocean coasts in different periods (Casson 1989, 94–243; Damgaard 2011; Facey 2004; Nappo 2018); where the harbor facilities, warehouses, and living quarters were situated in these ports; and what groups were active or resident in different neighborhoods of the port at different periods of time based on epigraphy, ceramics, or diet (Heng, Chapter 8, this volume; Radowska and Zych 2019; Thomas 2012). Such patterns emerge from a combination of considerations. Ports needed a water supply and having a natural sheltered anchorage offered a clear advantage. These are environmental factors. How settlements were created would, to some extent, rely on pragmatic factors such as available labor force, expertise, and resources. Some spatial decisions—such as where to place the main temple, or where the government warehouses should be situated, or where the foreign merchants should live—could at least potentially be ascribed to deliberate economic, ideological, or political considerations (see Lankton, Chapter 3, this volume). This is close to stating the obvious, but it underlines the point that spaces are indeed produced and that geography, history (or temporality), and society each have a place in that process.

Conceived space (or representation of spaces) are our mental models of the world, as expressed, for instance, in written and visual representations (Soja 1996, 66–67). The text of the *Periplus*, Ptolemy's *Geography*, and the Han Dynasty's descriptions of the western regions are all examples of this, as are the Byzantine period maps of the Indian Ocean region in Kosmas Indicopleustes's *Christian Topography*, which is discussed below (see Casson 1989; Kominko 2013; Leslie and Gardiner 1996). Ortelius's map of the ancient Indian Ocean is, of course, also a visualization of a conceived space,

as are contemporary concepts such as "sacred landscapes" or models for the spatial organization of early Indian Ocean polities (Damgaard 2011; Knapp and Ashmore 1999; Seland 2007). Modern written descriptions of ancient Indian Ocean trade or of port sites on the Indian Ocean seaboard are also examples of conceived spaces, as they are produced and imparted by their authors. To complicate matters, perceived spaces (the first group mentioned above) are necessarily approached by means of conceived spaces (the second group mentioned above), because the only way we are able to record and share them are by producing representations of them, whether oral, written, or visual.

Lived space (or spaces of representation) is the most difficult to capture, as it is supposed to describe how each of us navigates our physical and social surroundings, including symbols, ideologies, and power dynamics (Soja 1996, 67–69). This makes it hard for any of us to have an informed opinion about even our everyday life because most of our actions and interactions take place without us giving much thought to their symbolic implications, and because lived space is necessarily subjective. Monuments and memorials are current examples (Johnson 2002). As events leading up to and during the Black Lives Matter demonstrations of 2020 in the United States clearly show, monuments can simultaneously represent heritage and local identity to some and symbols of imperialism and oppression to others. For many people and for most of the time, monuments are simply part of the spatial backdrop. Although it may be useful to speak of perceived, conceived, and lived spaces as three separate categories, they actually overlap. We use tools and language to measure, describe, and visualize these categories, and thus they are all representations of (conceived) spaces. Most of them are also examples of spatial practice and thus perceived spaces, and some are even lived spaces or spaces of representation (Soja 1996, 70–73).

Spatiality in Early Indian Ocean Exchange

We are accustomed to approaching spatiality by means of maps and increasingly by satellite and aerial images. These visual practices find their source in the cartographic revolution of the early modern period that Ortelius was part of, but accurate maps of the Indian Ocean littorals were only made in the nineteenth century for navigational purposes and in the twentieth century for land measurements. The best maps have, in many cases, been restricted for military purposes, and high-resolution satellite imagery has only been available since 2010 or so (Kaplan 2018). Early travelers in the

Indian Ocean most likely did not have maps at all; they gauged the world from the deck of a ship. This had implications for how they perceived the maritime space they operated within.

Ancient navigators were able to use the stars, sun, moon, the appearance of the sea, the wildlife, and other sensory inputs to orient themselves, but the primary navigational aid remained visual contact with land (Arnaud 2005, 29–33; Brugge 2017; Seland 2020). The use of landforms as navigational aids in the Red Sea and Indian Ocean are described in ancient texts such as Agatharchides's fragmentarily preserved *On the Red Sea* as well as in the *Periplus Maris Erythraei* (see Burstein 1989; Casson 1989). Modern GIS tools can calculate and visualize viewsheds as they appeared in the ancient period (Figures 1.3 and 1.4 illustrate the viewshed during the approach to the Egyptian port of Berenike). These are theoretical measures under optimal conditions. Conditions are rarely optimal in the real world, but they nevertheless give an impression of the space that ancient navigators operated within. Ships setting out from Berenike could use the small island just off the cape of Ras Banas peninsula as a navigational aid until St. John's/Zabargad Island came into view. Ships heading back home to Berenike could rely on keeping land out of sight on both sides to avoid dangerous reefs. When Zabargad came into view, it would be on the right, and then sailors knew they would see the island off of Ras Banas in due time (Seland 2020). In this way, we move from the perceived space of measurements to the conceived space of representations to put ourselves in the lived space of the people who were navigating the Red Sea two millennia ago.

Two of the more obvious examples of the practice of navigating by means of sea-to-land visibility are found on opposite sides of the Gulf of Aden. *Ras Fartak* (in Arabic) and *Akroterion Syagros* (in Greek; Cape Syagros) is a nearly 900-meter-tall headland at the mouth of Dhofar Bay in present-day Oman. The headland's name is translated as "Cape of the Wild Boar," and theoretically it would be visible from some 100 kilometers offshore. The assumption that that name was given because of the shape of the mountain is not unreasonable. This is even more evident in the case of *Ras Filuk*/*Akroterion Elephas*/Cape Elephant off the Somali coast, where the west-facing profile of the 246-meters-tall headland resembles an elephant. It is significant that the semantic contents of these names are the same in Arabic and Greek and that they later made their way into European languages, confirming their age and continuity, and that seafarers most likely established and transmitted the names. This demonstrates how the conceived space of maps and toponyms may be fixed as perceived space in GIS software and allows us to glimpse the lived space of the people who

Figure 1.3   Viewshed of selected features near Berenike, Egypt
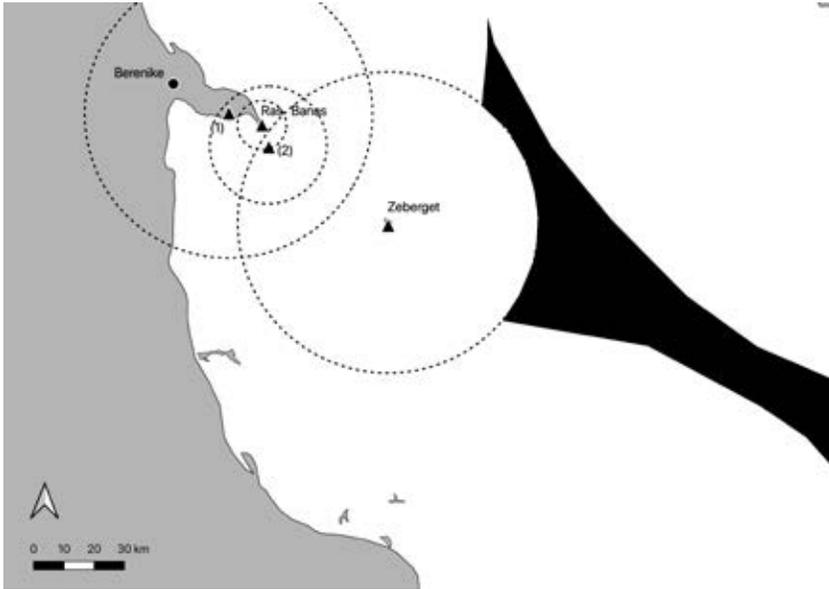
Seland, 2020

Figure 1.4   Sea-to-land visibility in the Red Sea
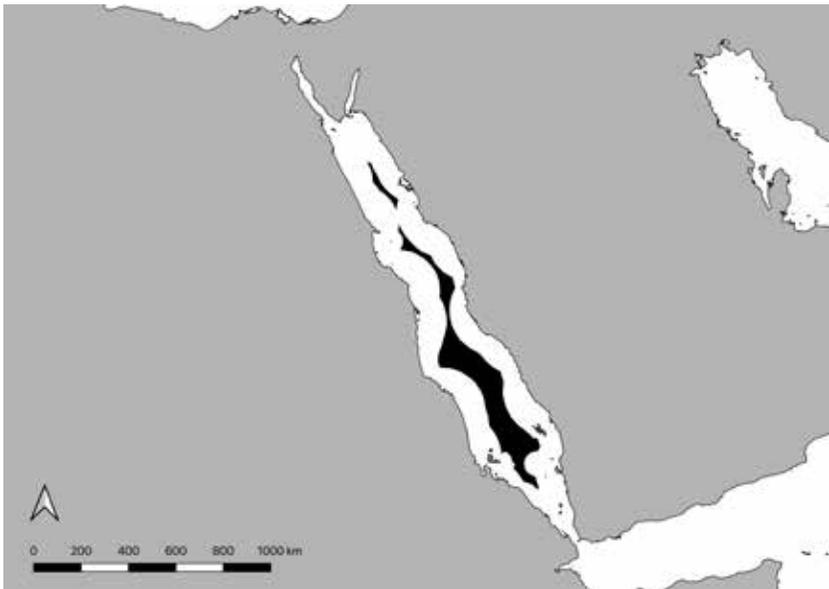
Seland, 2020

Figure 1.5   Ras Fartak/Cape Syagros, viewed from the west, from a distance of about 6 km

Image from Google Earth Professional

Figure 1.6   Ras Filuk/Cape Elephant, viewed from the west, from a distance of about 1 km

Image from Google Earth Professional

navigated the Gulf of Aden two millennia ago. It also underlines that long-distance contacts did not emerge suddenly and as the result of exploration and discovery. This evolution does not preclude innovation, development, and the introduction of new actors and technology, but it emphasizes how change is built on extant cultural layers (Tchernia 1997).

Turning to the concepts of lived space and spaces of representation, one trait highlighted by Soja and others is that these landscapes are charged with meaning for the people who navigate them (Knapp and Ashmore 1999; Soja 1996). Naming mountains after animals they resemble are basic examples of this, but more significant is the investment of political or religious symbolism into places. This can be seen in a small map accompanying manuscripts of the sixth-century *Christian Topography*, by an author "who sailed to India," and by convention is called Kosmas Indicopleustes, but whose real name is not known. Figure 1.7 is a representation of the kingdom of Aksum, which spans parts of both present-day Ethiopia and Eritrea. We do not know whether the map was originally made by Kosmas or if it was added by the monks who copied the manuscripts at a later stage. Four versions exist, and the one discussed here is from a ninth-century CE copy (see Kominko 2013, 25–31).

As an example of so-called conceived space and visualization of how an observer understood the text it accompanied, the map exemplifies history, geography, and society. On the left side, the coastline is depicted with three labeled settlements: Adulis (the main port of the Aksumite Kingdom), Gabaza (described as a *telônion*, or customs house), and an otherwise unknown settlement named Samidi. Four persons described as Ethiopian travelers are moving along the road to Aksum, which we recognize as the capital of the ancient kingdom. The map also depicts two monuments said by Kosmas to be situated along this road outside Adulis. One is a stela of Ptolemy III, the king of Egypt in the third century BCE, commemorating his wars in Syria and his elephant hunts in the Red Sea. The other is an inscribed marble throne believed by Kosmas to also belong to Ptolemy. Kosmas adds that the site of the throne was used as a place of execution in his time (Christian Topography 2.54-67, ed. Wolska-Conus 1968). Modern scholars have demonstrated the stela is commemorating the military exploits of an Axumite king in the second or third century CE (Bowersock 2013).

Although of no use as a geographical map in our current understanding of the term, the map does take geography into account in its placement of the sea and the different cities. The map has south on top, and the body of water on the left is the littoral of the Gulf of Zula, a bay on the coast of present-day Eritrea. The map also seems to reflect a political hierarchy

Figure 1.7   Map of the Aksumite kingdom; Red Sea coast to the left
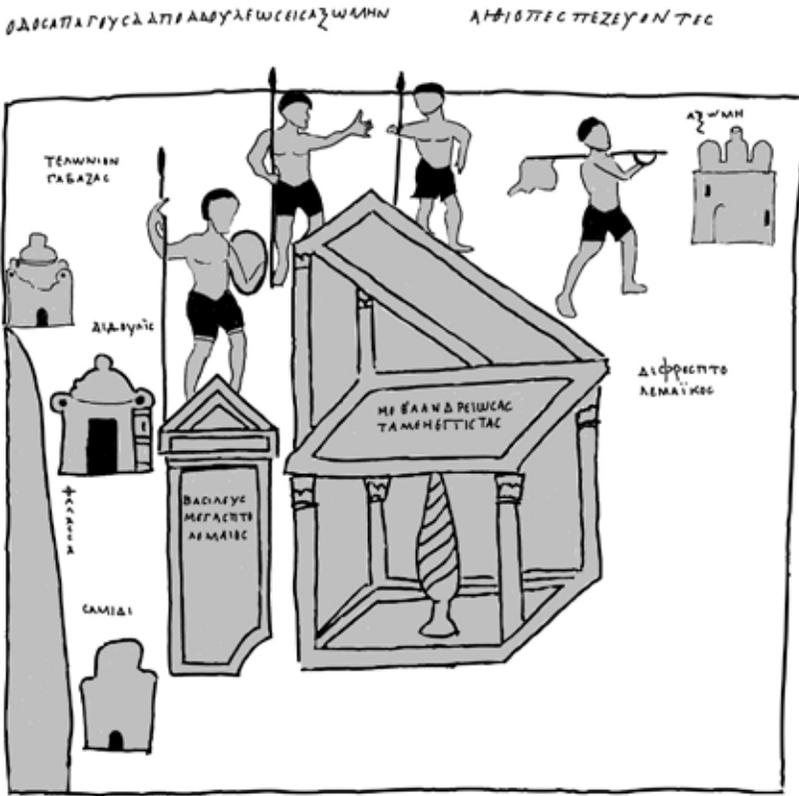
Drawing after manuscript Vat.gr.699, 15v. [own work]

between settlements in the form of different symbology, and it relates several layers of historical pasts through the inscriptions of the Ptolemaic and Axumite rulers. In this sense, the map provides insight into the lived space or space of representation of sixth-century CE Ethiopia and Eritrea.

A final example is the late fourth or early fifth century Roman route map preserved in a Medieval copy known as the *Tabula Peutingeriana*. In the section showing southern India and Sri Lanka, there is the harbor town of Muziris (most likely the archaeological site of Pattanam in Kerala), which is depicted with a *templum Augusti* (a temple of the divine Roman emperors). The central segments of the map, which display the Mediterranean littoral, give a fairly accurate depiction of perceived space, even if several historical layers of information are contained in the document, making the exact dating difficult and leading to anachronisms (Rathmann 2018; Talbert 2010; Weber 1989). Towns are depicted with their distances between them,

Figure 1.8   South India with the temple at Muziris
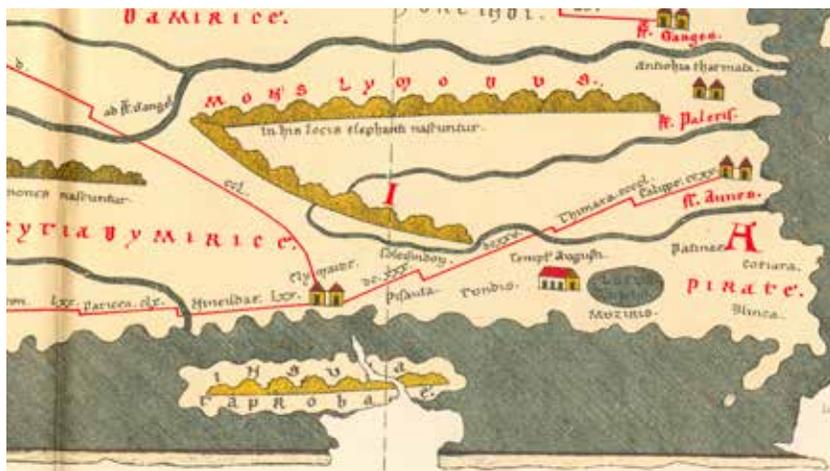
Tabula Peutingeriana, Conradi Milleri, 1888

although presented in the manner of communication lines rather than the accurate rendering of distances, roads, and landforms, much like a modern urban transport map or network graph. However, in the depiction of South India, there is very little accuracy. In part, this reflects the inadequate knowledge of the region; in part, it is not intended as an accurate depiction but rather as a way to emphasize the greatness of Rome. This is one possible reading of the Roman temple in South India; namely, that the Romans could tell themselves that their empire was so great that even at the end of the known world, there was a temple to their emperors. This would be a representation of conceived space, much like Ortelius's map that inscribed early modern navigators into the venerable history of ancient geographers. As a depiction of what was going on in the fourth or fifth century, the map is clearly misleading. In the first two centuries CE, there was an active, regular, and apparently rather large-scale traffic between Egypt and South India (Cobb 2015). Very likely, there was a settlement of Roman subjects in Muziris, and very likely they would have celebrated the imperial cult as a way of maintaining cohesion among themselves (Metzler 1989; Seland 2016). After a period of little evidence of connection in the third century CE, contact between Egypt and South India seem to have resumed in the fourth century (Lankton, Chapter 3, this volume). Rome, however, was officially Christian at the time when the *Tabula* was composed in the form it has come down to us, so temples to the emperor were a surely thing of the past, and the temple depicted in Muziris represents a layer of historical space in the

map. Even if flawed as a representation of the physical world and of what was actually going on when the map was drawn, it still echoes the global scope of contacts and consciousness brought about by early Indian Ocean trade. Parallel examples are also known from other parts of the Indian Ocean World, the most spectacular being the cave of Hoq on the remote island of Socotra, where Indian merchants have left hundreds of inscriptions, many with Brahmanic and some with Buddhist connotations. These have been found along with Ethiopic, Greek, South Arabian, and even one Palmyrene inscription (Strauch 2012). In this context, the reference to a temple of the Roman emperors does make sense but only in light of what else we know about the historical, social, and geographical environments of the region.

Conclusion

Postmodern geographical theory perhaps does not sit well with empirical traditions of Indian Ocean archaeology and history. Thinking in terms of spatiality is nevertheless a useful way of approaching the expanding mass of data we have about places, products, and people in early Indian Ocean trade for at least two reasons. First, it requires us to shift our focus from the metropolitan perspectives that have produced many of our sources and most of the historiography to the places where things happened, whether on a beach, in a coastal city, or from the deck of a ship. In this way, it helps us relocate the Indian Ocean where it belongs: in the center of its own world rather than as a periphery to the Mediterranean World. Second, having to think about how the historical, geographical, and social environments come together and influence each other is useful because it allows us to displace emphasis from the static nature of our evidence to the dynamic processes that produced it, thus adding nuance to our vision of the past and helping us to understand the historical dynamics that were at work in the early Indian Ocean trade.

References

Arnaud, Pascal. 2005. *Les Routes De La Navigation Antique: Itinéraires En Méditerranée.* Paris: Éditions Errance.

Brugge, Ruben B. 2017. "To See or Not to See: A Study in Maritime Visibility." In *An Island between Two Worlds: The Archaeology of Euboea from Prehistoric to Byzantine Times*, edited by Zarko Tankosic, Fanis Mavridis, and Maria Kosma, 291–301. Athens: Norwegian Institute in Athens.

Bowersock, Glen W. 2013. *Throne of Adulis: Red Sea Wars on the Eve of Islam.* Oxford: Oxford University Press.

Buisseret, David. 1992. *Monarchs, Ministers and Maps: The Emergence of Cartography as a Tool of Government in Early Modern Europe.* Chicago: University of Chicago Press.

Burstein, Stanley M. 1989. *Agatharchides of Cnidus on the Erythraean Sea.* London: Hakluyt Society.

Casson, Lionel (ed., trans.) 1989. *The Periplus Maris Erythraei.* Princeton, NJ: Princeton University Press.

Cobb, Matthew. 2015. "The Chronology of Roman Trade in the Indian Ocean from Augustus to Early Third Century." *Journal of the Economic and Social History of the Orient* 58:362–418.

Collar, Anna, Fiona Coward, Tom Brughmans, and Barbara J. Mills. 2015. "Networks in Archaeology: Phenomena, Abstraction, Representation." *Journal of Archaeological Method and Theory* 22:1–32. https://doi.org/10.1007/s10816-014-9235-6.

Damgaard, Kristoffer. 2011. "Modelling Mercantilism: An Archaeological Analysis of Red Sea Trade in the Early Islamic Period (650–1100 CE)." PhD diss., Copenhagen University, Faculty of Humanities.

Della Valle, Pietro. 1665. *The Travels of Sig. Pietro Della Valle, a Noble Roman, into East-India and Arabia Deserta.* London: Henry Herringman.

Facey, William. 2004. "The Red Sea: The Wind Regime and Location of Ports." In *Trade and Travel in the Red Sea Region: Proceedings of the Red Sea Project I. Held in the British Museum October 2002*, edited by Paul Lunde and Alexandra Porter, 7–17. Oxford: Archaeopress.

Johnson, Nuala C. 2002. "Mapping Monuments: The Shaping of Public Space and Cultural Identities." *Visual Communication* 1:293–298.

Kaplan, Caren. 2018. *Aerial Aftermaths: Wartime from Above.* Durham, NC: Duke University Press.

Knapp, A. Bernard, and Wendy Ashmore. 1999. "Archaeological Landscapes: Constructed, Conceptualized, Ideational." In *Archaeologies of Landscape: Contemporary Perspectives*, edited by A. Bernard Knapp and Wendy Ashmore, 1–32. Oxford: Blackwell.

Knappett, Carl. 2011. *An Archaeology of Interaction: Network Perspectives on Material Culture and Society.* Oxford: Oxford University Press.

Kominko, Maja. 2013. *The World of Kosmas: Illustrated Byzantine Codices of the Christian Topography.* Cambridge: Cambridge University Press.

Leslie, Donald Daniel, and Kenneth Herbert James Gardiner. 1996. *The Roman Empire in Chinese Sources.* Rome: Bardi.

Lewis, Martin W. 2011. "Geographies." In *Oxford Handbook of World Histories Online*, 36–53, edited by Jerry H. Bentley. Oxford: Oxford University Press.

Malkin, Irad. 2011. *A Small Greek World: Networks in the Ancient Mediterranean.* New York: Oxford University Press.

Conradi Milleri. 1888. *Peutingeriana Tabula itineraria in bibliotheca Palatina Vindobonensi asservata nunc primum arte photographica expressa.* Vindobonae [Vienna]: Angerer et Göschl [Public domain].

Margariti, Roxani Eleni. 2007. *Aden & the Indian Ocean Trade: 150 Years in the Life of a Medieval Arabian Port.* Chapel Hill: University of North Carolina Press.

Massey, Doreen. 2005. *For Space.* London: Sage.

Metzler, Dieter. 1989. "Kaiserkult Ausserhalb Der Reichsgrenzen Und Römischer Fernhandel." In *Migratio Et Commutatio. Studien Zur Alten Geschichte Und Deren Nachleben. Thomas Pekáry Zum 60. Geburtstag Am 13. September 1989 Dargebracht Von Freunden, Kollegen Und Schülern*, edited by Hans-Joachim Drexhage and Julia Sünskes, 196–200. St. Katharinen: Scripta Mercaturae Verlag.

Nappo, Dario. 2018. *I Porti Romani Nel Mar Rosso Da Augusto Al Tardo Antico.* Naples: FedOA, Federico II University Press.

Niebuhr, Carsten. 1774. *Reisebeschreibung Nach Arabien Und Andern Umliegenden Ländern*, Vol.1. Copenhagen: Nicolaus Möller.

Ortelius, Abraham. 1597. *Erythraei Sive Rubri Maris Periplus.* Antwerp: Jan Baptista Vrients.

Parker, Geoffrey. 1992. "The Spanish Habsburgs." In *Monarchs, Ministers and Maps: The Emergence of Cartography as a Tool of Government in Early Modern Europe*, edited by David Buisseret, 124–152. Chicago: University of Chicago Press.

Radowska, Joanna, and Iwona Zych. 2019. "Exotic Cults in Roman Berenike? An Investigation into Two Temples in the Harbour Temenos." In *Stories of Globalisation: The Red Sea and the Persian Gulf from Late Prehistory to Early Modernity: Selected Papers of Red Sea Project VII*, edited by Andrea Manzo, Chiara Zazzaro, and Diana Joyce De Falco, 225–245. Leiden: Brill.

Ramusio, Giovanni Battista. 1550. *Navigationi Et Viaggi.* Venetia: Stamperia de Giunti.

Rathmann, Michael. 2018. *Tabula Peutingeriana: Die Einzige Weltkarte Aus Der Antike.* Darmstadt: WBG, Philipp von Zabern.

Ray, Himanshu P. 2003. *The Archaeology of Seafaring in Ancient South Asia.* Cambridge: Cambridge University Press.

Schottenhammer, Angela. 2019. *Early Global Interconnectivity across the Indian Ocean World.* Palgrave Series in Indian Ocean World Studies. Cham: Palgrave Macmillan.

Seland, Eivind Heldaas. 2007. "Red Sea and Indian Ocean: Ports and Their Hinterland." In *Natural Resources and Cultural Connections of the Red Sea*, edited by Janet Starkey, Paul Starkey, and Tony J. Wilkinson, 211–218. Oxford: Archaeopress.

Seland, Eivind Heldaas. 2016. "Trade Diasporas and Merchant Social Cohesion in Early Trade in the Western Indian Ocean." In *Between Dispersion and Belonging: Global Approaches to Diaspora in Practice*, edited by Donald H. Akenson and Amitava Chowdhury, 125–137. Montreal: McGill-Queen's University Press.

Seland, Eivind Heldaas. 2020. "Coastal and High-Sea Passages in Ancient Red Sea Navigation: Combining GIS with Common-Sense Geography." In *Methods and Models in Ancient History: Studies in Honor of Jørgen Christian Meyer*, edited by Ingvar Mæhle, Per Bjarne Ravnå, and Eivind Heldaas Seland, 99–110. Athens: Norwegian Institute at Athens.

Soja, Edward W. 1996. *Thirdspace: Journeys to Los Angeles and Other Real-and-Imagined Places*. Cambridge, MA: Blackwell.

Strauch, Ingo. 2012. *Foreign Sailors on Socotra: The Inscriptions and Drawings from the Cave Hoq.* Bremen: Hempen.

Steinberg, Philip E. 2001. *The Social Construction of the Ocean.* New York: Cambridge University Press.

Talbert, Richard J. A. 2010. *Rome's World: The Peutinger Map Reconsidered.* Cambridge: Cambridge University Press.

Tchernia, Andre. 1997. "Winds and Coins: From the Supposed Discovery of the Monsoon to the Denarii of Tiberius." In *Crossings: Early Mediterranean Contacts with India,* edited by Federico De Romanis and Andre Tchernia, 250–276. New Delhi: Manohar.

Teigen, Håkon Fiane, and Eivind Heldaas Seland. 2017. "Sinews of Empire and the Relational Turn in Classical Scholarship." In *Sinews of Empire: Networks in the Roman near East and Beyond*, edited by Håkon Fiane Teigen and Eivind Heldaas Seland, v–xii. Oxford: Oxbow Books.

Thomas, Ross. 2012. "Port Communities and the Erythraean Sea Trade." *British Museum Studies in Ancient Egypt and Sudan* 18:170–199.

Van Duzer, Chet A. 2013. *Sea Monsters on Medieval and Renaissance* Maps. London: British Library.

Weber, Ekkehard. 1989. "Zur Datierung Der Tabula Peutingeriana." In *Labor Omnibus Unus: Gerold Walser Zum 70. Geburtstag*, edited by Heinz E. Herzig and Regula Frei-Stolba, 113–117. Stuttgart: Franz-Steiner.

Winder, Gordon M. 2015. "Historical Geography." In *International Encyclopedia of the Social & Behavioral Sciences*, 2nd ed., edited by James D. Wright, 17–22. Oxford: Elsevier

Wolska-Conus, W. 1968. Cosmas Indicopleustes: Topographie Chrétienne. Paris: Cerf.

Baghdad

Siraf

*Persian
Gulf*

Guanzhou

*Bay of
Bengal*

Indian Ocean

2 Open Space and Flexible Borders

Theorizing Maritime Space through Premodern
Sino-Islamic Connections

Hyunhee Park

Abstract
This chapter evaluates the importance of the Sino-Islamic maritime connections in premodern Afro-Eurasian cross-cultural contact by examining geographic understanding of the sea space accumulated by those engaged in the prosperity of maritime activities. Such a boom led people to have a theoretical and practical understanding of the maritime realm, the open space for their activities, by sharing important information for sailing, ports, and local products, which further facilitated increased contacts of exchanging commercial goods and cultural items. The study is attentive to, and speaks to, questions of spatiality of the maritime realm regarding openness and flexibility in border issues in order to understand the spatial configuration of maritime trade, compared to land-based commercial exchange that was more bound by political borders.

Keywords: flexible borders, maritime space, the Indian Ocean, Afro-Eurasian contacts, Chinese-Islamic connections, geographic understanding

Introduction

Afro-Eurasia's southern maritime zone, defined by the Indian Ocean, has provided a space through which societies have connected through cross-border and cross-cultural interaction since ancient times. In this space, the seas were open to those who were willing to travel great distances in search of new contacts and exchanges, and to those who could develop the shipbuilding and navigational technologies that enabled voyagers to

undertake such adventures, as the other chapters of this volume attest. By the eighth century CE, an entire transoceanic route spanned the Indian Ocean to become the longest, most regularly, and most heavily traveled sea route in the world until well after 1492, thanks to active participation of peoples from both its western and eastern shores. On the western side, for example, merchants from the Middle East sailed the Indian Ocean to reach Guangzhou (Canton), where they could participate directly in China's overseas trade and gain a dominant position in the transport trade of the entire Indian Ocean (Hourani 1995). By the beginning of the second millennium CE, however, the Chinese began to assume the dominant position in long-distance maritime trade in the Eastern Ocean, thanks to innovations in shipbuilding, the introduction of the mariner's compass, and other technological breakthroughs (Lo 2012). As the frequency of maritime travel and transport increased, so did the quantity of information shared about the techniques and technologies of sailing. As a consequence, cross-cultural exchanges, from mundane commercial goods to dazzling cultural artifacts to intellectual goods, flourished. Inter-Asian connections grew and bonds deepened, augmenting the importance of the maritime for the economies, politics, and cultures of Afro-Eurasia. Global histories have focused most of their attention on the period after 1500 CE, however, so the importance of this foundational stage in the history of the region's maritime space appears diminished.

This chapter reevaluates the importance of Afro-Eurasia's southern maritime space by examining geographic understandings of the greater Indian Ocean sea-space on the part of those who engaged with and benefited from the region's maritime activities. A rich study of this maritime exchange has already grown during the past few decades, thanks to the increase in scholarly attention to the history of trans-Eurasian contacts under the auspices of Silk Road studies.[1] However abundant, this attention has not included the spatial configuration of maritime trade, though it differs significantly from its land-based counterpart, so the subject has remained underanalyzed as a consequence. This is important because building and maintaining regular interaction between cultures living on opposite ends of the Indian Ocean demanded a shared conception of sea-space that could only be achieved by regular exchanges of ideas and convergences of interests among maritime societies developed over centuries.

1   Many works on the premodern maritime exchange, including monographs and edited volumes, are cited in other chapters of this volume. Let me add three more examples: Paine 2013 and Schottenhammer 2008 and 2019.

China and the Islamic World, arguably the world's two most advanced societies and closely connected by trade between 700 and 1500 CE, provide excellent case studies, given not only their major economic importance but also abundant written and cartographic sources, left behind by scholars and firsthand observers from the two societies. The chapter first compares evidence in literary and cartographical sources of Chinese and Islamic attempts to accumulate geographical knowledge as a consequence of cross-cultural exchange and then uses it to theorize the shape of the oceans. It then identifies patterns of continuity and change in the spatial understandings displayed by these authors, particularly during the Mongol and post-Mongol eras when both societies underwent fundamental political changes, and it highlights evidence of cross-cultural agents in those changes. The fact that both cases show striking similarities in their developmental patterns suggests that those responsible for shaping ideas about sea-space drew many of their ideas from material and information exchanged between the two worlds, thanks to seafarers and merchants who wittingly or not acted as intermediaries. Thus, we can begin to comprehend how Eurasian societies shaped their conceptualization of the maritime, even as they were shaped by it. This is important because it highlights active Asian participation in globalization well before 1492, when the age of European expansion began.

Theorizing Maritime Space in the Medieval Islamic World

The Islamic World first arose on the Arabian Peninsula under the leadership of the Prophet Muhammad and then expanded rapidly in the wake of his death, as armies overwhelmed a massive stretch of territory encompassing North Africa, Persia, and much of the old Eastern Roman Empire in a remarkably short period of time. These Muslim armies united the conquest lands under a single caliphate, established a form of government for its rapidly expanding empire based on their religious culture, and soon converted many of their new subjects from diverse traditions to Islam. Under the early caliphates—Rāshidūn, Umayyad, and Abbasid—when the Islamic Empire expanded its territorial reach to its greatest extent after decades of exhaustive wars of conquest, a growing Muslim population in newly subjugated regions maintained, and sometimes even strengthened, many local facets of their traditional cultural infrastructure. An important example of this behavior appears in their efforts to benefit from and develop existing trading networks in the Middle East, through which Muslims wielded commercial influence over the conquered territories. In particular, they secured territories on the

East African coast and on the Arabian Peninsula—both adjacent to the seas connecting Red Sea ports to distant neighbors, the Persian Gulf, and the Indian subcontinent. It was natural for the Muslin population there to advance to the open seas and develop maritime commercial connections on an unprecedented scale, as their non-Muslim forebears had done before them (Chaudhuri 1985, 9–52; Risso 1995, 9–20).

In fact, long before the rise of Islamic civilization in the early seventh century CE, maritime trade had drawn West Asia into the vast trade network long operative in the Indian Ocean. Greek and Roman merchants advanced to the Indian Ocean before the first millennium CE and established regular trade routes extending to South Asia, where they purchased silks from China (Casson 1989). From these traders, Greek and Roman scholars collected detailed geographic knowledge about the Indian Ocean, particularly its western half, and used this data to theorize the shape of the sea, as exemplified in the geographic works of Strabo and Ptolemy (see Dilke 1987; Harley and Woodward 1987). As for the Persians who connected not only to the Mediterranean but also to East Asia through the famed overland Silk Road, few ancient Persian sources are extant; however, related sources hint that they were also active in the Maritime Silk Road (MSR) with the Far East. These historical facts are corroborated by archaeological evidence that suggests goods produced in West Asia and around the Mediterranean Sea reached China, Korea, and Japan from before the Islamic period and after through the extended sea routes (see Lankton, Chapter 3, this volume). Thus, since the conception of the Islamic World, the MSR was an important component of its economy.

Muslims in the Middle East not only inherited a legacy of maritime trade, maritime societies, and maritime cultures of the Indian Ocean but also it strengthened trade as merchants expanded across the Indian Ocean into China seas. After moving the capital to Baghdad, with its easy access to the Persian Gulf through the Tigris River, the third Abbasid Caliph al-Mansūr (r. 754–775 CE) boasted: "This is the Tigris; there is no obstacle between us and China; everything on the sea can come to us on it" (al-Ṭabarī [10th century] 1995, 238). This shows that by the middle of the eighth century, maritime trade and travel connecting the Islamic World and China had matured to a greater level of strength and sophistication. China, once a distant and little-accessed country inaccurately described in earlier Greco-Roman sources, transformed under the early caliphates into a popular destination for Muslim merchants eager to conduct business in its wealthy markets. Caliph al-Mansūr's remark reflects the growing understanding of the Indian Ocean as an open space within which people could engage more freely and connect

more easily with long-distance partners than anyone could on land. After the Abbasid caliphs solidified the political borders of their Islamic Empire, the sea provided a medium through which Muslim culture could continue to advance into the wider world through commerce and proselytization. Because of this, Islamic religion and culture expanded into South Asia and Southeast Asia by both land and sea.

Indeed, as Arabic literature developed, so did the number of writings that testified to the growing volume of the traffic of people and goods between Indian Ocean societies, a fact that by then was familiar to anyone who shared an interest in the benefits of maritime trade. These sources show that Muslim merchants from West Asia also inherited pre-Islamic forms of theoretical understandings and geographic descriptions of the wider world accumulated through earlier generations of cross-cultural contact and knowledge of maritime activities in the Indian Ocean. These included not only geographic information but also navigation technology, particularly about regional forms of seacraft that had improved their range and begun to dominate maritime trade all the way to China. This has been verified by archaeological evidence such as a sunken dhow ship of the kind that that predominated in the western Indian Ocean and transported Chinese trade goods of many varieties back to the Middle East from Chinese ports (Flecker 2002). As Eurasia's overland routes declined in response to China's erosion of power in the wake of the An Lushan rebellion (755–763 CE), long-distance maritime trade grew even more and maintained its volume for centuries, even as surrounding political conditions changed. Therefore, writers and mapmakers sought to better understand this florescence of maritime seafaring and trade by West Asian Muslims by developing practical and theoretical interpretations of Indian Ocean geography beyond what previous generations had done.

This literary attempt to understand maritime space and its effects expanded beyond nonfiction genres into fictional and folk tales. Popular tales involving Muslims, Jews, and other West Asian merchants who sailed from Baghdad to China and won great wealth there testified to the expanded transoceanic trade and its storied wealth. This includes folkloristic texts such as ʿAjāʾib al-Hind and the famous story of Sinbad the Sailor in the *Thousand and One Nights* (also known as the *Arabian Nights*), both created in the tenth century CE. Such stories migrated from the ports to the hinterlands to be revised and recirculated countless times, gradually incorporating new content that reflected the trade networks' participants who hailed from across southern Asia; the exotic goods they traded such as musk, silks, and porcelains; and the dream that all might one day gain unimaginable

wealth by risking the perils of the seas to reach distant lands, adventures that readers could experience indirectly through these popular tales (Park 2012, 64).

By the Golden Age of the Abbasids in the ninth century CE, a growing number of writers and cartographers were beginning to produce more realistic, practical, and systematic accounts of the Indian Ocean region, ones based on information accumulated by merchants familiar with the itineraries between the Chinese and East African coasts. They also drew from the large body of Persian and Greek literature surviving in former Sasanian and Byzantine, now Muslim, territories. The growth of world geography and mapping as intellectual fields in the Islamic World meant that scholars there were now well equipped to develop theoretical frameworks for conceptualizing maritime space in evermore systematic ways. A few extant representative accounts of the ninth century by Muslim writers include *Book of Routes and Realms* by Ibn Khurradādhbih (ca. 870); *Accounts of China and India*, collected by Abū Zayd al-Ḥasan b. al-Yazīd al-Sīrāfī (ca. tenth century); and *The Meadows of Gold and Mines of Gems* by al-Masʿūdī (ca. 947), who extensively mined Abū Zayd al-Sīrāfī's information about China and India to compile his celebrated encyclopedic work, which brings together diverse accounts to establish the state of geographic knowledge in his day.

Of all these accounts, the geography of Ibn Khurradādhbih profoundly influenced the development of descriptive world geography. An Abbasid official from Persia, he is best known for his *Book of Routes and Realms*, an attempt to synthesize the current geographical knowledge of the world in order to situate the empire's place in it by systematically dividing the world into regions, describing characteristics of trade, politics, and culture to distinguish them, and plotting connections that interlinked them. For example, a key section of his book describes a sea route to China, one terminating at four of the country's major seaports, including Guangzhou (Canton), a popular destination for Islamic sea merchants, and describes local production, commerce, and cultural practices.

Other accounts testify to the growth in the quantity and quality of information deriving from maritime merchants, information provided in direct testimonies of merchants to authors, revealing the state of Muslim knowledge about China at the moment in the ninth and tenth centuries when commercial interchange between the two societies reached its peak. Abū Zayd al-Sīrāfī, a merchant and writer from Siraf, an important port for maritime trade with China on the Persian Gulf, collected stories about West Asian merchants who sailed to China, lived there, and conducted

Figure 2.1   Sea routes connecting the Islamic Middle East and China described by
   Ibn Khurradādhbih and Jia Dan

trade. In his collection, he included an account written in about 850 called
Accounts of China and India that contains an incomplete sea itinerary to
China. The account speaks of seven seas, including the seventh called the
Sea of China. Complete information about these seven seas can be obtained
by comparing it with a similar description in a professional geographic
account by al-Masʿūdī, who claims that he received the information from
Abū Zayd when he traveled to Siraf. His resulting itinerary (*Meadows of Gold
and Mines of Gems*) agrees with the one authored by Ibn Khurradādhbih,
suggesting that information about the sea route was circulating among
West Asian merchants and Indian Ocean sailors by the ninth century (Park
2012, 60–65). Al-Masʿūdī's differs from Abū Zayd's because, as a professional
scholar and geographer, al-Masʿūdī compared the Indian Ocean with the
"Western Sea"—namely, the Mediterranean Sea—a practice he had inherited
from the Greeks. Indeed, similar information about maritime geography
circulated among a variety of authors because of its shared importance
to their respective works (Ferrand 1914). For example, there is also the
account by Jia Dan, entitled *Guangzhou tong haiyi dao*, compiled around
800 CE, which offers a ship's itinerary (this is discussed in detail later in
this chapter).[2]

---

2   A reconstructed map in my earlier monograph did not locate some of the seas precisely
(Park 2012, 72). I have updated Figure 2.1 here to correct their locations.

Al-Masʿūdī's Baghdad, the center of intellectual learning in the early Abbasid world, was open to various traditions of the societies conquered by Muslim armies, including those of Sassanid Persia and the Byzantine Empire, drawing on them to create their own rich and unique Islamic culture. At the time, the caliphs sponsored the collection and translation of scholarly works from other traditions, including Iranian and Greek, whose lands had become part of the empire. While most others focused on practical knowledge, geographers sought to understand geographical space as a whole, synthesizing the relevant knowledge. Their ambition to develop geography as an intellectual discipline as well as craft dates back to the time of Caliph al-Maʾmūn (r. 813–833 CE).

The world mapping project of Caliph al-Maʾmūn typifies this revisionist trend. The caliph's scholars borrowed Ptolemy's theoretical mapping technique to plot newly collected data using longitudinal and latitudinal coordinates to create updated maps. Unfortunately, the final map that resulted from this project, which was testified to by al-Masʿūdī, has been lost. However, we can assume both its scale and contents from the later works it influenced. Ptolemy drew the Indian Ocean as a closed space, due to his lack of knowledge, as he was unsure about the geography of its eastern end. In his own treatise, al-Khwārizmī (d. ca. 850), a scholar who had participated in Caliph al-Maʾmūn's project, demonstrated that the Indian Ocean conformed to Ptolemy's description, a clear indication that he had benefited from new information gleaned from Muslim merchants and sailors active in the Indian Ocean trade (Park 2012, 58–60). Most of the Islamic maps produced in the following periods depict the Indian Ocean's eastern horizon as open to a broad ocean to the east (namely, the Pacific Ocean).

The earliest maps drawn during al-Maʾmūn's life no longer exist; however, the earliest extant Islamic maps from the tenth century reveal a basic Ptolemaic structure, but one that has incorporated new content, including recent information on both the open horizons of the Indian Ocean and also on China, producing an altogether different map. These earliest extant maps that show the relation of these seas, and which became the most influential prototype for most maps made by later Muslim geographers, are attributed to geographers of the Balkhī School active in the mid-tenth century (Tibbetts 1992). The map of the known world, surrounded by the "Encompassing Sea," orients along a north-south axis. South sits atop the map in accord with the convention of Muslim geographers. Mecca lies at the center of the Afro-Eurasian continent. The Mediterranean Sea and Indian Ocean extend both westward and eastward, while Africa stretches eastward as it consumes much of the Southern Hemisphere, reducing the

Figure 2.2   A prototype of Balkhī School world maps (10th century)
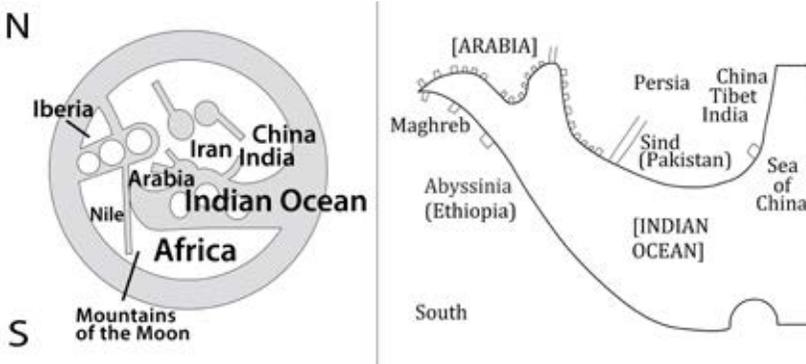
The original map placed the south on top; the map is reversed here for clarity (left); Al-Muqaddasī's sketch of the Indian Ocean reaching the Sea of China in his *Aḥsan al-taqāsīm fī ma'rifat al-āqālīm*, redrawn after the original; the original map placed the west on top (right)

Indian Ocean to a narrow horizontal band of open sea-space straddled between the East African coast and China (Figure 2.2, left).

Although roughly drawn, the map rather accurately represents Eurasia and the northern part of Africa as Muslim geographers knew them at that time (Tibbetts 1992, 112–122). In fact, these Balkhī School geographers became well known for focusing their agenda on the task of providing full and detailed accounts of the Islamic regions they valued most. This new generation of geographers was influenced by the gradual breakup of the Islamic World into separate political entities that acknowledged the religious, but not the political, authority of the caliph in Baghdad. For the first time, geographers systematically classified the world by political region and delineated boundaries to distinguish countries. Although Balkhī School geographers wrote little about the non-Islamic World, they developed world maps for their atlases while they did regional studies comparing different parts of the Islamic World. Given their lesser interest in world maps, they most likely looked to earlier world maps such as those by the scholars of Caliph al-Ma'mūn. Depictions of the Indian Ocean extending to the Sea of China feature in many geographic works of Balkhī geographers, for example. An authoritative Balkhī geographer named al-Muqaddasī (d. after 988) admitted that it was difficult for him to understand the true shape of the sea because sailors provided discrepant, and sometimes contradictory, information. He and other Muslim geographers nonetheless crafted generalized depictions of the Indian Ocean with this additional maritime extension to China (Park 2012, 77–78) (see Figure 2.2, right).

Once the prototype of the land and sea contours of the world was established, later geographers recycled its information to produce new generations of maps. Of course, as the Islamic World expanded, mapmakers also produced new varieties of world maps that deviated from previous approaches in the larger depiction of the world and its oceans. These included maps of individual regions and seas, as seen in the *Books of Curiosities* produced during the Fatimid Dynasty (909–1171), as well as the round map in Kāshgharī's eleventh-century encyclopedic dictionary of the Turkish language, for example (Park 2012, 80–81; Rapoport and Savage-Smith 2018). Yet, most of the world maps basically followed the earlier prototype. Al-Idrīsī (ca. 1154), for example, synthesized earlier information in order to draw his monumental geographic atlas known as *The Book of Roger*, consisting of the most detailed geographic descriptions and maps of the world for its time. He divided the world and its seas physically by sections and climates as rough longitudinal and latitudinal divisions. While the presentation of the world became more sophisticated, the contours of the continents and seas do not deviate from the earlier prototype.

Al-Idrīsī's mid-twelfth-century works include new information about the Indian Ocean, particularly its western side. Still, for the most part, he included geographic information appropriated from earlier sources, such as those of Ibn Khurradādhbih. Recycling of data probably happened due to changes in maritime relations sparked by such events as the great massacres of foreigners that occurred in Guangzhou (Canton), China's most important port of trade with West Asia and the Indian Ocean (Park 2012, 86–87). After the massacres, West Asian merchants relocated their commerce to South Asia or Southeast Asia, where they continued to meet merchants from the East without having to sail all the way to China, as Muslim writers like al-Masʿūdī report (Chaffee 2018, 52–59). Despite this change, however, the scale of inter-Eurasian trade continued to grow as trade networks continued and became more sophisticated. The Chinese, for example, were able to accommodate their Muslim partners and reorient trade to Southeast Asia, taking advantage of the many innovations in their maritime technology that enabled them to advance to the sea on large ocean-going junks using mariners' compasses. In time, this led to a change in the way people viewed the Indian Ocean. Most important was the division of the ocean into two sailing and shipping zones: the dhow zone in the West and the junk zone in the East. This effect is most clear in the case of the Chinese, who also began to theorize more about sea-space as long-distance maritime exchange matured with the end of the first millennium CE.

Theorizing Maritime Space in Medieval China

Throughout their history, since before the Common Era, the Chinese had continuously striven to create unified empires and expand their domains, including advancing into Central Asia through the overland Silk Road. They also developed systems to defend their gains and control borders. As part of this, China has had a long history of customs administration, under which governments dispatched officials to the frontiers to monitor the movement of merchants, travelers, and cargo. This was mostly a matter of land frontiers, but like their overland counterparts, MSR borders also provided a channel through which China could engage the wider world. Yet they differed from land frontiers in that coasts could serve as a kind of fixed border, as the sea occupied the eastern and southern edges of China proper. At the time, territorial waters as defined by today's international law did not yet exist, so China's coastlines and major cities served as a terminus, where the country's first unified dynasties defended against foreign invaders, welcomed tribute missions from distant countries connected to the empire through the Indian Ocean and China Seas, and participated in the intermediary trade of the Indian Ocean's eastern zone to a limited extent (An Jing, 1998). That is, the Chinese advancement to the sea developed somewhat passively compared to its overland expansion.

Ancient Chinese documents and archaeological sources testify to Chinese maritime activity in the South China Sea via coastal navigation; however, they say nothing about whether the Chinese sailed to the broader Indian Ocean with any frequency. After Buddhism spread throughout China via land and sea in the first century CE, Chinese Buddhist pilgrims began to India aboard Persian, South Asian, or Southeast Asian ships. Chinese understandings of the wider world to the west, which reached beyond West Asia, derived mainly from firsthand experiences and hearsay gained by Chinese traveling through foreign lands along the overland Silk Road, like the envoys and generals that first pioneered travel beyond China into Central Asia and returned with valuable intelligence for the Han Dynasty court, which court historians beginning with Sima Qian (ca. 145–86 BCE) used to describe the region in official dynastic histories (Leslie and Gardiner 1982). Actually, the Chinese did very little to depict the Indian Ocean in these ancient works, though early on they developed advanced geographic information and cartographic techniques to map their own territories.

In time, these early accounts began referring to Xihai (the Western Sea) as an important geographic location in the western regions, though its actual location was only vaguely plotted. Sources created after the Tang

Dynasty (618–907), however, help us to identify this sea more concretely as the northwestern part of the Indian Ocean, including the Persian Gulf, the Red Sea, and the Arabian Sea. While no map from the period is extant, documentary sources verify major breakthroughs in geographic knowledge about the Indian Ocean during the period, due to increased Chinese contacts with West Asia. At the time, Chinese governments established an office for systematic border management of the maritime frontier called *shibosi* (Office of the Superintendent of Merchant Shipping), and through this system, many foreigners regularly entered the Chinese territories. After port officers checked cargo, they allowed merchants to enter Chinese ports, and even move to other cities, including the capital city, Chang'an (modern-day Xian). There is no evidence in Tang sources about strict border restrictions along the seacoast. By contrast, overland travelers routinely endured strict passports controls. In Guangzhou (Canton), the Tang court even designated a portion of the city as a separate quarter to be governed by Koranic law (Park 2012, 67). Muslim merchants, along with other foreigners, enjoyed favorable conditions and cultural openness there, allowing them to interact with local Chinese and creating opportunities for them to divulge information about sailing routes and trade goods.

While it was the merchants from West Asia who apparently first sailed all the way from one end of the Indian Ocean to the other—or, from East Africa and West Asia to China—the earliest extant document to describe the entire transoceanic route between Chinese and Persian Gulf ports comes from a Chinese source. As noted earlier, a short account entitled *Guangzhou tong haiyi dao*, compiled around 800 CE by a prime minister and geographer of the Tang Court, Jia Dan (729–805), provides a detailed navigational itinerary for a ship starting from Guangzhou and sailing through Southeast and South Asia to the country of Dashi, the Chinese term here for the Abbasid caliphate. Once reconstructed, the route shows the rough coastline of the Afro-Eurasian continent above the Indian Ocean. This itinerary is also verified by the first Arabic geographies, which began to appear in the mid-ninth century, only half a century after Jia Dan completed his itinerary (see Figure 2.1). The recent discovery of an epitaph for a Chinese emissary named Yang Liangyao, who traveled to the Abbasid court in Baghdad for the Tang Court, suggests the possibility that he was the source for Jia Dan's itinerary (Schottenhammer 2015). To make this journey, Yang most likely sailed aboard an Arab ship and traveled alongside Muslim passengers; therefore, his information seemingly came from Muslim sailors and merchants. Works like Jia Dan's itinerary make it clear that by the eighth century, Muslims and Chinese were sailing the Indian Ocean and sharing the knowledge they gained from it.

While its political power diminished compared to the Tang Dynasty, the Song Dynasty (960–1276) witnessed more active Chinese participation in maritime commerce based on further advancements in ocean-going nautical and navigation technologies. The Song Dynasty expanded the Office of the Superintendent of Merchant Shipping and created new customs offices in several port-cities to nurture the increased maritime trade. This trade grew most notably among merchants from the Middle East, as well as among diasporic Muslim merchants from South Asia and Southeast Asia then facilitating trade between the Middle East and China (Mukai 2010, 66–80). As Muslim merchants migrated there and portions of the local merchant population converted to Islam, Muslims of the Middle East, South Asia, and Southeast Asia established close ties with merchants of the Arabian Peninsula (Lambourn 2011). This created interest among government officials and local scholars in these intermediary regions, and they began to collect more information about them.

As the Chinese sailed their huge ocean-going junks on the eastern Indian Ocean, some accounts begin providing more concrete pieces of information about the ocean as a whole that reveal the existence of a comprehensive system of transoceanic connections linking China and the Middle East. The most important such account is Zhou Qufei's *Lingwai daida* ([1178] 1999), which describes round-trip voyages between China and West Asia and the geography of major port-cities in the Indian Ocean and beyond, based on information shared by locals with Chinese contemporaries (Park 2012, 48–49). As an official who neither traveled outside China nor worked in the Office of the Superintendent of Merchant Shipping, where he would have encountered trade firsthand, Zhou spoke with merchants and interpreters engaged in foreign trade who he encountered during his service as a government official in what is now Guangxi, a border province in southern China. In this way, he acquired significant new information about maritime geography and the itineraries moving through it.

For example, in a section of his book called "Hanghai waiyi," Zhou Qufei documents specific itineraries between foreign countries and the Chinese ports of Guangzhou (Guangdong Province) and Quanzhou (Fujian Province). The two port-cities each had an Office of the Superintendent of Merchant Shipping that oversaw foreign merchants' commercial activities. The routes described in this source differ little from those Jia Dan inscribed in his Tang Dynasty-era account. This Song Dynasty-era account, however, gives far more details about navigation and trade, including how to sail and where to transship goods. According to Zhou, the critical point of transshipment for Sino-Islamic trade was Quilon on India's southwest coast, where seafarers

transferred goods to ships that traveled either east to China or west to the Arabian Peninsula across the Dong Dashi hai (Eastern Sea of the Muslims, now known as the Arabian Sea). Because the scale of maritime trade had increased, navigators specialized in just one segment of larger seasonal networks to make their transportation more efficient. In Zhou's account, it took two years to complete a round-trip voyage to the Middle East, due to the necessity of a seasonal South Asian layover (Park 2012, 49; see Kimura, Chapter 4, this volume). This is a notable step forward in the development of geographical knowledge because early accounts like that of Jia Dan only describe a one-way itinerary.

Zhou Qufei also theorizes about maritime space in a broader geographic context than necessary for a strictly navigational access: "The foreign countries are largely bordered by the sea; a country is located in every quarter [of the known world?]" (Zhou Qufei [1178] 1999, 74–75). The entire passage then demonstrates that Chinese of the Song era divided the seas of the south and west into six major areas and, within that scheme, they had a clear idea about where the Islamic Middle East fit into their geography, sitting at the western edge of the world surrounded by the Eastern Sea of the Muslims and Xi Dashi hai (the Western Sea of the Muslims, the present-day Mediterranean Sea).[3]

Zhou's division of the ocean resembles the seven-sea division seen in the case of the Islamic geography discussed above. Although the equivalent Chinese-style geography of the sea is more China-centered, it is clear that geographers of the Song era, like Zhou, regarded the Islamic World as important to understanding the sea, not to mention understanding trade. Worth noting in this regard is the description of Mulanpi, offered as the commercial center of the countries lying in the extreme west, beyond the western edge of the Indian Ocean. In a section of his book, Zhou locates Mulanpi at the western edge of a big sea stretching east to west horizontally, most likely the Mediterranean Sea. Mulanpi could thus refer to the Almoravid Dynasty, the Islamic Empire established in the eleventh century that spanned western Morocco and southern Spain. This suggests that Zhou knew about the Mediterranean Sea, even though it lay well beyond the western limits of Chinese sailing. Perhaps he heard about it from Muslim merchants, or perhaps he has seen a map or rough drawing of a world map showing major seas and a wider world with which some Muslims would

---

3   A reconstructed map of Zhou Qufei's five great seas in my earlier monograph did not present the Mediterranean Sea and the Almoravid Dynasty precisely (Park 2012, 49). I have updated Figure 2.3 here to correct their locations.

Figure 2.3   The five great seas described by Zhou Qufei, *Lingwai daida* ([1178] 1999)


have been familiar. This clearly suggests that the Chinese developed their world geography through regular contact with the Islamic Middle East or with people from there.

Zhou Qufei's *Lingwai daida* influenced another book that appeared fifty years later: Zhao Rukuo's *Zhufan zhi* (in 1225), the well-known and most comprehensive account of foreign places and goods written during the Song era.[4] A member of the Song imperial family, Zhao worked as the superintendent of merchant shipping in Quanzhou, where he had even more opportunities than Zhou Qufei to speak with those most knowledgeable about foreign trade. Focusing on trade structure, Zhao's *Zhufan zhi* contains two long sections: one is devoted to countries, another to products. The first section introduces each country's geography, people, customs, and relationship with China; and the second section details the various articles imported into China from foreign lands, such as incense or dried fruits. As for the sections describing the Islamic Middle East, Zhao lists significantly more countries and provides greater details about them than did Zhou Qufei and other commentators: Zhao describes a total of twenty-four countries. It is assumed that the widespread distribution of woodblock books during the Song era encouraged an increase in the volume of publications about geography, which improved the quality of geographical knowledge.

The accounts of Zhou Qufei and Zhao Rukuo suggest that Chinese knowledge about the maritime geography that connected their country

---

4   The name has also become widely known in the literature as Zhao Rugua.

Figure 2.4   Map in Zhi Pan, *Fozu tongji* (1265–1270)
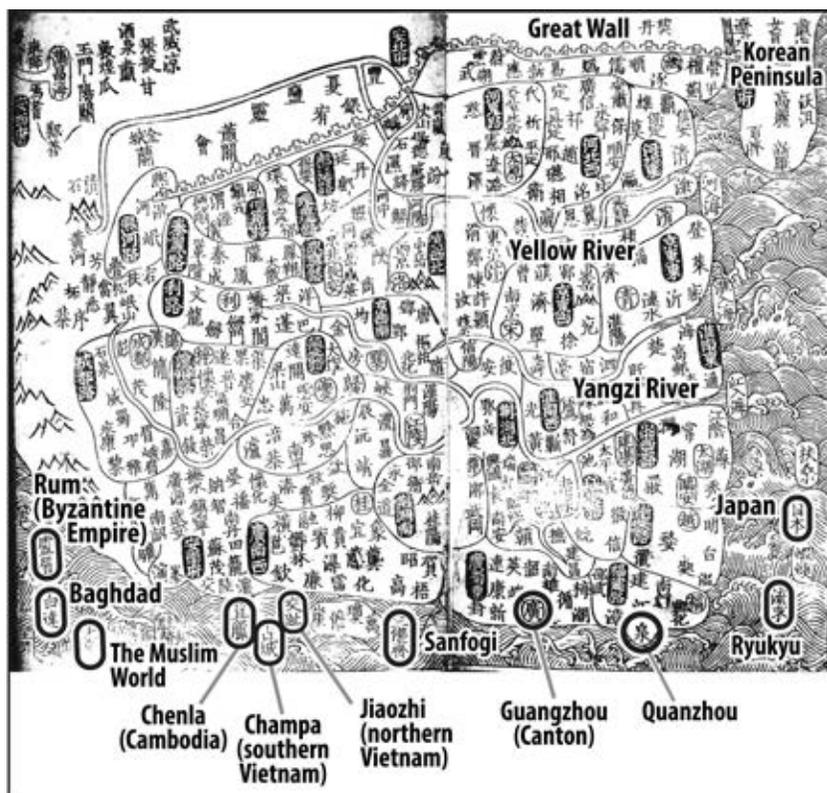
to the Islamic Middle East had expanded in terms of both the number of countries listed and what was known about them. This knowledge remains limited, however, as both books lack any complete information about the coastline linking the two regions. However, the detailed sailing guides must have helped Chinese readers envision the coastline that they might pass in the course of their journeys. In addition, as Zhao states in his preface, seeing a work called *Zhufan tu* prompted him to compile his own geographic account, important evidence that many more maps containing information about foreign countries circulated during the thirteenth century than still exist today (Zhao Rukuo [1225] 1996, 1).

Some surviving maps clearly prove expanded Chinese understanding in the Indian Ocean by the Song era. Most of the major maps differ markedly from Islamic ones because they depict only China, or perhaps list other countries along map edges. This makes it impossible to depict the Indian Ocean, of course. There are a few exceptions, such as "Dong zhendan dili tu," in Zhi

Pan's (1265–1270) *Fozu tongji*, which depict foreign countries connecting through maritime routes, including the Islamic World and Baghdad, which appear set in a small sea—the Indian Ocean—as islands (Park 2012, 42). Thus, Song-era Chinese maintained familiarity with the Islamic countries of the West and knew of the access to them by sea. The concept of borders is not very important for such maps; instead, they emphasize connections.

Continuity and Further Developments in the Spatial Understanding of the Maritime World in the Mongol and Post-Mongol Periods

Between the eighth and thirteenth centuries, the maritime connections between China and the Islamic World, as shown in sources from both cultures during this period, thrived thanks to sustained interactions, shared interests, and a developing knowledge of each other. These contacts continued in subsequent centuries, though some major changes occurred during the age of the Mongol Empire (ca.13th–14th centuries) and its aftermath that altered spatial understanding of the maritime world. The maritime contacts that linked the Middle East and China flourished during the Mongol period, reflecting the impact of the effect that the Pax Mongolica on both overland and sea travel across Eurasia. Many West Asian merchants and travelers who traveled all the way to China through the networks involved individuals such as the famous Moroccan traveler Ibn Baṭṭūṭa (1304–1368), who journeyed from the Islamic World to China across land and sea. Their writings testify to the great scale of trade in Guangzhou, which they all called Ṣin Kalān, meaning Ṣīn al-Ṣīn ("China of China," a term probably used to acknowledge the city as the southern gateway of the Chinese Empire) (Ibn Baṭṭūṭa [ca. 1355] 2000, 88–89). Chinese junks were quite active on the eastern Indian Ocean according to many documented sources, including the travel accounts of Marco Polo (1254–1324), Ibn Baṭṭūṭa, and Odoric of Pordenone (1286–1331). This was a time in which the reduced political obstacles to travel under the Mongol Empire led to unprecedented levels of long-distance interaction across Afro-Eurasia.

Meanwhile, scholars and geographers continued to update and modify their understandings of sea-space during the Mongol period. Many Middle Eastern maps of the world from this time continued to present the Indian Ocean extending to China, following the trend of earlier prototypes. However, updates occurred. Maps began to show China and Ṣīn al-Ṣīn as distinct places, in what is now northern and southern China. This reflects

the country's division under the Khitan Liao Dynasty (and later the Jin Dynasty) in the north and the Song Dynasty in the south. Muslims increasingly identified Guangzhou as Ṣīn al-Ṣīn, as exemplified by Ibn Baṭṭūṭa, and Muslim maps followed suit. This trend in turn influenced medieval European maps such as the Catalan Atlas, which included Guangzhou, but with the name Cincalan. This information was also drawn in the account by Odoric, a Venetian who traveled through the Islamic World to China, at times on West Asian and Chinese ships (Park 2019).

Geographical views of the sea were similar in China. This was particularly true for the thirteenth and fourteenth centuries, when efforts were made to conceptualize sea-space in systematic ways, thanks to several centuries of prosperous Chinese maritime activity in the Indian Ocean World. These were further enhanced by the policies of the Mongol-run Yuan Dynasty (1271–1368) in China and Mongolia. Eurasia's overland routes opened anew; and maritime contacts reached their peak due to the Mongols' advance to Southeast, South, and West Asia. The Mongol conquests of Iran in the thirteenth century eventually led to the creation of the Il-Khanate, which governed West Asian territories under Mongol rule, and whose close connections to the Yuan Dynasty Court opened West Asia and Eastern Africa to Chinese travel, as testified to by evidence of the many Chinese who sailed there for different purposes. These Chinese enjoyed close relations with West Asian merchants who had developed communities in China, not only in thriving port-cities like Quanzhou but also in many other different parts of China in response to an atmosphere of openness to foreigners and foreign cultures. Chinese official documents from the time mention that Muslims brought world maps and navigational sea charts to the Mongol court in China, which the court's scholars used to improve their geographic understanding of the world-geographic works they were publishing. Some surviving world maps include western Afro-Eurasia, such as the late fourteenth century's *Da Ming Hunyi tu* from China and early fifteenth century's *Kangnido* from Korea. These are based on Islamic World-influenced maps of the Mongol era and demonstrate that Chinese and East Asians could easily grasp the possibility of reaching the Islamic World by sea. Such ideas probably encouraged the Yuan Dynasty's initial military expeditions to Southeast Asia and their continuing promotion of diplomatic and commercial engagements in the greater Indian Ocean region. The expanded geographic knowledge circulated through private channels, too. Private merchants and scholars like Wang Dayuan (1311–1350), the Chinese Marco Polo, sailed to West Asia of his own accord. In their travel memoirs, Odoric and Ibn Baṭṭūṭa report that many Chinese junks anchored in the harbors of China's major port-cities, such

Figure 2.5   The Eastern Ocean/junk zone and the Western Ocean/dhow zone

as Guangzhou and Quanzhou. One map reveals a direct sea route between Quanzhou and Hormuz that was unhindered by borders (Park 2012, 107–108). A local gazetteer entitled *Nanhai zhi* ([1304] 1986), edited by Chen Dazhen in Guangzhou, describes a Yuan-era geographical concept that divided the Indian Ocean and the South China Sea into the Xiyang (Western Ocean) and Dongyang (Eastern Ocean), a division that was first based on a practical understanding of two maritime shipping zones of dhows and junks in the Indian Ocean, and which later geographers gradually adapted to refer to a world divided into east and west (Park 2012, 113).[5]

The Mongol legacy of maritime prosperity continued for a while into a post-Mongol period. At the time, both the Middle East and China were experiencing new challenges due to a variety of internal and external political changes affecting understanding of the sea for sailors and geographers alike. After the fall of the Mongol Empire (1368), and then the succeeding Timurid Dynasty (1370–1507), the Islamic Middle East largely divided into two rival religious and political spheres under the Saffavids in Iran, on the one side, and the Ottomans in Turkey, on the other. Both regimes maintained policies of engagement in the Indian Ocean; in time, both had to face newcomers—the Europeans—who upset the balance. The new

---

5   For a detailed discussion on the origins and changes in the concept of the Dongyang and Xiyang, see Liu 2011 (1–69).

imperative to pay more attention to Europe led both countries to retreat from their commitments in East Asia.

Further east, a more important withdrawal from engagement with the Indian Ocean took place due to political upheavals in China. The dynastic successor to the Mongols, the native-born Ming Dynasty (1368–1644), ushered in a closed-door policy that greatly slowed Chinese travel and trade overseas. Borders that once were open and flexible during previous dynasties fell subject to tight controls that severely limited foreign access to China, curtailed private Chinese travel and trade overseas, and constricted channels of trade to those strictly under state control. The exception to this closure rule occurred in early years of the dynasty when the government sponsored the grand missions to the Western Ocean by fleets led by Admiral Zheng He (ca. 1371–1433). This marked a peak in Chinese maritime achievement in terms of the shipbuilding and navigational technologies, the international character of its crew including Muslim sailors, and the geographic knowledge of the sea. After a seventh voyage, and the death of the emperor who had sponsored Zheng He's expeditions, Chinese connections with Western Asia diminished. The Chinese courts also continued to reject the influence of the West until their defeat to the British in the First Opium War (1839–1842).

However, not all Chinese individuals conformed to the new state policy. Private merchants based in port-cities like Quanzhou and Guangzhou continued to trade illegally, building broad networks of Chinese communities overseas, particularly in Southeast Asia. Their activity on the western Indian Ocean diminished, however, and their once conspicuous presence faded. This affected the ability of the Chinese to obtain access to information about the Indian Ocean World and even about the world at large. The effects are evident in an account of the Eastern and Western Oceans published during the mid-Ming Dynasty period. In this account, the Western Ocean included only a few countries that lay in close proximity to China (Zhang Xie [1617] 2000, 66–88). This is reflected in the recently discovered Selden map that describes the eastern Indian Ocean World purely as envisioned by Chinese merchants in the seventeenth century (Batchelor 2014). As Europeans began to travel to China, only a handful of Jesuit missionaries managed to enter China (through bribery), bringing with them maps of the world which, by the end of the sixteenth century, included a vast new array of territories documented as the result of European exploration, including the American continents and the Pacific. While this had limited influence on some Chinese scholars and maps, the new geography had no significant influence on the maritime policies of the last two dynasties: Ming (1368–1644) and Qing (1644–1911). The Qing Dynasty held greater

interest in expanding its land borders than its access to sea routes, even as political threats came increasingly from the open sea. As noted earlier, it was only when the British succeeded in opening the doors of the Qing state after Britain's victory of the First Opium War that attitudes began to change in ways that affected world geography and geographical concepts of the sea (Leonard 1984.). The concept of Western and Eastern Oceans began to change to resemble the concept of "West" and "East," metaphors for Europe and Asia.

Conclusion

The comparative examination of geographic treatises, travel accounts, and maps as found in medieval Islamic and Chinese societies demonstrates that the maritime integration between these two societies contributed to growth in cross-cultural knowledge, going along with the mutual development of systematic geographic understandings of maritime space deriving from centuries of societal engagement with the sea. Thanks to this, long-distance cultural interaction endured across maritime Asia long before the disruptions of early modern European colonial adventures began. Indeed, some connections even persisted.

The openness and flexibility of maritime frontiers, in contrast to their politically constrained and bureaucratically rigid overland counterparts, encouraged efforts to understand the geographical structure of maritime travel and trade. By the 1500s European explorers, sponsored by modern colonial states, were charting the Indian Ocean more precisely than ever using new strategies and technologies, while their Chinese and Islamic counterparts continued to rely on surveying existing knowledge among longtime participants in maritime society at home and abroad. In this society, people from China and the Islamic World played a prominent role in developing and regularizing sailing and navigation between West and East Asia, at least before the fifteenth century when Chinese participation diminished. The great distance between them prevented direct political and military conflicts, which allowed cross-cultural exchange to flourish for nearly eight centuries. During this heyday, members of both societies contributed to the development of trade centers at strategic points in sea lanes, especially in South Asia and Southeast Asia. They sojourned and settled in each other's home territories, too. This opened the door to interaction that made knowledge transfer possible, with great consequences for the state of world-geographical knowledge in their home

societies, for these exchanges produced bodies of knowledge about the maritime realm that shaped popular world views in both societies for centuries to come.

This mutual understanding of sea-space and the sea routes within it began to diminish after the fall of Mongols, as domestic political circumstances pulled Chinese and Muslim worlds apart. Despite the achievements of the Zheng He expeditions to West Asia and East Africa, unprecedented in size, scale, and range—and reliant on high-level nautics and navigation to perform—the Chinese government abandoned its naval know-how and discouraged maritime engagement by its subjects in favor of a closed border policy that discouraged the free flow of people through seaports into as well as out of China. Chinese activity in the Eastern Ocean continued, but Chinese crossings of the Indian Ocean ceased. In time, this altered China's geographical worldview, allowing the concept of the Western Ocean that originally applied to Africa to gradually shift its reference point to the center of the Indian Ocean. At the same time, the Islamic World, divided into Safavids and Ottomans, began to reduce the range of its maritime activity, leading to a retreat from China, just as Europeans were beginning to expand their range. From the very moment of their arrival on the Indian Ocean, Europeans extracted geographical and other forms of knowledge that improved their leverage over the region's trade economy until, in time, they became its masters.

The era of an open Indian Ocean, created in large part jointly and cooperatively by Chinese and Islamic societies, serves as a testimony to the widespread and long-term impact of the state of maritime activity in this region. The elaborate early-modern European world maps endeavored to methodically measure both land- and seascapes as a part of a larger effort to achieve military and technical mastery. Conversely, the maritime geography of premodern Asia stands apart for its derivation of data from the very maritime peoples who participated directly in the Indian Ocean World and who shared this information voluntarily as a part of an ongoing process of cross-cultural exchange, while Chinese and West Asian geographers only theorized as necessity and curiosity dictated. In other words, participants voluntarily opened their borders. This was also the case on land; however, premodern maritime exchanges tended to continue uninterrupted for longer periods of time due to the unique situations of ports at a time when premodern states showed little interest in legally interpreting sea-space. This is a legacy we ought to remember as our participation in global exchanges grows and increasingly transcends national boundaries.

References

An Jing 安京. 1998. *Zhongguo gudai haijiang shigang* 中国古代海疆史纲. Harbin: Heilongjiang jiaoyu chubanshe 黑龙江教育出版社.

Batchelor, Robert. 2014. *London. The Selden Map and the Making of a Global City, 1549–1689.* Chicago: University of Chicago Press.

Casson, Lionel, trans. 1989. *The Periplus Maris Erythraei: Text with Introduction, Translation, and Commentary.* Princeton, NJ: Princeton University Press.

Chaudhuri, K. N. 1985. *Trade and Civilisation in the Indian Ocean: An Economic History from the Rise of Islam to 1750.* Cambridge: Cambridge University Press.

Chaffee, John W. 2018. *The Muslim Merchants of Premodern China: The History of a Maritime Asian Trade Diaspora, 750-–1400.* New York: Cambridge University Press.

Chen Dazhen 陳大震. (1304) 1986. *Dade Nanhai zhi canben* 大德南海志残本 [gazetteer, written in the Dade reign (1297–1307) of the Yuan dynasty]. Guangzhou: Guangzhou shi difang zhi yanjiusuo.

Dilke, O. A. W. 1987. "The Culmination of Greek Cartography in Ptolemy." In *The History of Cartography: Volume One: Cartography in Prehistoric, Ancient and Medieval Europe and the Mediterranean*, edited by J. B. Harley and David Woodward, 177–200. Chicago: University of Chicago Press.

Ferrand, Gabriel. 1914. *Relations de voyages et textes géographiques arabes, persans et turks relatifs à l'Extrême-Orient du VIIIe au XVIIIe siècles*. Paris: E. Leroux.

Flecker, Michael. 2002. *The Archaeological Excavation of the 10th Century: Intan Shipwreck*. Oxford: Archaeopress.

Harley, J. B., and David Woodward. 1987. "Greek Cartography in the Early Roman World." In *The History of Cartography: Volume One: Cartography in Prehistoric, Ancient and Medieval Europe and the Mediterranean*, edited by J. B. Harley and David Woodward, prepared with materials supplied by Germaine Aujac, 161–176. Chicago: University of Chicago Press.

Hourani, George F. 1995. *Arab Seafaring*. Revised and edited by John Carswell. Princeton, NJ: Princeton University Press.

Ibn Baṭṭūṭa (ca. 1355). 2000. *The Travels of Ibn Baṭṭūṭa A.D. 1325–1354*. Translated with Revisions and Notes from the Arabic Text, edited by C. Défrémery and B. R. Sanguinetti. Translated, revised, and annotated by H. A. R. Gibb, vol. 4. Cambridge: The Hakluyt Society.

Lambourn, Elizabeth. 2008. "India from Aden: *Khuṭba* and Muslim Urban Networks in Late Thirteenth-Century India." In *Secondary Cities and Urban Networking: In the Indian Ocean Realm, c. 1400–1800*, edited by Kenneth R. Hall, 55–97. Lanham, MD: Lexington Books.

Leonard, Jane Kate. 1984. *Wei Yuan and China's Rediscovery of the Maritime World*. Cambridge, MA: Harvard University Press.

Leslie, D. D., and Gardiner, K. H. J. 1982. "Chinese Knowledge of Western Asia During the Han." *T'oung Pao* 68 (4–5): 254–308.

Liu Yingsheng 刘迎胜. 2011. Hailu yu lulu: zhonggu shidai dongxi jiaoliu yanjiu 海路与陆路：中古时代东西交流研究. Beijing: Beijing daxue.

Lo, Jung-pang. 2012. *China as a Sea Power, 1127–1368: A Preliminary Survey of the Maritime Expansion and Naval Exploits of the Chinese People during the Southern Song and Yuan periods*. Edited and with commentary by Bruce A. Elleman. Singapore: NUS Press.

Mukai Masaki. 2010. "Regenerating Trade Diaspora: Supra-regional Contacts and the Role of 'Hybrid Muslims' in the South China Sea during the 10th–15th Century." In *Global History and Maritime Asia Working and Discussion Paper Series, No. 19. Exploring Global Linkages between Asian Maritime World and Trans-Atlantic World*, edited by Kobayashi Kazuo, 66–80. Ōsaka: Ōsaka University.

Paine, Lincoln. 2013. *The Sea and Civilization. A Maritime History of the World.* New York: Knopf.

Park, Hyunhee. 2012. *Mapping the Chinese and Islamic Worlds: Cross-Cultural Exchange in Pre-Modern Asia*. New York: Cambridge University Press.

Park, Hyunhee. 2019. "Marco Polo in the Catalan Atlas (1375)." In *Marco Polo and the Silk Road (10th–14th Century)*, edited by Rong Xinjiang and Dang Baohai, 21–47. Beijing: Peking University Press.

Rapoport, Yossef, and Emilie Savage-Smith. 2018. *Lost Maps of the Caliphs: Drawing the World in Eleventh-century Cairo*. Chicago: University of Chicago Press.

Risso, Patricia. 1995. *Merchants & Faith: Muslim Commerce and Culture in the Indian Ocean*. Boulder, CO: Westview Press.

Schottenhammer, Angela, ed. 2019. *Early Global Interconnectivity Across the Indian Ocean World*, 2 vols. New York: Palgrave Macmillan.

Schottenhammer, Angela, ed. 2008. *The East Asian Mediterranean: Maritime Crossroads of Culture, Commerce and Human Migration*. Wiesbaden: Harrassowitz Verlag.

Schottenhammer, Angela. 2015. "Yang Liangyao's Mission of 785 to the Caliph of Baghdād: Evidence of an Early Sino-Arabic Power Alliance?" *Bulletin de l'École Française d'Extrême-Orient* 101: 177–242.

al-Ṭabarī. (10th century) 1995. *The History of al-Ṭabarī (Ta'rīkh al-rusul wa'l-mulūk): An Annotated Translation*, vol 28. Translated by Jane Dammen McAuliffe. New York: State University of New York Press.

Tibbetts, G. R. 1992. "The Balkhī School of Geographers." In *The History of Cartography: Volume Two, Book One, Cartography in the Traditional Islamic and South Asian Societies*, edited by J. B. Harley and D. Woodward, 108–136. Chicago: University of Chicago Press.

Zhou Qufei 周去非 (1178). 1999. *Lingwai daida* 嶺外代答校注, edited by Yang wuquan 楊武泉. Beijing: Zhonghua shuju.

Zhao Rukuo 趙汝适 (1225) 1996. *Zhufan zhi jiaoshi* 諸蕃志校释, edited by Yang Bowen 楊博文. Beijing: Zhonghua shuju.

Zhang Xie 張燮 (1617). 2000. *Dong Xi yang kao* 東西洋考, edited by Xie Fang 謝方. Beijing: Zhonghua shuju.

Zhi Pan. (1265–1270). "Dong zhendan dili tu." In *Fozu tongji.* Reprint in *Siku quanshu cunmu congshu* 四庫全書存目叢書. Jinan 濟南: Qilu shushe 齊魯書社, 1995, 254:1–329.

Red Sea

Indian Ocean

Bay of
Bengal

Isthmus
of Kra

South
China
Sea

3   From Regional to Global

Early Glass and the Development of the Maritime Silk Road

James W. Lankton

Abstract

Glass exchange was an important part of maritime trade as early as the Late Bronze Age, and glass found in South and Southeast Asia and beyond to Korea and Japan provides some of the best evidence for early long-distance movement of both material goods and skilled craftworkers. By the 1st century CE, pre-existing regional trade networks rapidly incorporated Roman products, including glass. These earlier maritime links provided the infrastructure, not only in terms of maritime technologies but also in the *imagination* of what long-distance trade could be, for what would become the Maritime Silk Roads.

Keywords: Maritime Silk Road, glass trade, Roman glass in Asia, Periplus of the Erythraean Sea, technology transfer, early glass in Korea

Introduction

By studying material culture, particularly the objects and commodities whose transfer from one place to another provided the raison d'être for all the interlocking systems of the Maritime Silk Road (MSR), we gain insight into not only what was traded but also the lives affected by exchange in objects, technologies, and ways of understanding the world. This chapter will follow the glass trail to explore the early development of the MSR, going from regional circuits in the second half of the first millennium BCE to the first phase of exchange along the full expanse of ancient maritime routes from the Roman Empire to India, Southeast Asia, China, and northeast Asia during the first half of the first millennium CE. The glass evidence informs not only the exchange of finished products and raw materials but also the

movement of people along the same long-distance maritime routes. For the earliest periods, textual evidence, when present, is often vague; points of exchange may be either unknown or short-lived, as we shall see for the evolution of ports along the west coast of the Thai-Malay Peninsula. Few sites have been excavated using modern techniques, and constantly shifting shorelines affected by seasonal flooding may hide architectural indicators for coastal contexts and settlement patterns. However, even where context is incomplete, the careful study of material culture can suggest both origins and destinations and help to identify those who traveled. The detailed evidence hidden in the glass chemical compositions and the technological processes used to produce glass objects can help to draw regional borders as well as show that these borders were challenged by the influx of "foreigners," including craftworkers bringing new technologies and, inevitably, ideas. Glass can be an ideal material in this regard. Glass itself, although fragile as an object, is practically indestructible as a material and remains for thousands of years in most archaeological contexts. Even tiny fragments can help tell the stories of the many societies along the Maritime Silk Road for whom glass was a precious, imported material with an important role in maritime trade from the very beginnings of glass production.

From Lapis to Glass

While we think today of glass as an inexpensive material used in everything from drinking glasses to mobile phones to skyscrapers, early glass was a precious material linked from its inception to luxury and prestige. As early as the seventh millennium BCE, lapis lazuli, a bright to dark blue stone found primarily in Badakhshan in northeast Afghanistan, had been used to make beads found at Mehrgarh in Pakistan and at Tell Sotto in northern Syria (Bader 1993, 69). By the third millennium BCE, lapis had become the most precious bead-making stone, with exchange networks from the lapis sources by land through Iran and by long-distance maritime trade from the Indus Valley. Then, as described by Moorey (1994, 90), "with the eclipse of the Indus trade c. 1750 BCE, the presence of lapis lazuli in the surviving material culture of Iraq declines sharply to the point where it may be suspected that the primary source was recycled stocks, rarely replenished with fresh supplies from the east." This decline in lapis supplies, combined with continued desire by elites for objects made from lapis, created the circumstances for the development or recognition of new materials that might serve as substitutes. While we still debate exactly how glass, the first entirely humanmade

material, emerged—whether from metallurgy, or perhaps more likely from faience technology gone wrong—between the late third and mid-second millennium BCE, the evidence for glass goes from a few scattered pieces to regular production, perhaps initially in Mesopotamia but soon after in Egypt as well. Much of this early glass was colored purplish-blue by adding cobalt to imitate lapis lazuli or greenish-blue by adding copper or bronze to resemble turquoise. Indeed, by the second half of the second millennium BCE, the Akkadian word for glass became "lapis from the kiln" to distinguish it from "lapis from the mountain" (Moorey 1994, 90).

Why Glass?

Glass would become and remain an important component of long-distance exchange, much of it maritime. This importance comes not only because for many centuries glass was a rare and prized commodity but also because glass, as mentioned above, more than almost any ancient material—other than ceramic—tends to persist in the archaeological record, particularly in the acidic soils of much of Asia, where bones and other organics are not well preserved. In some cases, particularly for glass vessels, the typology of the objects may be helpful to determine their origin and date. More recently, using modern methods of scientific analysis such as LA-ICP-MS (Laser Ablation-Inductively Coupled Plasma-Mass Spectrometry) (Gratuze 2016) to identify the chemical components of glass down to the parts per million level, we have learned to decipher the "text" hidden in the chemical compositions of glass recovered from excavations, extending glass study beyond typologies that may be useful for vessels but often not for glass beads and even less for fragments without an obvious parent object. Glass chemical compositions reflect the geographical and geological origin of the raw materials, thus providing evidence for how, and sometimes where, the glass was made, as has been done for Late Bronze Age glass in order to distinguish glass made in Egypt from that made in Mesopotamia (Shortland, Rogers, and Eremin 2007). Glass contains no carbon and cannot be directly dated by conventional techniques. However, as the geographical and geological origins of the raw materials changed over time, the glass compositions changed as well. Thus, we can sometimes match the compositions of glasses with unknown date to those that have been securely dated, providing approximate dates for the contexts or exchange sites where glass was found. As discussed below, this evidence is key to understanding the links and scale of trade from Egypt to Korea in the Late Antique period from the fourth to seventh centuries CE.

Colorants, particularly cobalt, can also be very useful for dating because cobalt sources changed quite often, with each source linked to a trace element signature in the composition of the finished glass.

In addition to documenting ancient exchange, glass can provide evidence for the movement of craftworkers along the MSR. Glass technologies, whether for smelting glass from its raw materials or turning already fused glass into vessels, glassware containers, such as bottles, bowls and goblets, or ornaments, such as beads, earrings, and bracelets, were closely held secrets often passed down through families. Even today in traditional societies, the recipes and techniques may be reserved for close relatives; and in ancient societies, there was no way to learn glass technologies without a lengthy apprenticeship. The appearance of glass technologies in new places almost certainly meant that workers had moved, whether by choice or force, from an area where the technology was already established to the new area where the technology appears. For these reasons, glass, when present, is arguably the perfect material for the study of both long-distance trade and the movement of people beyond the sailors, ship captains, and merchants directly involved in maritime trade. The production of glass beads and bangles using North Indian glass and technology in late first millennium BCE Thailand and the production of blown-glass vessels using Roman techniques in second century CE Sri Lanka, as discussed below, provide excellent evidence for just such exchange.

Glass and the Development of Long-Distance Maritime Exchange

Mediterranean Regional Exchange in the Late Bronze Age

The long-distance MSR discussed in this volume was the extension and adaptation of preexisting exchange systems, and glass was an important part of these as well. During the Mediterranean Late Bronze Age, from ca. 1500 to 1200 BCE, there was an extensive and well-organized maritime exchange among Egypt, the Levant, and Mycenaean Greece. Throughout this period, glass remained a precious material, often combined with gold and seemingly as valuable as the lapis lazuli that it was designed to imitate. There are many examples for the use of glass to produce or enhance prestige objects, but perhaps the best known is the combination of gold and cobalt-blue glass in the headdress and beard of the funerary mask of Egyptian pharaoh Tutankhamun (Brill, R.H. 1976, unpublished notebook, Corning Museum of Glass). Just a few years after Tutankhamun's death in

1323 BCE, a fifteen-meter ship with a rudimentary keel sunk off the Uluburun cape on the southern coast of Turkey. It is one of the earliest shipwrecks yet found. Discovered in 1982 and excavated between 1984 and 1994, the Uluburun shipwreck provides some of the best evidence for the scale and scope of early Mediterranean exchange (Pulak 2008). Over seventeen tons of artifacts have been recovered, including ten tons of Cypriot copper; one ton of tin; one-half ton of terebinth resin, ebony logs, and many other precious materials, including at least four hundred kilograms of glass in the form of glass ingots—raw glass produced in one place specifically to be made into objects in another. Together, the Uluburun ingots are by far the largest deposit of Late Bronze Age glass, many times the total from all other Late Bronze Age sites combined. They bring to life the textual evidence for Late Bronze Age glass trade in the Amarna Letters (see Moran 1992), a group of cuneiform tablets found at the Egyptian capital Amarna that recorded correspondence by and to Amenhotep III and Akhenaten (Amenhotep IV), the father of Tutankhamun. Five of the letters, all from civil servants governing Levantine towns under Egyptian control, refer to shipments of glass being sent as requested by the pharaoh (Shortland 2012, 147–152). While the details for these shipments to Egypt, whether by land or by sea, are not known, published analyses of samples from three Uluburun ingots suggest that at least some of these were Egyptian (Jackson and Nicholson 2010). They were probably first transferred to a port on the Levantine coast before being loaded for the long voyage west, with a destination most likely one or more of the Mycenaean palatial centers where the production of objects from unworked glass was highly developed (Nikita, Henderson, and Nightingale 2009), but the manufacture of the glass itself is so far unknown. Recent evidence for Late Bronze Age glass trade comes from the identification of beads made from Egyptian and Mesopotamian glass at sites in western Europe and Scandinavia (Varberg, Gratuze, and Kaul 2015; Varberg et al. 2016), as well as from samples of Mesopotamian glass in Egypt, primarily Amarna, and from small amounts of Egyptian glass in Mesopotamia (Lankton, Pulak, and Gratuze 2022). However, by the end of the Late Bronze Age in the twelfth century BCE, this first great period of long-distance maritime glass exchange had come to an end.

Hellenistic to Roman Maritime Glass Trade

Although glass production may have continued, at least in small amounts in Egypt (Schlick-Nolte and Werthmann 2003) and Iran (Stapleton 2011), long-distance trade would begin again only with the rise of Iron Age mercantile

societies, such as the Phoenicians on the Levantine coast. Distinctive glass beads depicting bearded faces have been found at many sites around the Mediterranean and were probably made both in the Levant and in North Africa at the Phoenician city of Carthage. At about the same time, early Greeks established outposts or colonies connected by sea. Large-scale exchange of glass, particularly raw glass, returned only with increased demand for glass at La Tène Iron Age sites in western Europe. The massive quantities of glass beads and bracelets, many of them cobalt-blue, made by La Tène artisans from the end of the fifth through the second century BCE (Rolland 2017), coupled with a lack of local technology for making glass from its raw materials, produced the perfect conditions for maritime exchange between glass-producing centers in the Levant and possibly Egypt and glass-using La Tène workshops. Shipwrecks again tell the story, with glass evidence essential for understanding maritime links between production and consumption.

The two earliest wrecks from this period are Sanguinaires A, dating to the second half of the third century BCE, found off the eastern coast of Corsica, and Lequin 2, from the late third century to early second century BCE, found off the French coast just east of Marseille (Fontaine and Foy 2007, 241). Five hundred kilograms of cobalt-blue glass blocks have been recovered from the Sanguinaires A wreck, with approximately the same amount remaining on the sea floor. This is by far the largest amount of unworked glass from the Hellenistic period, and it would have provided enough raw material for hundreds of thousands of Celtic beads and bracelets. The cargo of Lequin 2 was also largely raw glass, also cobalt-blue, although the total quantity is difficult to estimate because of extensive treasure hunting at the wreck site. While the precise locations of the major Hellenistic primary glass production centers have not been identified, chemical analysis of the glass itself reveals a likely Levantine fingerprint. Many other Late Hellenistic to Early Roman wrecks contained glass objects, often luxury glassware as on the Antikythera wreck from the first century BCE, with similar vessels found at ports around the Mediterranean and further inland along river systems. The Embiez shipwreck, off the coast of southern France (Fontaine and Foy 2007), dating to the second half of the second century CE, contained glass and little else. Although the ship held eighteen hundred glass vessels and two types of window glass, the estimated sixteen to eighteen tons of colorless raw glass was certainly the most important cargo. In this case, the glass most likely originated from Egypt, the other great center for glass production during the Roman period. The overwhelming conclusion from shipwreck evidence from the Hellenistic to early Roman period is that glass

objects and—at least in some cases—raw or unworked glass in the form of blocks broken from the large tank furnaces, used for glass manufacture at the time, were often part of a merchant ship's cargo. Long-distance shipping linked specialized production, such as cobalt-blue glass, with consumers who knew what they wanted, such as the La Tène Celtic craftsmen who transformed raw glass into finished products tailored to the needs of local consumers. This is exactly what we see in the references to glass in the mid-first-century CE *Periplus Maris Erythraei* (see Casson 1989; de Saxcé, Chapter 5, this volume; Seland, Chapter 1, this volume).

Glass in the Periplus Maris Erythraei

If the *Periplus* merchants' guide to trade from the Red Sea to Africa and India is an exception for its detailed descriptions of which materials may be best sold where, at least for glass, with just a few changes it could serve as instructions for any contemporaneous Roman maritime expedition headed for ports around the Mediterranean. Thus, what is striking is not the uniqueness but the banality of the trading instructions. The four types of glass—glass "stones" (probably beads), "myrrhine" (mosaic glass), glassware, and unworked or raw glass—were the same glass cargo sent to Mediterranean ports as revealed by the shipwrecks described above and the excavation of port sites. On the other hand, the venture itself—to send Roman ships across the Indian Ocean—was new, at least for the Roman merchants if not for the sailors, many of whom may have had experience on other ships, perhaps Arabian or Indian, that forged the trading links and mapped the routes. The Romans ramped up shipping, but it is likely that the enterprise was successful more for its reliance on tested routes and contacts than for its originality of concept. Long-distance trade was not a novelty either for the Romans or for their trading partners in Africa, along the Arabian coast; or in India, whether at Barbaricon near the mouth of the Indus River, at Barygaza on the Indian central west coast, or at Muziris—probably near Pattanam—on the southwest Indian coast. Nor was it probably a novelty at any of the other smaller sites mentioned in the *Periplus*. And, of course, the success of trade in India via the Red Sea depended not only on Roman appetites for silk, gems, and spices but also on Indian appetites for what the Roman merchants had to offer. Although some Roman luxury products found in India may have been for the use of local or expatriate communities at ports of trade on the Indian west coast, it is likely that the majority of goods off-loaded from arriving Roman ships would have been traded onward, both by land and by sea, over long-established exchange

networks. There is no suggestion that Roman ships or merchants were involved in this further trade, although the *Periplus* does mention some details describing how western goods would be off-loaded to smaller vessels for the voyage around the southern tip of India to ports, such as Poduke (Arikamedu), located along the Indian east coast up to the mouth of the Ganges River (see Casson 1989, 229). According to the *Periplus*, western goods, no doubt combined with local products, were loaded from these ports onto "the very big *kolandiphonta*," translated as "large ocean-going ships of Southeast Asia" (see Casson 1989, 230). According to the *Periplus*, these goods were transported even farther east to Chrysê and Chrysê Island, the "golden land" and "golden island" that in Sanskrit sources are almost certainly Suvarnabhumi and Suvarnadvipa, included in *Jātaka* tales dating as early as the third century BCE (Winternitz 1993). The location for the golden land and golden island was likely somewhere in Southeast Asia, with glass evidence pointing toward the Thai-Malay Peninsula (Lankton and Gratuze. 2019). For the Southeast Asian *kolandiphonta*, neither the home ports nor who controlled the trade beyond India is known. However, there is evidence that these maritime exchange routes across the Bay of Bengal were established well before the first century CE peak of Indo-Roman trade (Gupta 2018; Jahan 2012).

Like a Circle in a Spiral: From Regional Networks to a Linked System of Long-Distance Exchange

The Godawaya (Godavaya) Shipwreck and Glass from South India

The oldest shipwreck from South Asia, dating between the second century BCE and the second century CE, found off the southern coast of Sri Lanka near Godawaya, has been partially excavated by the Sri Lankan government and the Institute for Nautical Archaeology (Bopearachchi, Disanayaka, and Perera 2016). Materials found onboard included several glass ingots with a high-alumina soda-glass composition, as suggested by initial qualitative analysis (Chandraratne et al. 2012) and confirmed by quantitative analysis by LA-ICP-MS of two complete ingots and one half-ingot (Lankton and Gratuze 2016); for further details on the wreck itself see Kimura, Chapter 4, this volume. Based on trace elements, the Godavaya ingots show greater similarity to glass made in South India at such sites as Appur (Abraham 2016; Sarah 2004) than to any known glass from Sri Lanka. The three ingots studied so far have similar chemical compositions, plus the same diameter and

bowl-like form, so it is possible that they were made in the same workshop. These are not only the earliest glass ingots in Asia but also the only ones with a South Asian composition. In addition, their form has nothing in common with western or Roman glass, since after the Late Bronze Age, Levantine and Egyptian raw glass was traded as large chunks and not as ingots. The glass ingots, and by extension the Godawaya shipwreck, would have come from a port on the southeastern coast of India, perhaps one of those mentioned in the *Periplus*. It is probably not from Arikamedu, in southern India, since the high-alumina soda glass in the ingots is quite different from the types of soda glass found there. The destination of the ship could have been a port linked to a southern Sri Lankan center such as Tissamaharama. Similar glass found in Southeast Asia dates only to the first or even second century CE, so if the Godawaya shipwreck dates to the earlier part of its radiocarbon range, as suggested by some of the other materials onboard, the voyage may represent a South Asian regional network predating open water crossings from South India to Southeast Asia. The glass evidence is helpful here: the earliest Roman glass artifact in Southeast Asia is a Late Hellenistic mosaic vessel fragment from Phu Khao Thong (Thailand) that probably dates to the first century BCE (Lankton and Gratuze 2019, Figure 3). At the same site (see below for discussion), there is ample evidence for the types of glass found at Arikamedu, but no South Asian high-alumina glass of the type found on the Godawaya shipwreck until perhaps one hundred or so years later. It is likely that the Godawaya ship was traveling, and perhaps forging, the same maritime exchange routes along which Roman glass would follow.

Northern Bay of Bengal to the South China Sea: Khao Sam Kaeo and the Big Bang of the Maritime Silk Road

The actual circumstances of maritime exchange—the trading spaces and the agents involved—are often not clear, particularly for the prehistoric period of Indian Ocean exchange. However, there is one exception for which quite a bit is known, and those are the two sites of Khao Sam Kaeo and Khao Sek. Both are on the east coast of the Isthmus of Kra, the narrowest part of the Thai-Malay Peninsula. Khao Sam Kaeo was excavated between 2005 and 2009, and the findings were published in full in 2017 (Bellina 2017a). Results of the Khao Sek excavation, by much the same team in 2013 and 2014, were published in 2018 (Bellina and Sinopoli 2018). Together, the two sites reveal the most complete picture of any prehistoric archaeological complex from the mouth of the Red Sea to southern China, the broad swath of what would become the Maritime Silk Road. The excavators interpret Khao Sam Kaeo

as a port-city that "prefigured some of the pre-modern trading societies and their entrepots" (Bellina 2017b, 19), and that its cosmopolitan character and multiethnic residents spread over thirty-five hectares might even be classified as an incipient city-state (Bellina 2017a, 623). With many radiocarbon dates calibrated to the late fifth to second century BCE, Khao Sam Kaeo is one of the most thoroughly dated sites in Asia and one of the earliest found between South Asia and China. Khao Sek, eighty kilometers to the south, was smaller at ten hectares, but it had a similar riverfront location that provided easy access to the Gulf of Thailand. With similar material culture and ornament production technologies, the two sites are interpreted as the western extension of a "South China Sea Sphere of Interaction" (Bellina and Sinopoli 2018, 10). This regional South China Sea network may have begun as early as twenty thousand years ago and was manifested through shared concepts of material culture, including desired goods such as nephrite, carnelian, and glass ornaments as well as characteristic bronze drums and vessels (Bellina and Sinopoli 2018, 1).

In addition to placing Khao Sam Kaeo within the South China Sea Interaction Sphere, the site report emphasizes exchange across the Bay of Bengal, with local production of stone beads using Indian raw materials and technology and the import of luxury ceramics from the Indian world. Some of the strongest evidence for Bay of Bengal interaction is the use of North Indian glass to produce locally valued objects (Dussubieux and Bellina 2017). From the beginning of occupation at Khao Sam Kaeo, unworked glass was imported in bulk from North India, where the primary production of glass from raw materials probably began sometime around the mid-first millennium BCE. The high-alumina, high-uranium soda glass from Khao Sam Kaeo is identical to that produced at specialized primary glass production sites such as Kopia (Dussubieux and Kanungo 2013; Kanungo and Brill 2009), and probably at early urban sites such as Kausambi (Gratuze et al. 2015), both in northern India. Because of the unique trace element pattern, there is no other possible source for the Khao Sam Kaeo high-alumina glass that makes up half of the samples analyzed from the site and probably a much greater fraction of the actual glass found during excavation and on the surface. Because Khao Sam Kaeo is so early in the history of glass in India and Southeast Asia, this North Indian glass in peninsular Thailand is arguably the first well-documented link between South China Sea networks and those further west across the Bay of Bengal. No other site captures this moment as well as Khao Sam Kaeo, although within one or two hundred years there would be several areas on both the east and west coasts of the Thai-Malay Peninsula with evidence for Indian exchange, followed shortly

by evidence for the exchange of goods produced in the Roman Empire. If this period from 400–200 BCE was the "Big Bang" of the start of MSR, then Khao Sam Kaeo was at the "B of the Bang."[1]

Khao Sam Kaeo was built on four hills, with the early settlement and craft-working areas concentrated on the three southern hills and later craftworking on the northernmost hill, Hill 4. Notable for Hill 4 is the accumulation of Han ceramic jars sherds, the earliest known west of Vietnam, with most dated from the first century BCE and produced in southern China or northern Vietnam (Peronnet and Srikanlaya 2017). All of the glassworking, and much of the early phase of hardstone ornament production, was done at the foot of Hill 2 along the river (Dussubieux and Bellina 2017). Many of the earliest dates were from test pits with evidence for bead and bracelet manufacture, leading investigators to conclude that glassworking was important at the site from the beginning of occupation (Lankton and Dussubieux 2013; Lankton, Dussubieux, and Gratuze 2008). There are also three other glass types at Khao Sam Kaeo. Based on chemical analysis, glassmakers had used potassium oxide (potash) rather than soda as the flux necessary to lower the melting temperature of silica. One of these types is low in lime and strontium and relatively high in alumina. It is found only at very early sites in Southeast Asia (and by extension in pre-Han or early Han southern China), but not in India, so this first type was likely produced somewhere in the South China Sea area. The second and third types are both moderate in lime and alumina but can be distinguished from each other by trace elements, including zirconium and yttrium. The second type is higher in zirconium and, in Southeast Asia, seems to be about one hundred years earlier than the third type. This second type has not been found in India, suggesting production within Southeast Asia or southern China. The third glass type, low in zirconium, is common at many Indian sites, ranging from Arikamedu in Tamil Nadu to Ter and to Junnar in Maharasthra. Because this low-zirconium potash glass forms a coherent group in India, it seems likely to have been made there, although the precise production center, or possibly centers, remains unknown. At Arikamedu, 32 percent of the over three hundred samples analyzed to date (Dussubieux 2001; authors' own data, unpublished) are low-zirconium potash glass. Most of these are purplish-blue from coloring with cobalt. The distinction between the second and third types made of moderate lime and alumina potash glass is important because Indian *potash* glass appears to precede typical South Indian high-alumina *soda* glass. This is true at Khao Sam Kaeo and at other

---

1   From British sprinter Linford Christie, who said that he started his races not at the "bang" of the starting pistol but at "the B of the Bang."

early sites in Southeast Asia, such as Giong Ca Vo in Vietnam and the three sites of Bit Meas, Village 10.8, and Prohear in Cambodia, all dating from the late centuries BCE (Carter 2015). The Indian glass at Khao Sam Kaeo—first from North India and perhaps one hundred years later from South India—is arguably the earliest positively identified Indian material found on the Thai-Malay Peninsula, the dividing line between South Asia and China. With the settlement of Khao Sam Kaeo, the peninsula became the bridge between the South China Sea and the Bay of Bengal. As noted previously, early hardstone ornament production was in the same area as glassworking at the foot of Hill 2, and both the raw material and the technological *chaîne opératoire* are interpreted as being Indian (Bellina 2017b), with the suggestion that the actual workers may have been imported as well.

Imported Glass, Imported Technologies: North Indian and Vietnamese Glassworkers at Khao Sam Kaeo

Who were the glassworkers at Khao Sam Kaeo? While the strongest evidence for an Indian presence may be the chemical fingerprint of the raw glass, hotworking—the manipulation of glass reheated in a furnace—for bangle production, and coldworking or lapidary techniques—similar to the shaping, grinding, drilling, and polishing steps in stone bead manufacture—for large faceted glass beads were common in North India, with large lapidary beads found at sites such as Kausambi (Gratuze et al. 2015, 366). The use of these techniques at Khao Sam Kaeo suggests that North Indian glassworkers were important in establishing the glass workshops. The beads produced at Khao Sam Kaeo or at the related site Khao Sek were traded through the South China Sea Interaction Sphere and have been found at Giong Ca Vo—a site on the south coast of Vietnam linked to the southern Sa Huynh or Dong Nai cultures. At the same time, glassworkers trained in Sa Huynh technologies were likely present at Khao Sam Kaeo, based on evidence for locally made glass ornaments with distinctive Sa Huynh morphologies. At least two ear ornaments in the form of a double-headed animal, made with Sa Huynh technology combining hotworking and coldworking but using typical North Indian soda glass, have been recovered at Khao Sam Kaeo (authors' own data, unpublished). Making these pendants was difficult and very different from making the Khao Sam Kaeo beads and bangles, and only Sa Huynh glassworkers would have had this knowledge. Similar Sa Huynh ornaments made from North Indian glass have not yet been found in Vietnam, and it is possible that the ear ornaments at Khao Sam Kaeo were made for the use of the workers themselves or for other culturally Sa Huynh people, possibly merchants or sailors who were based there.

Roman Glassworkers in Sri Lanka

While transferred glass technologies at Khao Sam Kaeo provide evidence for the movement of glassworkers within Bay of Bengal and South China Sea regional networks in the late centuries BCE, there is strong evidence that people were moving over longer distances as well. For example, there were Egyptian or Levantine glassworkers present in Sri Lanka by the second to third century CE, who were making small blown-glass stupa models in Sri Lankan styles. Following the introduction of Buddhism in Sri Lanka, traditionally attributed to the third century BCE, Sri Lankan Buddhist architecture developed with an emphasis on large, even enormous, stupas made from fired bricks, sometimes over a natural rock core. Excavated cavities within these stupas contained precious relics enclosed in small miniature stupas made from rock crystal, gold—and as early as the second century BCE—glass. Glass stupa models are so far unique to Sri Lanka; the earliest is a remarkable colorless glass stupa model found in the Deliwala stupa (Borell 2017), dated to the second century BCE. While this early miniature stupa was made using Asian molding techniques and Asian potash glass, the miniature stupas found within the Nawagala stupa (Bailiff et al. 2013), thirty kilometers south of the early capital of Sri Lanka, Anuradhapura, differ in both forming technology and glass chemical composition (authors' own data, unpublished). Recovered from deposit cavities thought to date to the second phase of construction of the large Nawagala stupa (from the second to third century CE), these bubble-shaped models are some of the only blown-glass objects known to have been produced in South or Southeast Asia. Glassblowing was discovered in the mid-first century BCE, with the earliest evidence found in an abandoned well in Jerusalem. The technique requires long periods of training and is best achieved using malleable glass with a relatively broad working temperature to allow the various steps necessary for vessel production. Glassblowing is almost unknown in ancient Asia. This is perhaps due to lack of technological expertise but also possibly because typical Asian glasses were high in alumina and would have been much "stiffer" and difficult to blow than the natron-based glass from Egypt and the Levant. What is remarkable about the Nawagala miniature stupas is that not only were they made using Mediterranean techniques but also the glass itself is almost identical to Egyptian glass from the same period, differing only in trace elements such as uranium. This shows that the glass could not have been made in the West but was more likely a local or regional product made using Roman recipes and local ingredients. Both the workers who made the glass itself

and those who made the objects were intimately knowledgeable about Roman technologies, something possible only if Levantine or Egyptian glassworkers were present on site.

Flood from the South

By the first century BCE, the end of Khao Sam Kaeo's most active period, there is much less North Indian glass found in Southeast Asia. The focus for North Indian trade had turned west and north, with North Indian glass found at exchange centers such as Niya (Lin, Yixian, unpublished LA-IC-MS data, pers. comm. 2010) on the overland Silk Road around the Taklamakan Desert in China. In Southeast Asia, sites such as Phu Khao Thong and Wat Pathumthatam (both in Thailand) pop up in Ranong Province on the west coast of the Isthmus of Kra, along with Tha Chana and other yet-to-be-excavated sites on the east coast. At most of these sites, dated from about the first century BCE, there is still some North Indian glass, but it accounts for less than 10 percent of the total found. Thirty percent of the glass is Southeast Asian and has the same compositions as those found at Khao Sam Kaeo, but up to 50 percent of the samples now have a South Indian composition—similar, although not identical, in distribution and color to the glass found at Arikamedu (that is, low-zirconium potash glass and soda glass with approximately equal parts lime and alumina)—along with some mixed-alkali samples that seem to be a mixture of North Indian and Southeast Asian glass (Dussubieux et al. 2012). While there were several fragments of possibly first-century BCE Roman glass at Phu Khao Thong, as mentioned above, no Roman glass was found at Wat Pathumtharam (author's own data, with Boonyarit Chaisuwan, unpublished). This could suggest that activity at Wat Pathumtharam was slightly earlier and may represent glass exchange between southeastern India and Southeast Asia before the advent of Indo-Roman trade.

For these very early sites on the west coast of the Isthmus of Kra, as at Arikamedu, beads made from "typical" high-alumina South Asian soda glass, Dussubieux's m-Na-Al type 1, made with soda from a mineral source combined with sand containing high levels of alumina (Dussubieux et al. 2010) are rare, with none at Wat Pathumtharam and only one out of 217 total samples analyzed from Phu Khao Thong (Dussubieux et al. 2012).[2] However, within a relatively short period, this high-alumina glass became common; it comprises 12 percent of the samples (91 samples analyzed) from

---

2   This is also based on author's data, unpublished.

Bang Kluay, a site next to Phu Khao Thong.[3] While in many ways similar to glass from Phu Khao Thong, the glass from the Bang Kluay site has two aspects consistent with an overlapping but slightly later period: a lower proportion of Southeast Asian potash glass and a greater proportion of South Indian high-alumina soda glass. Meanwhile, the amount of Roman glass is similar at roughly 10 percent of the total samples.

What is significant about this glass evidence is not only what types of glass were found where and when but also the patterns of trade. The evidence shows there were shifting sources and destinations in the very early years of the MSR. According to the *Periplus*, first-century Roman products, including several types of glass, were transferred to ports on the Malabar Coast in India. These were combined with local or regional goods that were then shipped to Chrysê or Chrysê Island (Lankton and Gratuze 2019). We can now identify more precisely some of the Southeast Asian destinations for this trade, and the glass evidence shows that although such southeast Indian ports as Poduke (Arikamedu) were important, these were superseded by other ports. For example, the high-alumina soda glass found at Bang Kluay could not have come from Arikamedu, where such glass was rare. The Southeast Asian destinations for this trade changed as well, and the glass evidence offers an opportunity to build an approximate chronology of these changes.

Early Global Exchange

The View from Korea

As discussed above, the rapid expansion of maritime links to include western products like Roman glass was built on preexisting networks across the Bay of Bengal and around the South China Sea, with evidence in each case that involves the movement of pre-Roman Asian glasses. There is less evidence for how far these early networks extended into northeast Asia, but Korean graves dated to the first century BCE contain imported glass beads.[4] Some of these are typical Chinese lead-barium glass from the Han Dynasty (206 BCE–220 CE), but most have early Southeast Asian compositions found also at very early sites in Vietnam and Thailand,[5] indicating a wide-ranging regional

---

3   Analysis conducted by author and Boonyarit Chaisuwan, unpublished data.
4   This is based on author's data, unpublished.
5   Author's data for Sa Huynh and Dong Son sites in Vietnam and Ban Don Ta Phet in Thailand, unpublished.

network for which the glass evidence provides the strongest support. By the first century CE, the glass found in Korean graves had changed compositional types to Southeast Asian and Indian potash glass with moderate lime and alumina, such as found in India at Arikamedu and in peninsular Thailand at Khao Sam Kaeo and Phu Khao Thong; there was also a small amount of South Indian soda glass of the Arikamedu type. In addition, there is one gold-glass bead of a first-century CE Roman composition that may have been imported with the South Indian glass.

The glass assemblage in Korean graves dated to the second century CE includes much less Southeast Asian glass and more Arikamedu-type South Indian glass. It includes also up to 10 percent South Indian high-alumina soda glass, which is rare in first-century graves. In addition, there is a small amount (5 percent of samples) of glass likely produced in northern Pakistan or Central Asia. These types of Central Asian glass have not been found in Southeast Asia, indicating that the MSR was probably not the only mechanism for glass imports into the Korean peninsula. Overall, the pattern of glass compositions in Korea in second century CE matches that at Phu Khao Thong in Thailand. The third-century Korean glass is likewise similar to that from Thailand, although in this case more like glass found at Bang Kluay, the site near Phu Khao Thong that, based on the glass evidence, may chronologically overlap and then extend the Phu Khao Thong settlement. Graves dated to the third century contain much more Roman glass than graves from the second century (12.8 percent and 2.8 percent of total samples, respectively). Most Roman glass from these third century graves has chemical compositions identifiable to the first to third centuries CE (Freestone et al. 2018), corroborating the Korean dating. There are still many gaps in the knowledge of the actual routes taken; for example, large amounts of glass have been found at possible exchange sites in Cambodia and Vietnam, particularly at Oc Eo, but the glass types found there are different enough in their distribution to make these sites unlikely direct links to northeast Asia (Carter 2010).[6] Several typologically Roman vessels have been found in China (Borell 2016); but in terms of detailed glass chemical analyses, China remains problematic. There are few quantitative analyses that include trace elements; those available from southern China and Han Dynasty-period northern Vietnam (Zhao and Li 2016) show Southeast Asian and some Indian glass, but little Roman glass.[7]

There is ample evidence of imported glass in fourth-century CE Korea, mostly beads, that suggests changing sources, if not changing patterns of

6   Also based on author's data, unpublished.
7   Also based on author's data, unpublished.

trade. The glass in Korea is no longer like that from Phu Khao Thong and other early sites but is similar to glass recovered in Thailand from survey and excavation at Bang Ro and sites further south along the estuary of the Nang Yon River in Kuraburi district, Phang-nga Province. The Kuraburi glass samples date to the fourth and fifth centuries CE, based on finds of clay votive tablets from the Dvaravati period (sixth through eleventh centuries CE) (Pongpanich 2009, 177).[8] At both the Bang Ro site and in fourth-century CE Korean graves, the amount of Southeast Asian glass is less than 2 percent, but up to 50 percent of the glass beads are South Indian m-Na-Al type 1 glass. Also striking is the large amount of Late Roman or Late Antique glass with chemical compositions that indicate fourth-century Egyptian production, with 28 percent at Bang Ro and 14 percent in Korea. Much of the glass is cobalt-blue (25 percent at Bang Ro and 40 percent in Korea), and the higher-nickel cobalt colorant for the Egyptian samples confirms a fourth-century CE date (Schibille et al. 2016). This increase in the amount of Egyptian glass in the fourth century parallels evidence for increased activity at Egyptian Red Sea ports like Berenike, in decline in the third century CE because of widespread economic troubles in the Roman Empire but rebounding in the fourth century (Sidebotham 2019). By the fifth and sixth centuries CE in Korea, the proportion of glass beads made with Egyptian glass continued to increase, reaching a high of 50 percent of all glass types in the fifth century but then tapering to 25 percent in the sixth century—still a striking percentage for glass that had traveled the length of the MSR. In addition, glass vessels have been found in fifth- and sixth-centuries CE Korean graves, all from royal or high-status burials (Lankton et al. 2010). While most of these vessels appear to be copies of contemporaneous Roman glassware, probably made in Central Asia based on the chemical compositions, some small vessels, almost all cobalt-blue, do have an Egyptian Late Antique composition,[9] although the actual place of manufacture is not known. The fragments were poorly blown, with many bubbles, and do not match fine Roman production standards. The few vessel fragments at Bang Ro do not match Korean glass, and it is possible that even the Korean vessels with an Egyptian composition were made in Central Asia using imported raw glass. These vessels underscore the complex nature of glass trade, with multiple possible sources and routes for exchange. What may be most surprising about the Korean samples is that such an overwhelming percentage of the glass trade was almost certainly by sea.

8   Also based on the author's data, unpublished.
9   Also based on author's data, unpublished.

New Sources, New Routes in the Seventh Century CE

By the seventh century, long-distance maritime glass trade to the Korean peninsula had all but stopped. A few beads with late Roman compositions have been found at seventh-century Korean sites, but these may have been heirlooms from prior centuries. Changes in social and burial customs, combined with new local glass sources to fill what need there was, were at least partly responsible. However, as discussed in several contributions to this volume (Park, Chapter 2; Kimura, Chapter 4; Miksic, Chapter 7; Heng, Chapter 8, all in this volume), even if the long-distance maritime exchange routes no longer continued to Korea, there was new emphasis on direct trade with China and possibly Japan, particularly during the nineth and tenth centuries CE. The development of an all-water passage through the Straits of Malacca was certainly a factor in the ability of the same boats to sail the entire expanse of the MSR, since goods no longer had to be off-loaded for portage across the Thai-Malay Peninsula. The large number of Early Islamic glass vessel fragments recovered in both northern Sumatra and at Malaysian peninsular sites in Kedah (Perret and Jaafar 2014) attest to the growing importance of this all-water route. However, there are still large quantities of eighth–tenth-century Early Islamic period glass beads and vessels in Thailand at peninsular ports, such as Thung Tuk on Koh Kho Khao Island in the Takua Pa River estuary (Chaisuwan and Naiyawat 2009), with matching material evidence from Chaiya, which is directly across on the east coast of the peninsula. This evidence suggests that the transpeninsular and all-water routes were used simultaneously for at least two hundred years. Some Islamic period glass vessels have been found in China (An 1991), physical evidence for the numerous textual references to western glassware given as tribute there (Heng 2009; Wong 1979) and in Japan (Nakai and Shindo 2013), but so far no evidence has been found in Korea. Part of this long-distance maritime trade may have been mediated through such ports as Mantai in Sri Lanka, where large amounts of Islamic period glass have been found (Carboni 2013). The tenth-century CE Cirebon shipwreck, off the northern coast of Java, provides ample evidence for some of the products, including glass, being transported across Asian waters (Swan Needel 2018). There are more written sources available from this period. The study of maritime exchange entered a new phase that combined materials analyses with textual interpretations and the archaeological knowledge of more permanent remains.

Conclusions

The careful study of material culture can provide surprising insights into patterns of exchange and of the lives of people living along long-distance trade routes such as the Maritime Silk Road. Glass is particularly useful to study because it was a prized commodity both during life and as grave offerings and has been found—at least in small quantities—at most archaeological sites. In addition, glass objects and production debris may provide evidence for the presence of glassworkers who traveled far from their original homes, whether voluntarily or by force. These workers include the North Indian glassworkers at Khao Sam Kaeo and probable Egyptian glassworkers in Sri Lanka. While the form of a glass ornament may not necessarily indicate the identity of the owner, it can identify the glassmaker. For example, the double-headed ear ornaments made at Khao Sam Kaeo certainly identify that the glassworkers had a strong Sa Huynh identity. With our constantly increasing understanding of glass compositional types, made possible by the incorporation of trace element analyses using such techniques as LA-ICP-MS, we are in a better position to" read" the glass evidence to reconstruct these stories of long-distance maritime trade. Based primarily on glass evidence, for instance, we now know that trade ran from the Mediterranean basin to northeast Asia in the early first millennium CE.

Glass also shows us that regional networks across the Bay of Bengal and the South China Sea became linked as early as the fourth century BCE. It is through these networks that Mediterranean and South Indian glass beads from the first century CE made their way to Southeast Asia and to Korea. In the seventh century CE, this glass trade was changing. There were fewer exports of any kind coming through the Red Sea, with ports such as Berenike in decline or deserted. Changing demand in northeast Asia played a part as well, with Egyptian and Indian glass beads no longer used as grave goods in Korea. Sea routes were changing as well. The all-water route through the Straits of Malacca allowed individual ships to make the full journey from western Asia to China, as suggested by Arab and Chinese accounts of Islamic tribute missions to China (see Park, Chapter 2, this volume). Glass evidence is useful here as well, with many fragments of Abbasid glass vessels found not only at Malaysian and Sumatran sites but also at Koh Kho Khao and Chaiya on opposite sides of the Thai-Malay Peninsula. A more focused look at this later stage of the MSR will continue elsewhere in this volume, with an emphasis on regional nodes in overall long-distance exchange as seen through cultural and trade networks in the western Indian Ocean, port-cities along the Malacca Straits, and the relationships between ports and hinterlands as told through Chinese ceramics.

References

Abraham, Shinu Anna. 2016. "Glass Beads and Glass Production in Early South India: Contextualizing Indo-Pacific Bead Manufacture." *Archaeological Research in Asia* 6:4–15.

An Jiayao. 1991. "Dated Islamic Glass in China." *Bulletin of the Asia Institute*, n.s., 5:123–137.

Bader, Nikolai Ottovich. 1993. "Summary of the Earliest Agriculturalists of Northern Mesopotamia." In *Early Stages in the Evolution of Mesopotamian Civilization: Soviet Excavations in Northern Iraq*, edited by Norman Yoffee and Jeffery J. Clark, 63–72. Tucson: University of Arizona Press.

Bailiff, I. K., H. R. Lacey, R.A.E. Coningham, P. Gunawardhana, G. Adikari, C. E. Davis, M. J. Manuel, and K. M. Strickland. 2013. "Luminescence Dating of Brick Stupas: An Application to the Hinterland of Anuradhapura, Sri Lanka." *Antiquity* 87:189–201.

Bellina, Bérénice, ed. 2017a. *Khao Sam Kaeo: An Early Port-City between the Indian Ocean and the South China Sea.* Paris: École Française d'Extrême-Orient.

Bellina, Bérénice. 2017b. "Maritime Silk Roads Stone Ornament Industries." In *Khao Sam Kaeo: An Early Port-City between the Indian Ocean and the South China Sea,* edited by Bérénice Bellina, 424–457. Paris: École Française d'Extrême-Orient.

Bellina, Bérénice, and Carla M. Sinopoli, eds. 2018. "The Late Prehistoric Port-of-Trade of Khao Sek (Chumphon Province, Thailand) and Its Implications for the Understanding of Trade Polities in Maritime Southeast Asia." *Archaeological Research in Asia* 13:1–78.

Bopearachchi, Osmund, Senarath Disanayaka, and Nimal Perera. 2016. "The Oldest Shipwreck in the Indian Ocean." In *Ports of the Ancient Indian Ocean*, edited by Marie-Françoise Boussac, Jean-François Salles, and Jean-Baptiste Yon, 411–434. Delhi: Primus Books.

Borell, Brigitte. 2016. "Travels of Glass Vessels along the Maritime Silk Road." In *Recent Advances in the Scientific Research on Ancient Glass and Glaze*, edited by Fuxi Gan, Qinghui Li, and Julian Henderson, 43–71. Singapore: World Century and World Scientific Publishing.

Borell, Brigitte. 2017. "A Unique Glass Object from a Buddhist Context in Sri Lanka." In *Annales du 20e Congrès de l'Association Internationale pour l'Histoire du Verre,* edited by Sophie Wolf and Anne de Pury-Gysel, 640–646. Romont, Switzerland: Association Internationale pour l'histoire du verre.

Carboni, Stefano. 2013. "The Mantai Glass." In *Mantai. City by the Sea*, edited by John Carswell, Siran Deraniyagala, and Alan Graham, 313–348. Aichwald, Germany: Linden Soft Verlag.

Carter, Alison Kyra. 2010. "Trade and Exchange Networks in Iron Age Cambodia: Preliminary Results from a Compositional Analysis of Glass Beads." *Bulletin of the Indo-Pacific Prehistory Association* 30:178–188.

Carter, Alison Kyra. 2015. "Beads, Exchange Networks and Emerging Complexity: A Case Study from Cambodia and Thailand (500 BCE–CE 500)." *Cambridge Archaeological Journal* 25:733–757.

Casson, L. 1989. *The Periplus Maris Erythraei. Text with Introduction, Translation, and Commentary.* Princeton, NJ: Princeton University Press.

Chaisuwan, Boonyarit, and R. Naiyawat. 2009. *Thung Tuk: A Settlement Linking Together the Maritime Silk Route.* Thailand: Trio Creation.

Chandraratne, W. M., A. S. Gaur, B. Ramalingeswara Rao, Ravi Bhushan, R. Muthucumarana, M. Manders, V. D. Khedekar, and A.M.A. Dayananda. 2012. "SEM-EDS Analysis of Copper, Glass and Iron Recovered from the 1st Century AD Shipwreck Site off Godawaya, Southern Sri Lanka." *Current Science* 103:482–485.

Dussubieux, Laure. 2001. *L'apport de l'ablation laser couplée à l'ICP-MS à la caracterisation des verres: application à l'étude du verre de l'océan Indien*, thesis doctorate, University of Orléans.

Dussubieux, Laure, and Bérénice Bellina. 2017. "Glass from an Early Southeast Asian Producing and Trading Centre." In *Khao Sam Kaeo: A Late Prehistoric Early Port-city Between the Indian Ocean and the South China Sea*, edited by Bérénice Bellina, 549–585. Paris: École Française d'Extrême-Orient.

Dussubieux, Laure, Bernard Gratuze, and Maryse Blet-Lemarquand. 2010. "Mineral Soda Alumina Glass: Occurrence and Meaning." *Journal of Archaeological Science* 37:1645–1655.

Dussubieux, Laure, James W. Lankton, Bérénice Bellina-Pryce, and Boonyarit Chaisuwan. 2012. "Early Glass Trade in South and Southeast Asia: New Insights from Two Coastal Sites: Phu Khao Thong in Thailand and Arikamedu in South India." In *Crossing Borders: Selected Papers from the 13th International Conference of the European Association of Southeast Asian Archaeologists*, Vol. 1, edited by M. L. Tjoa-Bonatz, A. Reinecke, and D. Bonatz, 307–328. Singapore: National University of Singapore Press.

Dussubieux, Laure, and Alok K. Kanungo. 2013. "Trace Element Analysis of Glass from Kopia." In *Glass in Ancient India: Excavations at Kopia*, edited by Alok K. Kanungo, 360–365. Thiruvananthapuram, Kerala: Kerala Council for Historical Research.

Fontaine, Souen Deva, and Daniele Foy. 2007. "L'épave *Ouest-Embiez 1*, Var, le commerce maritime du verre brut et manufacturé en Méditerranée occidentale dans l'Antiquité." *Revue archéologique de Narbonnaise* 40:235–268.

Freestone, Ian C., Patrick Degryse, James Lankton, Bernard Gratuze, and J. Schneider 2018. "HIMT, Glass Composition and Commodity Branding in the Primary Glass

Industry." In *Things That Travelled. Mediterranean Glass in the First Millennium CE*, edited by Daniela Rosenow, Matt Phelps, Andrew Meek, and Ian Freestone, 159–191. London: UCL Press.

Gratuze, Bernard. 2016. "Glass Characterization Using Laser Ablation-Inductively Coupled Plasma-Mass Spectrometry Methods." In *Recent Advances in Laser Ablation ICP-MS for Archaeology*, edited by Laure Dussubieux, Mark Golitko, and Bernard Gratuze, 179–-196. Berlin Heidelberg: Springer-Verlag.

Gratuze, Bernard, James Lankton, Md Shafiqul Alam, and Marie-Françoise Boussac. 2015. "Glass Beads from Mahasthan: Evidence for Production and Exchange." In *Mahasthan II: Fouilles du Rempart Est. Études archéologiques*, edited by Jean-François Salles, 357–374. Turnhout, Belgium: Brepols.

Gupta, Sunil. 2018. "The Archaeological Record of Indian Ocean Engagements: Bay of Bengal (5000 BC–500 AD)." In *Oxford Handbooks Online*. https://www.oxfordhandbooks.com/view/10.1093/oxfordhb/9780199935413.001.0001/oxfordhb-9780199935413-e-46 (accessed September 28, 2019).

Heng, Derek. 2009. *Sino-Malay Trade and Diplomacy from the Tenth through the Fourteenth Century*. Athens: Ohio University Press.

Jackson, Caroline, and Paul T. Nicholson. 2010. "The Provenance of Some Glass Ingots from the Uluburun Shipwreck." *Journal of Archaeological Science* 37:295–301.

Jahan, Shahnaj Husne. 2012. "Maritime Trade between Thailand and Bengal." *Journal of Fine Arts, Chiang Mai University* 2012:206–228.

Kanungo, Alok K., and Robert H. Brill. 2009. "Kopia, India's First Glassmaking Site: Dating and Chemical Analysis." *Journal of Glass Studies* 51:11–25.

Lankton, James W., and Laure Dussubieux. 2013. "Early Glass in Southeast Asia." In *Modern Methods for Analysing Archaeological and Historical Glass*, vol. 2, edited by Koen Janssens, 415–443. Chichester: Wiley.

Lankton, James W., Laure Dussubieux, and Bernard Gratuze. 2008. "Glass from Khao Sam Kaeo: Transferred Technology for an Early Southeast Asia Exchange Network." *Bulletin de l'École française d'Extrême-Orient* 93-2006: 317–351.

Lankton, James W., and Bernard Gratuze. 2016. Appendix to "The Oldest Shipwreck in the Indian Ocean," by Osmund Bopearachchi, Senarath Disanayaka, and Nimal Perera. In *Ports of the Ancient Indian Ocean*, edited by Marie-Françoise Boussac, Jean-François Salles, Jean-Baptiste Yon, 411–434. Delhi: Primus Books.

Lankton, James W., and Bernard Gratuze. 2019. "Suvarnabhumi in the 1st Century CE: The Glass Evidence." In *Suvarnabhumi: The Golden Land*, edited by Bunchar Pongpanich and Somchet Thinapong, 68–77. Bangkok: Geo-Informatics and Space Technology Development Agency.

Lankton, James W., Bernard Gratuze, Gyu-Ho Kim, Laure Dussubieux, and Insook Lee. 2010. "Silk Road Glass in Ancient Korea: The Contribution of Chemical Compositional Analysis." In *Glass Along the Silk Road from 200 BC to AD 1000*,

edited by Bettina Zorn and Alexandra Hilgner, 221–237. Mainz: Verlag des Römisch-Germanischen Zentralmuseums.

Lankton, James W., Cemal Pulak, and Bernard Gratuze. 2022. "Glass Ingots from the Uluburun Shipwreck: Glass by the Batch in the Late Bronze Age." Journal of Archaeological Science: Reports 42 (April), 103354. https://doi.org/10.1016/j.jasrep.2022.103354

Lin, Yixian. 2010. "A Scientific Study of Glass Finds from the Niya Oasis." In *Glass Along the Silk Road from 200 BC to AD 1000*, edited by Bettina Zorn and Alexandra Hilgner, 203–210. Mainz: Verlag des Römisch-Germanischen Zentralmuseums.

Moorey, Peter Roger Stuart. 1994. *Ancient Mesopotamian Materials and Industries: The Archaeological Evidence*. Winona Lake, IN: Eisenbrauns.

Moran, William L., ed. and trans. 1992. *The Amarna Letters*. Baltimore, MD: The Johns Hopkins University Press.

Nakai, Izumi, and Yoko Shindo. 2013. "Glass Trade between the Middle East and Asia." In *Modern Methods for Analysing Archaeological and Historical Glass*, vol. 2, edited by Koen Janssens, 445–457. Chichester, UK: Wiley.

Nikita, Kalliopi, Julian Henderson, Georg Nightingale. 2009. "An Archaeological and Scientific Study of Mycenaean Glass from Elateia-Alonaki, Greece." In *Annales of the 17th Congress of the International Association for the History of Glass*, edited by Koen Janssens, Patrick Degryse, Peter Cosyns, J. Caen, and Luc Van't dack, 39–46. Antwerp: AIHV.

Peronnet, Sophie, and Sachipan Srikanlaya. 2017. "The Han Ceramics." In *Khao Sam Kaeo: A Late Prehistoric Early Port-city Between the Indian Ocean and the South China Sea*, edited by Bérénice Bellina, 391–421. Paris: École Française d'Extrême-Orient.

Perret and Jaafar. 2014. *Ancient Glassware in Malaysia: The Pengkalan Bujang Collection*, edited by Daniel Perret and Zulkifli Jaafar. Kuala Lumpur: Department of Museums Malaysia.

Pongpanich, Bunchar. 2009. *Beyond Beads*. Bangkok: SuthiRatana Foundation and Matichon Press.

Pulak, Cemal. 2008. "The Uluburun Shipwreck and Late Bronze Age Trade." In *Beyond Babylon: Art, Trade and Diplomacy in the Second Millennium B.C.*, edited by Joan Aruz, Kim Benzel, and Jean Evans, 289–385. New Haven: The Metropolitan Museum of Art and Yale University Press.

Rolland, Joëlle. 2017. *L'artisanat du verre dans le monde celtique au second âge du fer: Approches archéométriques, technologiques et sociales*, thesis doctorate, University of Paris 1–Panthéon-Sorbonne, Paris, 720.

Sarah, Guillaume. 2004. *Étude à l'aide de la spectrométrie de masse à plasma inductif avec prélèvement par ablation laser de la diffusion des perles de verre en Inde du Sud*, master's thesis, University François Rabelais, Tours, France.

Schibille, Nadine, Andrew Meek, Tobias Bendeguz, Chris Entwistle, Mathilde Avisseau-Boustet, Henrique Da Mota, and Bernard Gratuze. 2016. "Comprehensive Chemical Characterization of Byzantine Glass Weights." *PLoS ONE* 11: e0168289. https://doi.org/10.1371/journal.pone.0168289.

Schlick-Nolte, Birgit, and Rainer Werthmann. 2003. "Glass Vessels from the Burial of Nesikhons." *Journal of Glass Studies* 45:11–34.

Shortland, Andrew. 2012. *Lapis Lazuli from the Kiln. Glass and Glassmaking in the Late Bronze Age.* Leuven, Belgium: Leuven University Press, 2012.

Shortland, Andrew J., Nick W. Rogers, Katherine Eremin. 2007. "Trace Element Discriminants between Egyptian and Mesopotamian Late Bronze Age Glasses." *Journal of Archaeological Science* 34:781–789.

Sidebotham, Steven E. 2019. *Berenike and the Ancient Maritime Spice Route.* Berkeley: University of California Press.

Stapleton, Colleen P. 2011. "Glass and Glaze Analysis and Technology from Hasanlu, Period IVB." In *Peoples and Crafts in Period IVB at Hasanlu, Iran*, edited by Maude de Schauensee, 87–102. Philadelphia: University of Pennsylvania Museum of Archaeology and Anthropology.

Swan Needell, Carolyn. 2018. "Cirebon: Islamic Glass from a 10th-century Shipwreck in the Java Sea." *Journal of Glass Studies* 60:69–113.

Varberg, Jeanette, Bernard Gratuze, and Flemming Kaul. 2015 "Between Egypt, Mesopotamia and Scandinavia: Late Bronze Age Glass Beads found in Denmark." *Journal of Archaeological Science* 64:168–181.

Varberg, Jeanette, Bernard Gratuze, Flemming Kaul, Anne Haslund Hansen, Mihai Rotea, and Mihai Wittenberger. 2016. "Mesopotamian Glass from Late Bronze Age Egypt, Romania, Germany and Denmark." *Journal of Archaeological Science* 74:184–194.

Winternitz, Maurice. 1993. *A History of Indian Literature: Buddhist Literature and Jaina Literature*, Vol II. Delhi: Motilal Banarsidass Publishers.

Wong, Grace. 1979. "A Comment on the Tributary Trade between China and Southeast Asia, and the Place of Porcelain in This Trade, during the Period of the Song Dynasty in China." In *Chinese Celadons and Other Related Wares in Southeast Asia, Compiled by Southeast Asian Ceramic Society*, 73–100. Singapore: Ars Orientalis.

Zhao, Hongxia, and Qinghui Li. 2016. "Raman Identification of Glassy Matrices in Ancient Glasses from China." In *Recent Advances in the Scientific Research on Ancient Glass and Glaze*, edited by Fuxi Gan, Qinghui Li, and Julian Henderson, 249–265. Singapore: World Century and World Scientific Publishing.

Regional Nodes

Bay of
Bengal

Indian Ocean

4   Archaeological Evidence of Shipping and Shipbuilding Along The Maritime Silk Road

Jun Kimura

Abstract

This chapter gives an overview on the historical development of shipbuilding technologies that facilitated the water transportation of commodities and people in the Maritime Silk Route trade. Maritime archaeological research has examined ship remains and wreck sites found in Southeast Asia and East Asia and clarified types of seagoing ships widely used for the early and medieval Maritime Silk Route trading activities. The trading ships with the seaworthiness and a large cargo-carrying capacity propelled merchants and seafarers from the Indian Ocean World and Southeast Asia to voyage actively to China during the Tang Dynasty. In medieval periods, the growth of ship construction techniques impacted on the advent of mass shipment by Chinese merchants in the long distance maritime trade.

Keywords: maritime archaeology, Maritime Silk Route, maritime trade, shipwrecks, shipbuilding

Introduction

Shipwreck archaeology examines the physical remains of ships from the past. In this case, it is to understand the long-distance trade networks of the Maritime Silk Route (MSR) and to evaluate the processes of their formation. By investigating a sunken or abandoned ship and its cargo, archaeologists can reveal the unique value of the wreck site related to the production and consumption of these cargos. Maritime archaeologists can thus demonstrate the material culture and human societies that developed along coasts with

Table 4.1   Archaeological and historical sources of MSR and voyages

Years.	Archaeological sources of ships in Indian Ocean World and Southeast Asia for MSR study* (planking methods)	Mediterranean and Middle East Empires	Historical Accounts (Mediterranean and Arabic worlds and China)	Chinese Dynasties
		Roman Empire	*Book of Han* *(Treatise on geography)*	Han
200				
BCE CE	**Godawaya shipwreck**	Parthian Empire	*Periplus of the Erythraean Sea* *Book of the Later Han* *(Treatise on the Western Regions)*	
	Pak Khlong Kluay shipwreck *(pegged mortises and tenons)*		*Record of Buddhistic Kingdoms*	Three Kingdoms
200				
		Sasanian Empire	*Book of Song (Treatise on Barbarians)*	Northern and Southern
400	(Ajanta Cave's ship painting)		*Christian Topography* *Record of Buddhist Practices Sent Home from the Southern Sea*	
600	Ship timbers Watkulong Tom sites		*Records of Imperial Embassies to the Four Directions*	Tang
800	**Punjulharjo ship** *(blinde dowels&lashing)* **Phanom Surin ship** *(sewn-planks)*	Abbasid Caliphate	*Supplement to the History of Tang* *Pronunciation and Meaning in the Complete Buddhist Canon*	
	Belitung shipwreck *(sewn-planks)* **Chau Tan shipwreck** *(blinde dowels&lashing)*		*Book of Roads and Kingdoms* *Relations between China and India*	Song
1000	**Cirebon shipwreck** *(blinde dowels&lashing)* **Karawang shipwreck** *(blinde dowels&lashing)*		*Meadows of Gold and Mines of Gems*	
1200	**Nanhai No.1** *(iron nails)*			
	Thaikkal-Kadakkarappally boat *(iron nails)*			

(Eastern Roman Empire — labelled vertically spanning the Mediterranean and Middle East Empires column)

commercial shipping. The timbers of even a poorly preserved wreck site, even without cargo, offers clues on shipbuilding techniques and the vessel's capabilities. The existing literature on ships' remains worldwide includes notable findings, such as of hull remains in the Indian Ocean and Southeast Asia (Heng 2019; McGrail 2001, 2015). These findings support the historical accounts of ships and their shipping routes. This chapter aims to provide

a view of the seagoing ships that used the MSR based on archaeological evidence from the eastern Indian Ocean littoral and seas of southern China and Southeast Asia.

The shipwreck archaeology of the MSR starts with a focus on the historical transition from the intra- to the inter-trading network to transport not only lucrative goods but also raw material by shipping. The Godawaya (Godavaya) shipwreck in Sri Lanka is the earliest evidence of maritime networking in the Indian Ocean World. Lost around two thousand years ago off the southern coast of Sri Lanka, the ship was carrying raw materials, including glass ingots from South India (see Lankton, Chapter 3, this volume). The shipment of the raw material represents the evidence of long-standing maritime connection to South India and is an indication of the growth of shipping for an intra-trading network—one area supplying the precious raw materials and another consuming the processed products within a subregional space.

A growing number of sea routes expanded the borders of trading networks, and the types of interregional cargos transported along coastal routes changed as long-distance trade developed in Asia throughout the first millennia. The volume of maritime trade also increased, including through the integration of subregional networks, the rise of maritime polities and port-cities, and the advancement of shipbuilding technologies, among other reasons.

Ship timbers recently excavated on a beach on the Andaman Sea, in southern Thailand, help us to understand the planking methods used by boat builders in the Malay Peninsula. Planking was a ship's primary structure and supplied most of the hull strength. The surviving timbers were edged-joined together with pegged mortise and tenon joints. The location and age of these planks is thus evidence that Southeast Asian seaworthy ships actively voyaged along the coast of the Malay Peninsula starting around the first millennia.

By the seventh century CE, multiple types of seaworthy watercraft were used for broader distributions of commodities and transportation of people, including merchants who chartered the vessels and Buddhist pilgrims. These vessels were more seaworthy and thus offered safer transportation compared to smaller seagoing ships in earlier periods. During the Tang Dynasty (618–906 CE), merchants and seafarers along the coasts of the Indian Ocean and Southeast Asia used large-capacity trading vessels that voyaged to a maritime commercial center in the southern coast of China. Guangzhou was a trading hub and main gateway for MSR traders to load a

**Figure 4.1   Scale models ships: Indian Ocean merchant ship with sewn-planks
            construction (left), and Southeast Asia ship with planking edges joined
            by blind dowels and lashing (right)**

Models made by Nick Burningham and photo by author

wide variety of Chinese domestic products from both inland and coastal
regions. Shipwrecks excavated in Southeast Asia contain commodities that
were most likely loaded in Guangzhou.

Archaeological studies of MSR ships have clarified that there were two
dominant types of vessel construction: (1) sewn-planks with vegetable fibers
(the Indian Ocean ship), and (2) edge-joined planks with blind dowels (the
Southeast Asia [SEA] ship; see Figure 4.1). Remnants of merchant ships
illustrate the construction methods common in the western part of the
Indian Ocean World and the remains of about fifteen ships from six countries
feature the SEA shipbuilding tradition. (There is one distinctive example of
pegged mortise and tenon joints, recently reported by Thai scholars, which
does not fit either of these classifications [Ploymukda 2019]). The excavated
remains of two vessels—the Indian Ocean ship of the Belitung shipwreck
and the SEA ship of the Chau Tan shipwreck—show they were clearly
engaged in shipping commodities for a mass market. The archaeological
evaluation indicates that they were built to carry bulky, heavy cargos shipped
by merchant groups (i.e., guilds).

Subregional Networking for Long-Distance Maritime Trade

Long-distance maritime trading networks were created as smaller regional
coastal networks, and they became integrated within larger international
ones. Navigational techniques improved with better understanding of
weather patterns, such as seasonal monsoons, and of sea currents. This

Figure 4.2   Map of excavated ships in the Southeast Asian waters

☐: Indian Ocean merchant ships ●: Southeast Asian seafarer ships ⊠: Ship timbers using pegged mortise and tenon joints. Produced by author

knowledge propelled the use of offshore sailing routes, which in turn established the next phase of intraregional networks. The discovery of the seasonal Apogeous Trade Winds helped sailors in exploring new corridors to transport commodities across the Erythraean Sea (Arabian Sea). To make use of these south-westerly summer monsoon winds (from May to September), ships sailed from Egypt in July, traveling along the southern coasts of the Arabian Peninsula and crossing the Erythraean Sea to reach the western coasts of India in August. The north-easterly monsoon winds of the winter (from November to March) were used for the return voyage. The monsoon patterns connected the maritime commerce of the eastern Mediterranean Sea with the western Indian Ocean World (what is now the modern Middle East). There has been a vibrant exchange of items across the Red and the Erythraean Seas since at least the second century BCE. Some ports along the west coast of India, such as Barygaza, benefited from this trade (Seland 2016); so too did some ports in southern India, from both coastal and inland routes, as illustrated by Roman artifacts found at the Arikamedu site in southeast India (Begley 1996). The coastal sailing routes along the Indian coast had been used before the Roman period, but there is little archaeological evidence on the coastal vessels used in this trade.

The discovery of the Godawaya shipwreck off the southern coast of Sri Lanka substantiates that coastal ships were used for the early transport of bulky raw material. This wreck has been dated to between the second century BCE and first century CE, although the absolute date is under

debate (Bopearachchi, Disanayaka, and Perera 2016; Carlson, Köyağasioğlu, and Wills 2015; Chandraratne et al. 2012). The construction methods to determine the type of the ship are not known since the hull remains have not examined in detail yet. Godawaya was a strategic seaport with connections to inland sites along a riverine exchange (Bopearachchi, Disanayaka, and Perera 2016). Sri Lankan researchers, in cooperation with foreign experts, have explored the waters off Godawaya several times for archaeological artifacts (Carlson and Trethewey 2013; Gaur et al. 2011; Muthucumarana et al. 2014), and they have excavated the remains of religious monuments and harbor structures. The complex wreck site is located about four kilometers southeast of the main monastery in Godawaya. The wreck is at a depth of over thirty meters and extends forty meters by twenty meters, with large concretions of wooden and iron remains. The recovered artifacts include jars, small stone bench-like querns, cooking vessels, and metal objects (including a bronze spearhead, corroded iron ingots [bars] and glass ingots). The LA-ICP-MS[1] analysis on the recovered glass ingots has revealed they are a soda-lime-silica glass from the southeast coast of India (Lankton and Gratuze 2016). These ingots show that this export was a raw material early in the history of the MSR. The underwater archaeological inspection of the site reports "about a dozen ingots were observed on the seabed during the earlier investigation" (Muthucumarana et al. 2014, 47). The ship could have been engaged in the glass trade between production and consumption sites, as the high demand for products such as glass encouraged bulk shipping.

The maritime networks on the Bay of Bengal were sustained by both onshore and offshore sailing routes. The date of when ships first sailed off the southern coast of Sri Lanka to take advantage of the eastbound currents that sweep north to the Andaman and Nicobar Islands (between May and September) is an interesting question. Archaeological studies on glass trades have addressed that the earliest contact possibly by shipping between South India and mainland Southeast Asia was between the first century BCE and first century CE (Dussubieux et al. 2012). The direct voyage between South India and insular Southeast Asia was, however, not common in the first quarter of the first millennia, although the voyage with an Indic ship with poor navigation was noted in *Fo Kou Ki*, a Chinese text (discussed below). Direct sailing routes from South India and Aceh (in northwest Sumatra, Indonesia) through the Bay of Bengal in later periods is known through McKinnon's (1988) study of trading ceramics. Interregional

---

1   LA-ICP-MS is the abbreviation for Laser Ablation Inductively Coupled Plasma Mass Spectrometry, an elemental and isotopic analysis technology.

Figure 4.3   Pegged mortise and tenon joints, based on the Uluburun shipwreck, 1300 BCE
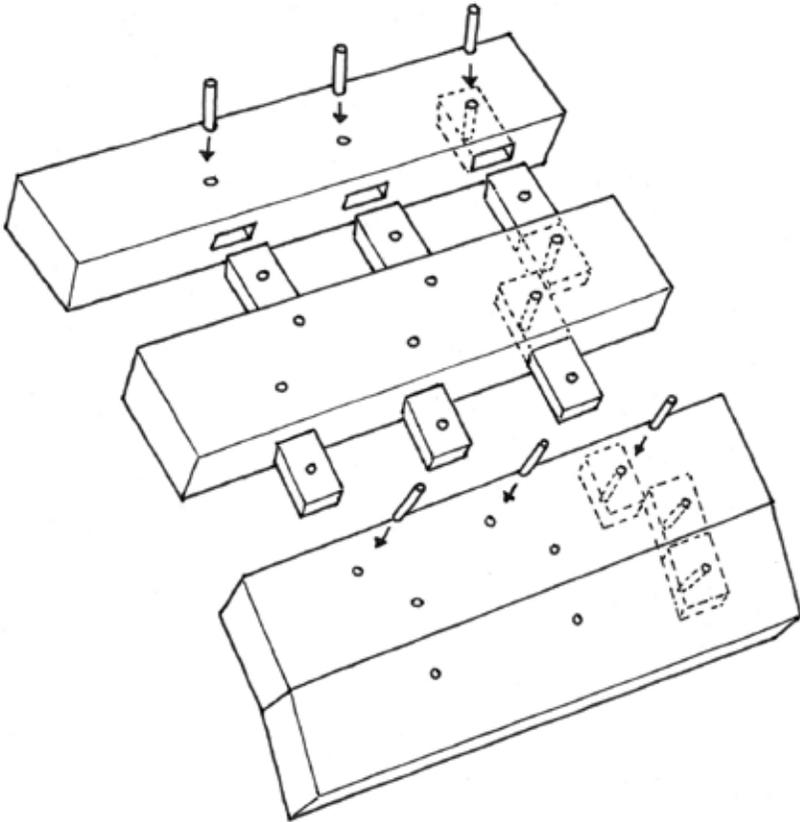
Illustration R. Ito after Bass 2005, 44

trading networks improved throughout the first half of the millennia, which facilitated long-distance movement of goods. The transportation of South India high-alumina glass to the Japanese archipelago appears only around the fourth century CE via water and land routes (Oga and Tamura 2019). For commodities to reach Japan in the embryonic stage of interregional trading networks required both types of transportation.

Future underwater archaeological investigation at the Godawaya shipwreck is expected to expand our knowledge about standardized ship construction methods in the early Indian Ocean World. The Madrague de Giens wrecks in France include the study of shipbuilding techniques in parallel periods in ancient Rome. The wrecks contain four hundred tons

of cargo dated to the around 75–60 BCE. The French archaeological team found pegged mortise and tenon joint planking (Steffy 1994, 62–65).

The joinery method of using flush-laid planks has been identified in shipbuilding as early as the Late Bronze Age in the Mediterranean, as found in the Uluburun shipwreck of the late fourteenth century CE. Another technique dominant in the Mediterranean was sewn-boat construction (Pomey and Boetto 2019). The shipbuilders of the northern coasts of the Mediterranean, including in Greece, used the sewn-plank tradition until the end of the fourth century BC, when they moved to mortise and tenon joints (Pomey and Boetto 2019).

In the context of the history of the MSR, the *Periplus of the Erythraean Sea* (in Greek) illustrates the use of sewn boats on the Swahili coast in the first century CE. Archaeologists have argued about the distribution of sewn boats from the Mediterranean to Asia and throughout the Indian Ocean World, yet there is the paucity of archaeological data outside the Mediterranean (cf. Staples and Blue 2019). The idea of sewn boats in the Indian Ocean as a lasting tradition remains controversial from a chronological point of view, and how their construction methods were disseminated has not sufficiently been examined; therefore, its technological transfer from the Mediterranean to the Indian Ocean is speculative.

Early Ships and Voyages between the West and East

The Indian Ocean includes sea corridors along the coast and offshore sea lanes that connect maritime infrastructures around the Indian Ocean. In the *Periplus*, there are descriptions regarding eastbound sailing routes stretching from the Indian Ocean World to Far East, but the conditions of the trades in the East are not sufficiently described. It barely explains the provenience of turtle shells that were from the Malay Peninsula and textiles (e.g., silk) as seaborne commodities from China. We need to refer to rich historical accounts produced in China; for example, the *Treaties on Geography* in the *Book of Han* includes the earliest known record of the westbound sailing route from Central Vietnam to South India and to Sri Lanka with the names of chiefdoms along the coasts of the Indochina and Malay Peninsulas. Wang Mang (45 BCE–23 CE), emperor of the quite short-lived Xin Dynasty, delegated court envoys to Kanchipuram, India, using these routes. From west to east, the Malay Peninsula separates the Indian Ocean from Southeast Asian waters. The narrow channels between the islands of the Malay Peninsula were busy contact points between these

two large maritime regions—Indian Ocean and the Southeast Asian waters. Historical accounts are limited to the detailed structure and configuration of the early ships plying these routes, but future research on shipwrecks and ship remains in the Malay Peninsulas may facilitate arguments of mutual influence of shipbuilding construction methods among seas and the development of a hybridization theory on building techniques from the distinctive shipbuilding traditions of these regions.

The remains of the Pak Khlong Kluay shipwreck on Andaman Island, in the Bay of Bengal, are timbers that date to the first century CE. The ship originated from the Ranong Province in southern Thailand, and thus research may shed light on the shipbuilding techniques and designs from the early first millennia in the Malay Peninsula (Ploymukda 2019). Remarkably, the principle planking methods used was pegged mortise and tenon joints comparable to the ones identified in the ancient Mediterranean. A surviving rectangular tenon was locked into a square mortise (hole) with a cylindrical peg with a diameter of twenty to twenty-five millimeters. It is similar to the pegged mortise and tenon joint of the Phoenician shipbuilding technique and widely adopted on Greco-Roman hulls. It has been argued that the development of this technology started outside of the Mediterranean (McGrail 2015), and the Pak Khlong Kluay shipwreck is considered solid evidence for the argument. The wood species of the ship timbers vary. The planks were hardwood (*Terminalia nigrovenulosa* Pierre), the wooden pegs were teak (*Tectona grandis* L.f.), and the tenons were velvet tamarind (*Dialium cochinchinense*) (pers. comm. Sira Ploymukda). The transverse structure seems to have been reinforced by fixing the frames onto the interior protrusions (called lugs) of the timbers. This technique using lugs has been discovered in other sites in the Malay Peninsula, including Pontian in Malaysia and Watkulong Tom in southern Thailand (Manguin 1996, 2019). Archaeological sources demonstrate the strong presence of a proto-Austronesian boatbuilding technique on the coasts of the Malay Peninsula.

Chinese records of pilgrimages mention early sea journeys from the Indian Ocean to China sailing the offshore shipping routes that transported both goods and people. One such journey is described in the *Fo Kou Ki* (mentioned earlier), the historical travel records of Faxian, a Chinese Buddhist monk traveling on a ship from China to Sri Lanka and India in the early fifth century CE. On his return trip, after nearly fourteen years of pilgrimage, Faxian took sea routes from Sri Lanka with an aim of reaching Guangzhou via Java. He crossed the Indian Ocean and the South China Sea on an Indic ship and a Southeast Asian ship, respectively. Indic seafarers were acquainted with the direct monsoon courses, and the ship Faxian

Figure 4.4   Buried hull strakes of the Pak Khlong Kluay shipwreck

Thai UAD, Fine Arts Department. Photo by Sira Ploymukda

Figure 4.5   Mortise with a surviving portion of a peg in place

Thai UAD, Fine Arts Department. Photo by Sira Ploymukda

**Figure 4.6   Inner surface of the hull plank; lugs show where frames or beams
              could be installed**

Thai UAD, Fine Arts Department. Photo by Sira Ploymukda

was on took a direct route across the Bay of Bengal. The well-known wall painting in the Ajanta Caves (Cave No. 2) from the fifth century CE offers a clue to understanding an Indic seagoing trader of around that time. From the painting, the Indic ship was built with either pegged mortise and tenon joints or blind dowel joints. The ship was certainly propelled by a spritsail and three monopod masts and steered with quarter rudders. This ship may have been carrying cargo because a number of jars can be seen on the stern of the painted vessel.

Indian Ocean People on Ships: Archaeological Finds

There is growing material evidence of the ships plying the Maritime Silk Route from around the seventh to ninth centuries in the South China Sea. This was a period when merchants utilized the complex networks of both land and sea routes; the latter might have connected the empires of the Tang Dynasty in the east and the Abbasid Empire in the west. There was constant demand from the Tang Court for the lucrative goods from the South China Sea and the West (Wang 1958), which relied on regular shipping. The Tang Court, on the other hand, produced products for export to meet a growing demand. Along with silks, some bulky products—including ceramics—were shipped to Southeast Asia on a large scale (Miksic 2009). The growing relationship of the Tang Court with its neighboring maritime powers, such as the Srivijaya Buddhist Empire (in Sumatra) increased the use of interregional sea lanes in the South China Sea. These regular shipping routes were enhanced by the inland riverine trading systems that were connected to ports at the mouths of the rivers. The Tang Dynasty exported ceramics such as Changsha-Tonggua ware that was produced inland (now the modern Hunan Province) and transported downstream to the entrepôts on the coasts by river shipping. The transshipment from river ships to seagoing vessels, or vice versa, occurred at these river ports. A large number of Tang Dynasty ceramics have been recovered from the riverbed of the Musi River, which leads to Palembang, the ancient capital of Srivijaya (Kitchener and Kustiarsih 2019). The shipping routes within the South China Sea were linked to the outer ports of coastal chiefdoms. Trading hubs for foreign merchants could also be established on an island environment, referring specifically to Champa (Giang 2016). Champa were maritime polities of the Malayo-Polynesian languages, occupying the central and southern coasts of the Indochina Peninsula, and most of them had outer ports placed on offshore islands.

The Maritime Silk Route traders from the Indian Ocean region traveled to Guangzhou, in southern China, because of its long standing as an important and flourishing port with increasing inter- and intraregional trade. Except for a short period of stagnation after the Guangzhou Massacre of 878–879 CE, foreign merchant settlements expanded. Starting in the Tang Dynasty, Guangzhou was a terminus for traders to access goods for export, with silk and Chinese ceramics being in high demand for markets outside of China (Mikami 1990). According to historical accounts of the official history of Tang Dynasty, *Tangguo Shibu* and *Xin Tangsha* (see Kuwabara 1989), merchant ships voyaged to Guangzhou from Arabia, Persia, India, Sri Lanka, the Malay-Indochina Peninsula, and Southeast Asia, among other places. A variety of ships were engaged in transporting cargo along the MSR, but the vessels built using the Indian Ocean tradition were predominantly used and for a longer period of time (Yajima 1976). The ships from the different regions of the Indian Ocean World can be identified from historical texts. These include *xinanyi bo* (西南夷舶, south-west ship), *bosi bo* (波斯舶, Persian ship), *xiyu bo* (西域舶, western ship), bolumen bo (波羅門舶, Indic ship), *shiziguo bo* (師子國舶, Sri Lankan ship), and *waiguo bo* (外國舶, foreign ship). Some of the ships are considered to be an early form of a dhow, which is still used today in the Indian Ocean. Two excavated ships illustrate the longevity and similarity of construction techniques of the Indian Ocean world. The Phanom Surin shipwreck, found in Thailand, is dated to the early Dvaravati Period, around the seventh century CE. The Belitung shipwreck, found in the Java Sea, is dated to the ninth century CE, yet both represent the early form of an Arab dhow.

The Phanom Surin shipwreck was found in 2013 in an estuarine area in Samut Sakhon Province, in Thailand. Accelerator mass spectrometry (AMS) radiocarbon dating was carried out on organic specimens from the wreck, which date it to around the late seventh or early eighth centuries (Jumprom 2019). Thai researchers determined it was a large merchant ship with a keelson length of more than seventeen meters. The ship is estimated to be least twenty meters long and eight meters wide, with a displacement of more than sixty tons. This boatbuilding tradition of western Indian Ocean watercraft has been well studied (Staples 2019; Vosmer 2019). I had the opportunity to view the exposed hull remains and the distinctive features of the remains of the sewn-plank boat (see Figures 4.7 and 4.8). The butts of the adjacent planks are covered with fiber wadding consisting of ropes. The holes along the edge of adjacent planks are sewn together by ropes stitched over the wadding. While the sewn-construction technique is endemic to the western part of the Indian Ocean, the major components of this ship consist

Figure 4.7   Photograph of a sewn-plank boat (*sambūq* or *kambārī*) from Zafar, Oman, with the sternpost and planks sewed together with fiber wadding. Yajima 1976

Figure 4.8   Second photograph of a sewn-plank boat from Zafar, Oman
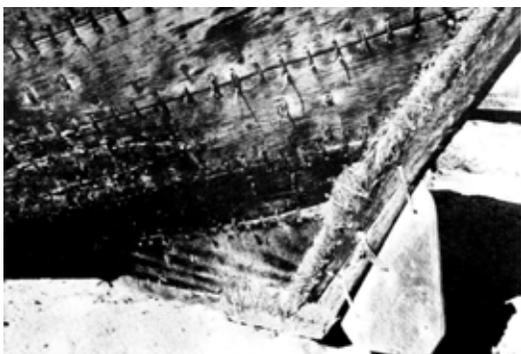
Photo: Yajima 1976.

Figure 4.9   Excavated sternpost (or stempost) section and planks of the Phanom Surin ship illustrate the surviving sewing ropes stitched over the wadding to seal the joinery

Photo by author

Figure 4.10   Pahlavi script on the torpedo container jar from the Phanom Surin shipwreck

Photograph John Guy. Courtesy of the Fine Arts Department of Thailand

of a variety of Southeast Asian woods; for example, the keelson is made of *Dipterocarpus spp* and the planks are made of *Shorea obtuse* (Jumprom 2019). The number of artifacts from the site is limited, which indicates the cargo may have been salvaged after the ship was wrecked or abandoned. The assemblages of artifacts, both local and overseas products, also indicate the ship was involved in long-distance trade. Among the excavated items, ceramics include glazed and unglazed jars with handles that were produced in the kilns in Xinhui and Fengkai, both of which were located along the interconnected rivers of the Pearl River Delta in Guangzhou. One green glazed jar contained betel nuts, which represents the early and broad spice trades with the other findings, including Indian almonds and nutmeg (Chuenwattana and Jumprom 2019). One jar has incised Chinese characters on the outer surface, which have been identified as "Chen" (陳) (Jumprom 2019), which may be the name of the Chinese owner of the cargo. This inscription, however, has been commonly found on Chinese ceramic shards excavated at medieval ports in later periods, so it might be a shipment tag. Shards of a turquoise jar and a torpedo jar, both produced in the regions of the Persian Gulf, were also found. There is an incised inscription on the exterior surface of the torpedo jar that has been interpreted as a personal name written in the Pahlavi script. This indicates ownership of the contents in the jar (Guy 2019a, 2019b).

Incising demonstrates ownership or a commodity name, and it was commonly practiced by Persian merchants of the late seventh century and early eighth century CE. (For example, among the findings in the Gallery of Horyu-ji Treasures in Japan are two sandalwood pieces with incised

Figure 4.11   Pahlavi script on the fragrant woods, possibly dating to the eighth century CE

e-Kokuho (https://emuseum.nich.go.jp/)

Pahlavi inscriptions and also Sogdian brands that could have originally been brought into the Nara Prefecture, Japan, sometime during the eighth century CE). Pahlavi (Middle Persian), a Middle Iranian language, was continuously in use even after the fall of the Sasanian Empire in 651 CE (which led to the diaspora of Persian merchants). These merchants were involved in maritime trades more actively in the late seventh century and early eighth century CE than in earlier periods, and they were suppliers of seaborne commodities, including fragrant woods.

The sea journey of prominent Indian monk Vajrabodhi from Sri Lanka to China for his missionary work offers an idea of maritime transportation by Indian Ocean ships with Persian and Sogdian merchants. Vajrabodhi left Sri Lanka in 716 CE to complete his pilgrimage, reaching Sirivijaya, Sumatra, after a month. The continuing trip was northward, and the voyage was hazardous. The ship, operated by the Persians, finally arrived in Guangzhou three years later.

The Belitung shipwreck provides testimony on the longevity of the Indian Ocean sewn-boat construction. After its discovery in 1998 in the waters off Belitung Island, in Indonesia, the condition of the site with hull remains were recorded and reported (Flecker 2000, 2010). After a relatively short period of underwater excavation, no efforts were made to protect the site. As a result, the hull of the shipwreck has been destroyed. The post-archaeological study found the ship was about nineteen meters long, about seven meters wide, and had a displacement of fifty-five tons. The sturdiness of the hull, which had a decent cargo load capacity, has been examined (Burningham 2019; Vosmer 2014). The reconstruction of this ship has helped in understanding the trading ships used by Muslim Arabs. The construction methods, along with the tradition of sewn-plank boats, was passed down from the Arabian merchants on MSR trades to the modern period of Omani shipbuilding. The

Figure 4.12   Left, ewer from the Belitung shipwreck (photo by author). Right, ewer from the Gallery of Horyu-ji Treasures (e-Kokuho)

date of the Belitung shipwreck supports that Muslim Arab communities were involved in maritime trades following the rise of the Abbasid Caliphate in the middle of the eighth century CE, as does the appearance of Arab names such as Tazik in the Tang Dynasty's historical maritime accounts. Radiocarbon dating of materials associated with the wreck vary; there is a resin returning a date of 680–780 cal CE, some star anise dated 670–890 cal CE, and a ship's timber dated 710–890 cal CE. The date of the wrecking of the ship has been refined by inscriptions on a Changsha ceramic bowl from the reign of the Tang Dynasty's Emperor Jingzong (824–827 CE) that was part of the cargo. The majority of the cargo was Changsha-Tongguan ware: about fifty-five thousand bowls with geometric motifs designed specifically as an export ware for Muslim societies. Interestingly, there are some high-quality ceramic products with nongeometric designs, including a copper-green-colored stoneware ewer with a dragon's head produced in the Gongxing kilns in Henan Province. The stylistic characteristics of the ewer originate from the region of the last Persian empire: the Sasanian Empire. A copper ewer in the Gallery of Horyu-ji Treasures is of a similar design and has been dated to the seventh century CE. During this period,

Persians were also present in Japan, as evidenced by a wooden slip from an excavation that has an ink inscription identifying a Persian officer serving in the Japanese imperial court of Heijokyo, around 765 CE. The cargo of the Belitung shipwreck also shows that Persian trade continued after the rise of Arab shipping along Muslim trading routes.

Southeast Asian Shipbuilding Used for Trade along the Maritime Silk Route

Indigenous SEA ships were actively engaged in MSR trade. The wide distribution of this type of ship construction includes remains of ships found in Malaysia, Thailand, and Indonesia (Manguin 1996). Understanding the traditional shipbuilding techniques used in Southeast Asia started with the examination of six boat remains found at Butuan in Mindanao, the Philippines (Clark et al. 1993; Lacsina 2015). A characteristic of this shipbuilding style is the use of lashing with fiber ropes to reinforce the planking and the installation of frames onto the interior lugs on the planks. The identification of earlier lugs was mentioned in the above discussion of the Pak Khlong Kluay shipwreck. The lugs from the later period, represented by the Punjulharjo shipwreck and Chau Tan shipwreck (discussed below), show that they were chamfered on the inner surface of the hull planks, onto which the frames could be fixed by lashing them with ropes made of sugar palm fibers.

Records from the ninth century CE show that only vegetable fibers, not iron nails, were used in the construction of SEA ships. According to the *Yiqiejing yinyi*, written in the Tang period by a monk named Huilin, the Kunlun Ship (崑崙船) used fiber ropes made from coconut shells instead of iron nails because it was thought that any friction on the nails could cause a fire on the ship. The cases of two excavated SEA ships described below clearly demonstrate the shipbuilding technique heavily relied on ropes made from the fibers of the leaf sheath of the sugar palm, not from coconut shells. Moreover, despite the emphasis in the historical record, the archaeological evidence proves the major fastening material for planking was wooden dowels.

An investigation of a wreck—discovered at Punjulharjo Village, Rembang Regency, in Central Java—recorded the structural details of the SEA ship (Manguin 2019). The bottom structure of the Punjulharjo shipwreck was almost intact, measuring an overall length of about sixteen meters and a width of about five meters. The bow and stern also survive, and they show the structure of the wing transom (Mochtar 2018). Twelve frames were placed on protruded

Figure 4.13   Structure of the Punjulharjo shipwreck

Courtesy of Pierre-Yves Manguin

lugs on the ship timbers, although the inboard-aligned lugs indicate that there were originally seventeen frames. Several longitudinal bars were fixed on top of the frames to increase the ships longitudinal and transverse strength. The AMS radiocarbon dating of the Punjulharjo shipwreck is 660–780 cal CE.

There are two more examples of SEA construction methods similar to those identified on the Punjulharjo shipwreck, although they are from the tenth century CE. The Cirebon and Karawang shipwrecks were found in the waters of the Java Sea with large quantities of trading goods and religious items from multiple regions. According to Miksic and Goh (2016, 428), each compartment for cargo storage inside the hull was designated as a personal space for individual merchants. The cargo from these wrecks has been salvaged and auctioned, but what is interesting to archaeological study is the corroded anchor from the Cirebon shipwreck. It is a composite, and a similar anchor was found at the Belitung shipwreck (McCann 2019). The design of the composite anchor, which has cross arms, is considered to have originated from somewhere along the Indian Ocean. This indicates that not only merchants but also sailors of multinational origins, including of Indian Ocean background, could have been on board large ships built with SEA methods.

The Chau Tan shipwreck was found in the early 2000s in Binh Son Bay, Quang Ngai Province, Central Vietnam. The ship was built in the Southeast

Asian shipbuilding tradition, and its cargo shows it was involved in international trade along the MSR. A joint team of Vietnamese and Japanese scholars conducted research into the remains of the hull and cargo (Nishino et al. 2017). The sandy seabed in Binh Son Bay was stripped away after a typhoon in the late 2000s, revealing the wreck. Local people pillaged the exposed cargo as well as the ship timbers. The intact timbers were cut up with no records made of how the timbers were originally assembled. My inspection of the hull timbers recorded forty-eight timbers, including the remains of the keel, hull planks, and frames. The planks had been crudely cut when salvaged, so the remaining hull planks do not represent their original full number. There are two other timbers that are clearly not hull remains but might be parts of wooden anchors.

The keel, cut into three pieces, was originally a single piece of wood with a length of more than twenty-two meters. One keel plank has a surviving end with a tapered shape with a bevel on its top where a wing-end stem or stern timber could be mounted with dowels set into dowel holes. The interior of the keel holds twenty-three protruding lugs as compared with the fifteen lugs chamfered on the keel of the Punjulharjo shipwreck (at about sixteen meters long). The cross-section of the Chau Tan shipwreck hull shows a round bottom and the center of the vessel is around six meters wide, based on the dimension of the half-frames. The planks are edge-joined using blind wooden dowels, and some of the dowels remain in the dowel holes on the edge of the planks. The joining of adjacent planks is reinforced by ropes made of palm fibers that are threaded through holes and drilled through the corners of the lugs. A wedge driven under the woven ropes further tightens them. The aligned lugs, most of which are rectangular, are on the inner surface of the planks. Some lugs are trapezoidal and are chamfered at the butt joint, and the lugs on adjacent planks form a rectangular shape when joined. Some of the butts of the planks have a hooked scarf joint, and these joints are also fastened by dowels and palm fiber ropes. The hull was built by the plank-first method of construction with the frames lashed onto the lugs. The lashing ropes are radiocarbon dated to 1214±23 years BP. The ceramic cargo shows the ship was operational between the last quarter of the eighth century and the early ninth century CE. The salvaged Chinese ceramics originated from Yue, Xing, and Changsha-Tongguan kilns, as well as kilns along the Pearl River delta in Guangzhou, and with the celadon bowls from the Yue and Changsha-Tongguan kilns being the majority of the cargo. Similar celadon ceramics are not found on the Belitung shipwreck, but Changsha ceramics with tricolor splash motifs were found on both vessels.

**Figure 4.14   Top, shape of the Punjulharjo shipwreck hull; bottom, shape of the
              Chau Tan shipwreck**
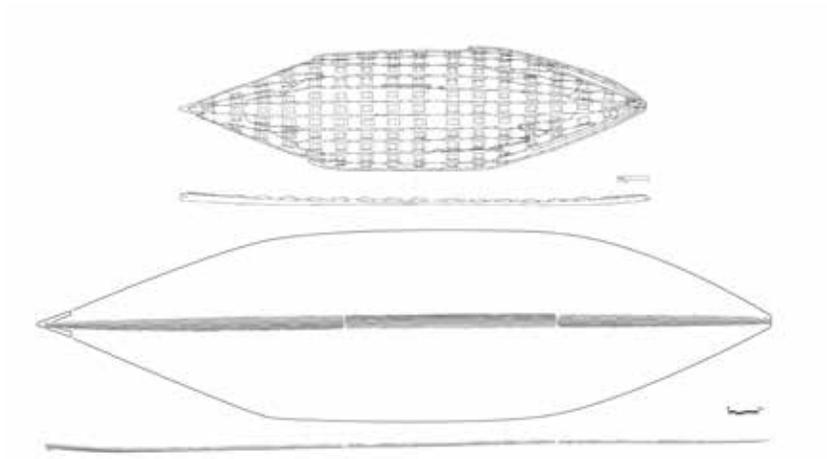
Mochtar 2019 (top); bottom, produced by author

Figure 4.15   Woven palm fiber for SEA ship construction without metal fastenings

Photo by author

Figure 4.16   Butt joint of SEA ship timbers
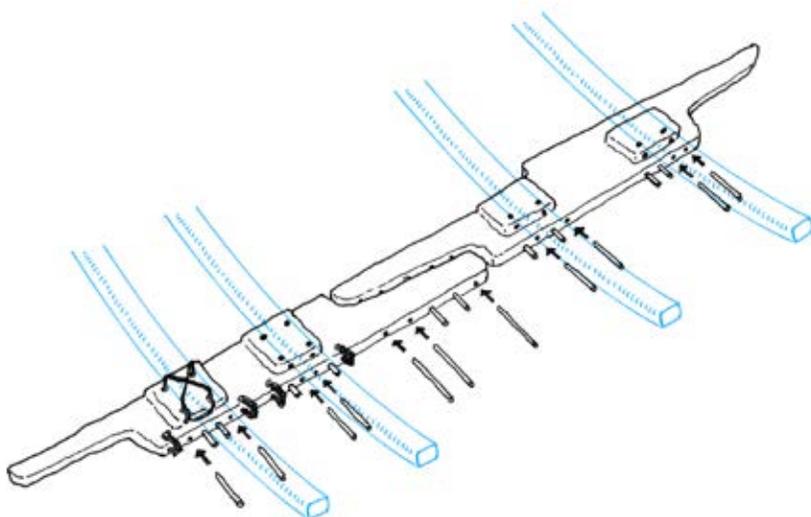
Illustration by R. Ito

Figure 4.17   Holes of blind dowels at the longitudinal butt with hooked scarf joints

Photo by author

Figure 4.18   Salvaged ceramics of the Chau Tan shipwreck

Photo by Noriko Nishino, Katsuko Tanaka, and Takenori Nogami

As noted earlier, shipwreck archaeologists have discovered the two dominant techniques to construct ships used in MSR trading: sewn-plank construction and edge-joined planking with blind dowels. The ships built with both construction methods were used in the trade with Guangzhou during the Tang Dynasty. Archaeological studies broadly classify hull remains into these two distinctive construction methods. It is unlikely that Indian Ocean World and SEA ship carpenters learned techniques from each other, as the structural features and construction methods are different, but they both built seaworthy vessels with large cargo capacities.

As noted earlier, the Guangzhou Massacre in 879 negatively affected trade, but a considerable reduction in the volume of trade also occurred with the fall of Tang Dynasty in 907. The tenth-century CE Cirebon shipwreck, the seventh-century CE Punjulharjo shipwreck, and Chau Tan shipwreck (the earliest known wreck in Vietnam) are indicative of the continuous role of Southeast Asian seafarers in shipping, with Guangzhou being a major port through the medieval period (Heng 2008).

The Rise of Chinese Shipbuilding and Knowledge Transfer of Shipbuilding

Political stability came to the East with the Song Dynasty. The indigenous SEA shipbuilding tradition did not fade away but faced the growth of new shipbuilding industries arising along the coasts of the East China Sea (Kimura 2016). China's inland water transportation system stimulated the shipbuilding industries in the Song Dynasty, which soon oriented itself toward constructing seagoing trading ships that then led a greater involvement of Chinese merchants on maritime trades and increased the volume of goods transported along the Maritime Silk Route. Excavated ships of the thirteenth and fourteenth centuries represent some features of these trading ships, showing relevant hydro-performance and cargo-carrying capacity. The ships were built with a V-bottom or a U-bottom deadrise formed by a keel and garboards for reducing wave resistance, even in the open water. The holds for cargo were divided by bulkheads that enhanced the strength of the transverse structure, and the hull was constructed with layered planking and various iron fastenings. The East China Sea shipbuilding techniques enabled larger vessels to be built than in earlier periods; for example, the cargo-carrying capacity of two representative ships, the Quanzhou and Shinan shipwrecks, are 120 tons to 150 tons (Kimura 2016). This can be seen by looking at the Nanhai No.1 shipwreck, which shows

**Figure 4.19   Exposed hull of the Nanhai No.1 shipwreck built with the East China
Sea shipbuilding technology**
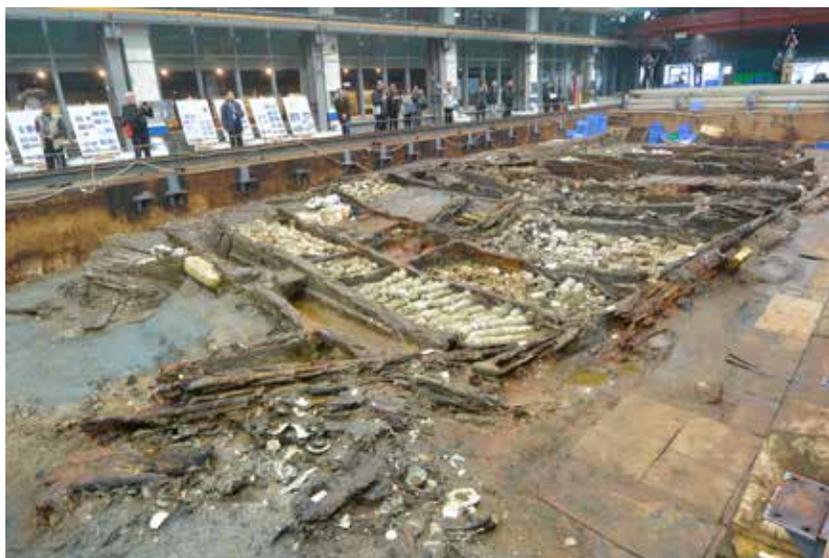
Photo by author

the export of a substantial number of bulky ceramics as well as heavy iron
products from East Asia to Southeast Asia along the existing commercial
network. The above innovation on the ship construction facilitated maritime
commerce and formed the sphere of the shipbuilding tradition covering the
southern part of the Chinese coasts around the Taiwan Strait and southward
(Kimura 2016). Seagoing ships from these areas actively voyaged to the South
China Sea, as illustrated by the location of the Nanhai No.1 wreck, which
sank off the coast of modern Guangdong Province on its way to regions in
Southeast Asia.

   This author suggests that the rise of the East China Sea shipbuilding
technique with the emergence of the South China Sea shipbuilding method
follows the theory there was a hybridization of existing construction
methods through technical interactions between the two regions (Kimura
2016; Manguin 1996). The regions of the South China Sea, including the
southern coasts of China, were dominated by Southeast Asian Indigenous
shipbuilding traditions, as addressed in this chapter. However, around the
late thirteenth to the early fourteenth centuries CE, there was a change in
the prominence of the shipbuilding technique used, caused by increased
activity of merchant ships from the East China Sea on the South China
trades. The appearance of the new type of the seaworthy East China Sea

traders with large cargo-carrying capacity could stimulate the industries in SEA. There was a profound transformation in shipbuilding industries along the coasts of the Southeast China Sea through hybridization; that is, by integrating existing technologies with exogenous technologies. Hybridized features are evidenced in shipwrecks found in Southeast East Asian waters dating to the fourteenth century CE and later (Kimura 2016). The wrecks have a keel and a round bottom, and the transverse components consist of bulkheads and likely half-frames. The hull planking has multiple layers, and the main planking (i.e., innermost planking) uses wooden fastenings such as dowels, with compensatory uses of iron fastenings.

The archaeological study on ship remains does not dismiss the knowledge transfer of shipbuilding techniques. The detailed recording of the Thaikkal-Kadakkarappally Boat shipwreck in Kerala, on the western coast of India, has addressed the hypothetical transfer of shipbuilding techniques from China to India (Tomalin et al. 2004). The excavated ship has been dated to between the thirteenth and fifteenth centuries CE. Of the limited findings of hull remains along India's coasts, it is the most intact ship discovered. The hull remains measure eighteen meters in length and four meters in width. It was built locally with woods from the region, but it is not a sewn ship or dhow. The construction methods are extremely controversial. Tomalin and colleagues found, "The design of the boat, however, has no known parallels and appears to have little in common with the traditional types of watercraft constructed and used in Kerala," and that "the form of the boat appears to mirror one strand of Chinese boatbuilding and the lashed lugs are a feature commonly found in South-East Asian shipbuilding" (Tomalin et al. 2004, 257 and 260, respectively). The flat bottom structure indicates the ship was probably used for water transport in backwaters and riverine systems. Elsewhere I have addressed the long use of a flat bottom ship with distinctive features of Chinese watercraft, including iron fastenings and bulkheads (i.e., transverse partitions) (Kimura 2016). It is possible that the shipbuilders in temporal settlements or emigrating from China are responsible for the transfer of knowledge after the Yuan Dynasty (1271–1368).

Conclusion

The discovery of the remains of ship hulls in Sri Lanka, Thailand, Vietnam, and Indonesia enables us to understand the interregional and cross-regional trading networks and the ships involved with that trade. The Godaway

wreck's glass ingots are evidence of coastal trade and interregional shipping between southern India and Sri Lanka. Around that time period, with trading connections stretching to the jurisdiction of Roman Empire, sailors aimed for ports in West India. These sailors seasonally crossed the Erythraean Sea using the monsoon winds. The Godawaya wreck indicates that interregional shipping became an important part of trading activities and for transporting bulk raw materials. The coast of the Bay of Bengal benefited from this trade. The subregional trading network might have been reinforced by the sailors' understanding of monsoon and current patterns for offshore sailing in the Bay.

The integration of subregional trading networks across the Arabian Sea and the Bay of the Bengal can be examined from a perspective of shipwreck archaeology. It is still debated whether the shipbuilding techniques homogeneously developed between the West and East, but the remains of the Pak Khlong Kluay shipwreck, on the beach of the Andaman Coast, provides important clues to understanding the ships and their construction of the early seafarers who operated around the Malay Peninsula. The wooden species identified indicate that the ship was likely built on the coast of the Malay Peninsula with the adoption of the mortise and tenon techniques for planking, which are normally identified with Mediterranean shipbuilding traditions. It is highly speculative to address the transfer of shipbuilding traditions between the two regions. Nevertheless, the well-constructed hull of the Pak Khlong Kluay shipwreck supports the idea of foreign influence. Looking at the location where the Pak Khlong Kluay shipwreck was found, the Malay Peninsula, geographically divided the Indian Ocean and the Southeast Asian waters, is considered to have been contact points and the SEA shipbuilding in the west coasts of the Peninsular encountered ships from the regions of the Indian Ocean World.

The early Indic ship has been little studied due to the paucity of resources, but the hull remains of the Godawaya and Pak Khlong Kluay shipwrecks could be compared in the future. The development of seaborne trade and shipbuilding technology led to the integration of subregional trading networks and complex trading systems. The trade reached maturity by the seventh century CE, coinciding with the rise of the Tang Dynasty. Archaeological evidence suggests there was a significant increase in the volume of trade due to expanding and integrating networks. Within these networks, multinational merchants and sailors used multiple types of trading vessels to transport people, including Buddhist pilgrims, and goods in large quantities. Following the establishment

of government authority over trade, Guangzhou became a trading hub in the Far East, which propelled voyages to MSR ports by traders from Persia, Arabia, India, Sri Lanka, the Malay and Indochina Peninsulas, and Southeast Asian regions, as illustrated in historical accounts. The excavated ships have demonstrated archaeologically the existence of two types of structural ship design: sewn-planks construction (Indian Ocean ships) and planking edges joined by blind dowels with lashing techniques (SEA ships). The Belitung shipwreck and Chau Tan shipwreck were discovered with cargo representative of the Maritime Silk Route trade. Through the examination of these two wrecks as well as others, we understand that the two distinctive techniques existed in parallel. They were both seaworthy and played important roles in shipping bulky cargo. These traders had a cargo capacity of more than fifty tons. It is not certain if one individual owned the cargo or a group of merchants from a guild system worked together, but the ceramic cargo of the Chau Tan shipwreck seems to represent the latter. The hull remains and associated cargo are important archaeological resources that provide quantitative and qualitative perspectives on MSR shipping.

Shipwreck archaeology focuses on the growth of shipbuilding industries in the mid- and south coasts of China. Some shipyards in these areas were the major builders of trading ships during the Song Dynasty. Studies reveal that the integration of ships built with the East China Sea shipbuilding tradition in the waters of Southeast Asia was critical to the increase in the volume of trade, a presumption based on the detailed assessment of hull structures and construction methods. The hybridization theory contends that the East China Sea and South China Sea shipbuilding traditions interacted. Meanwhile, the Thaikkal-Kadakkarappally Boat shipwreck implies the transfer of shipbuilding techniques from the coast of China to the west coast of India.

This chapter offered an overview on the history of shipping from a cross-regional perspective and highlighted the chronological integration of segments of maritime activities. Shipwreck archaeology represents the pursuit of understanding how humans used sea spaces through the study of physical remains of watercraft. Scientifically studying the long corridors of the MSR is an effort to explain the historical processes of how shipping was an integral part of societies and material culture. As demonstrated in this chapter, what maritime archaeologists retrieve from MSR wrecks and hull remains gives concrete information and direct evidence on the contents, the volume of contents, and context of early water transportation simultaneous with Silk Road trading activities on land.

References

Bass, George, ed. 2005. *Beneath the Seven Seas: Adventures with the Institute of Nautical Archaeology*. London: Thames & Hudson.

Begley, Vimala. 1996. *The Ancient Port of Arikaamedu: New Excavations and Researches, 1989–1992, Volume Two*. Paris: École Française d'Extrême-Orient.

Bopearachchi, Osmund, Senarath Disanayaka, and Nimal Perera. 2016. "The Oldest Shipwreck in the Indian Ocean." In *Ports of the Ancient Indian Ocean*, edited by Marie-Françoise Boussac, Jean-François Salles, and Jean-Baptiste Yon, 411–428. Delhi: Primus Books

Burningham, Nick. 2019. "On the Flexibility of Indian Ocean Sewn-Plank Vessels: The Structural Performance of Jewel of Muscat." *International Journal of Nautical Archaeology* 48 (2): 335–341.

Carlson, Deborah, Orkan Köyağasioğlu, and Staci Wills. 2015. "The Ancient Shipwreck Excavation at Godavaya, Sri Lanka: Finds from the Oldest Shipwreck in the Indian Ocean." *INA Quarterly* 42 (2): 12–19.

Carlson, Deborah, and Ken Trethewey. 2013. "Exploring the Oldest Shipwreck in the Indian Ocean." *INA Quarterly* 40 (1): 8–14.

Clark, Paul, Jeremy Green, Tom Vosmer, and Ray Santiago. 1993. "The Butuan Two Boat Known as a Balangay in the National Museum, Manila, Philippines." *International Journal of Nautical Archaeology* 22 (2): 143–159.

Chandraratne, W. M., A. S. Guar, B. R. Rao, Ravi Bhushan, Rasika Muthucumaran, Martijn Manders, Mujadas Kadam, and A.M.A. Dayanand. 2012. "SEM–EDS Analysis of Copper, Glass and Iron Recovered from the 1st Century AD Shipwreck Site off Godawaya, Southern Sri Lanka." *Current Science* 103 (5): 482–485.

Chuenwattana, Nattha, and Preeyanuch Jumprom. 2019. "A First Glimpse at the Regional Maritime Spice Trade in Southeast Asia? Preliminary Archaeobotanical Analysis from Phanom Surin Shipwreck, Thailand." Paper presented at the 3rd SEAMEO SPAFA International Conference on Southeast Asian Archaeology, Bangkok.

Dussubieux, Laure, James W. Lankton, Bérénice Bellina-Pryce, and Boonyarit Chaisuwan. 2012. "Early Glass Trade in South and Southeast Asia: New Insights from Two Coastal Sites, Phu Khao Thong in Thailand and Arikamedu in South India." In *Crossing Borders: Selected Papers from the 13th International Conference of the European Association of Southeast Asian Archaeologists*, Vol. 1, edited by Mai Lin Tjor-Bonatz, Andreas Reinecke, and Dominik Bonatz, 307–328. Singapore: National University of Singapore Press.

Flecker, Michael. 2000. "A Ninth-Century AD Arab or Indian Shipwreck in Indonesian Waters. *International Journal of Nautical Archaeology* 29 (2): 199–217.

Flecker, Michael. 2010. "A Ninth-Century Arab Shipwreck in Indonesia: The First Archaeological Evidence of Direct Trade with China. In *Shipwrecked: Tang Treasures and Monsoon Winds*, edited by Regina Krahl and Alison Effeny, 100–119. Washington, DC: Smithsonian Institution.

Gaur, A. S., Rasika Muthucumaran, W. M. Chandraratne, B. C. Orillandeda, Martijn Manders, S. Karunarathna, P. Weerasinghe, A. M. A. Dayananda, T. Zainab, A. Sudaryadi, K. A. B. A. Ghani, J. Wahjudin, and N. Samaraweera. 2011. "Preliminary Assessment of an Early Historic (2000-year-old) Shipwreck at Godawaya, Sri Lanka." *Bulletin of Australasian Institute for Maritime Archaeology* 35:9–17.

Giang, Do Truong. 2016. "Diplomacy, Trade and Networks Champa in the Asian Commercial Context (7th-10th Centuries)." *Moussons* 27 (1): 59–82.

Guy, John. 2019a. "Long Distance Arab Shipping in the 9th Century Indian Ocean: Recent Shipwreck Evidence from Southeast Asia." *Current Science* 117 (10): 1647–1653.

Guy, John. 2019b. "Shipwrecks in Late First Millennium Southeast Asia: Southern China's Maritime Trade and the Emerging Role of Arab Merchants in Indian Ocean Exchange: Commercial Structures and Exchanges." In *Early Global Interconnectivity across the Indian Ocean World*, Vol. 1, edited by Angela Schottenhammer, 121–163. Cham: Palgrave Macmillan.

Heng, Derek. 2008. "Shipping, Customs Procedures, and the foreign Community: The 'Pingzhou ketan' on Aspects of Guangzhou's Maritime Economy in the Late Eleventh Century." *Journal of Song –Yuan Studies* 38 (1): 1–38.

Heng, Derek. 2019. "Ships, Shipwrecks and Archaeological Recoveries as Sources of Southeast Asian History." In *Oxford Research Encyclopedia of Asian History*, edited by David Ludden, DOI:10.1093/acrefore/9780190277727.013.97. Oxford: Oxford University Press.

Jumprom, Preeyanuch. 2019. "Recovery of a Lost Arab-styled Ship at Phanom-Surin, the Wetland Excavation Site in Central Thailand." In *Ancient Maritime Cross-cultural Exchanges: Archaeological Research in Thailand*, edited by Amara Srisuchat and Wilfried Giessler, 226–247. Bangkok: Fine Arts Department Bang.

Kimura, Jun. 2016. *Archaeology of East Asian Shipbuilding.* Gainesville: University Press of Florida.

Kitchener, Darrell J., and Heny Kustiarsih. 2019. *Ceramics from the Musi River, Palembang, Indonesia: Based on a Private Collection.* Australian National Centre of Excellence for Maritime Archaeology Special Publication No. 22. http://museum.wa.gov.au/maritime-archaeology-db/sites/default/files/no._22_ceramics_from_the_musi_river_palembangsmall.pdf

Kuwabara, Jituzo. 1989. *Ho Juko no Jiseki* [Records of Pu Shougeng]. Tokyo: Heibonsha.

Lacsina, Ligaya. 2015. "The Butuan Boats of the Philippines: Southeast Asian Edge-Joined and Lashed-Lug Watercraft." *Journal of the Australasian Institute for Maritime Archaeology* 39:126–132.

Lankton, James, and Bernard Gratuze. 2016. Appendix in "The Oldest Shipwreck in the Indian Ocean" (by Osmund Bopearachchi, Senarath Disanayaka, and Nimal Perera). In *Ports of the Ancient Indian Ocean*, edited by Marie-Françoise Boussac, Jean-François Salles, and Jean-Baptiste Yon, 411–434. Delhi: Primus Books.

Manguin, Pierre-Yves. 1996. "Southeast Asian Shipping in the Indian Ocean during the 1st millennium AD." In *Tradition and Archaeology: Early Maritime Contacts in the Indian Ocean*, edited by Himanshu Prabha Ray and Jean-François Salles, 181–198. Delhi: Manohar Publishers and Distributors.

Manguin, Pierre-Yves. 2019. "Sewn Boats of Southeast Asia: The Stitched-Plank and Lashed-Lug Tradition." *International Journal of Nautical Archaeology* 48 (2): 400–415.

McCann, Ian Kenneth. 2019. "The Binh Chau Anchors: A 7th–8th CE Composite Conundrum." Master's thesis, University of New England (Australia).

McKinnon, Edwards, E. 1988. "Beyond Serandib: A Note on Lambri at the Northern Tip of Aceh." *Indonesia* 46:103–112.

McGrail, Sean. 2001. *Boats of the World: From the Stone Age to Medieval Times*. Oxford: Oxford University Press.

McGrail, Sean. 2015. *Early Ships and Seafaring: Water Transport Beyond Europe*. Barnsley: Pen & Sword Books.

Mikami, Tsugio. 1990. "Chinese Ceramics in Southeast Asia in the 9th–10th Century." In *Ancient Ceramic Kiln Technology in Asia*, edited by Chuimei Ho, 119–125. Hong Kong: University of Hong Kong.

Miksic, John N. 2009. "Research on Ceramic Trade, within Southeast Asia and between Southeast Asian and China." In *Southeast Asian Ceramics: New Ling on Old Pottery*, edited by John N. Miksic, 71–99. Singapore: Editions Didier Millet.

Miksic, John N., and Geok Yian Goh. 2016. *Ancient Southeast Asia*. London: Routledge.

Mochtar, Agni Sesaria. 2018. "The Seventh-Century Punjulharjo Boat from Indonesia: A Study of the Early Southeast Asian Lashed-lug boatbuilding Tradition." Master's thesis, Flidners University.

Muthucumarana, Rasika, A. S. Gaur, W. M. Chandraratne, Martijn Manders, B. R. Rao, Ravi Bhushan, M. Kadam, Sahebrao, and A. M. A. Dayananda. 2014. "An Early Historic Assemblage Offshore of Godawaya, Sri Lanka: Evidence for Early Regional Seafaring in South Asia." *Journal of Maritime Archaeology* 9 (1): 41–58.

Nishino, Noriko, Toru Aoyama, Jun Kimura, Takenori Nogami, and Le Thi- Lien. 2017. "Nishimura Masanari's Study of the Earliest Known Shipwreck Found in Vietnam." *Asian Review of World Histories* 5 (2): 106–122.

Oga, Katsuhiko, and Tamura, Tomomi. 2019. "Ancient Japan and the Indian Ocean Interaction Sphere: Chemical Compositions, Chronologies and Trade Routes of Imported Glass Beads in the Yayoi-Kofun Periods (3rd Century BCE–7th Century CE)." *Journal of Indian Ocean Archaeology* 9:35–65.

Ploymukda, Sira. 2019. "The Maritime Interaction through Shipbuilding Technology (Mortise and Tenon) in the Andaman Coast of Thailand: A Case Study from Pak Khlong Kluay Shipwreck, Ranong Province, Thailand." Paper presented at the 3rd SEAMEO SPAFA International Conference on Southeast Asian Archaeology, June 17–21, Bangkok, Thailand.

Pomey, Patrice, and Boetto, Giulia. 2019. "Ancient Mediterranean Sewn-Boat Traditions." *International Journal of Nautical Archaeology* 48 (1): 5–51.

Seland, Eivind Heldaas. 2016. "The Periplus of the Erythraean Sea: A Network Approach." *Asian Review of World Histories* 4 (2): 191–205.

Staples, Eric. 2019. "Sewn-Plank Reconstructions of Oman: Construction and Documentation." *International Journal of Nautical Archaeology* 48 (2): 314–334.

Staples, Eric, and Lucy Blue. 2019. "Archaeological, Historical, and Ethnographic Approaches to the Study of Sewn Boats: Past, Present, and Future." *International Journal of Nautical Archaeology* 48 (2): 269–285.

Steffy, Richard J. 1994. *Wooden Ship Building and the Interpretation of Shipwrecks*. College Station: Texas A&M University Press.

Tomalin., V. Selvakumar, M. V. Nair, and P. K. Gopi. 2004. "The Thaikkal-Kadakkarappally Boat: An Archaeological Example of Medieval Shipbuilding in the Western Indian Ocean." *International Journal of Nautical Archaeology* 33 (2): 253–263.

Vosmer, Tom. 2014. "The Belitung Shipwreck and Jewel of Muscat." In *The World in the Viking Age*, edited by Soren M. Sindbaek and Athena Trakadas, 58–61. Roskilde: Viking Ship Museum.

Vosmer, Tom. 2019. "Sewn Boats in Oman and the Indian Ocean." *International Journal of Nautical Archaeology* 48 (2): 302–313.

Wang, Gungwu. 1958. "The Nanhai Trade: A Study of the Early History of Chinese Trade in the South China Sea." *Journal of the Malayan Branch Royal Asiatic Society* 31 (2): 1–135.

Yajima, Hikoichi. 1976. *The Arab Dhow Trade in the Indian Ocean: Preliminary Report*. Tokyo: Institute for Languages and Cultures of Asia and Africa, Tokyo University of Foreign Studies.

Red Sea

Persian
Gulf

Bay of
Bengal

Indian Ocean

5 Networks and Cultural Mapping of South Asian Maritime Trade

Ariane de Saxcé

Abstract

This chapter proposes a reappraisal of Indian Ocean trade networks in Antiquity, with a special focus on spatial analysis of the cultural exchanges. Exhaustive quantification and GIS mapping of artefacts that were imported or imitated from the West in South Asia reveal different patterns of trade, depending on the socio-political and cultural background of each region, for example in Tamil Nadu and in the Deccan in India. Moreover, with the tools of social network analysis, a complete view of the East-West exchanges can be drawn, showing the complexity of the global networks in the western Indian Ocean during the first few centuries of our Era.

Keywords: South Asia, networks, cultural interactions, GIS, Mediterranean

Introduction

The routes of the Maritime Silk Road in the western part of the Indian Ocean have mainly received the attention of ancient and modern writers because of the direct sailing between its two shores, from the southern Arabian Coast and the northeast tip of Africa (e.g., Eritrea, Djibouti, Somalia) to the west coast of India during the early centuries of the Common Era. Recent research, however, has increasingly shown how commercial and cultural exchanges taking place in this area benefited from an intense network of regional nodes. This chapter focuses on these networks at the beginning of the first millennium CE, studied through archaeological data. The number of new excavations and recent archaeological discoveries in the Indian Ocean littoral have made possible a reappraisal of the flow of trade in this area in all its diversity. This chapter aims to put into relief the variety of responses

in India and Sri Lanka to the Mediterranean trade. Local socio-political and cultural factors affected the regional impact of the exchanges with the Graeco-Roman world, whether related to the integration of imported objects or the creation of new artifacts.

This chapter will first examine the networks of trade in the Indian Ocean with the use of tools such as graphs and network analysis to fuse data from both texts and archaeological remains, paying particular attention to intermediary nodes, subnetworks, and redistribution points. This offers the reader a detailed analysis of the spatial distribution of Mediterranean imports in South India and Sri Lanka and shows specific choices made by local populations. Last, a few examples of regional discrepancies in artistic borrowings and interactions are provided to illustrate how the social and political contexts impacted the way these foreign objects were integrated into the local culture.

Networks of Trade

A most important source of information when studying networks in the Indian Ocean is the *Periplus Maris Erythraei*, which offers unique testimony. The author of this text, likely writing around 70 CE, mentions various items of trade imported or exported from different ports along the coasts of the Indian Ocean, Red Sea, and Persian Gulf (together known as the Erythraean Sea). The lists given in the text suggest a closed network (see Casson 1989), so that the tools of network analysis can be applied to this data (see Saxcé 2015a; Seland 2016a, 2016b, 2017). Figure 5.1 represents one possible visualization of these networks.

If we assume that these goods were traveling directly between their origin and their point of destination (as mentioned in the text), we can build a graph to render the image of what the complete network probably looked like, according to the author (see Figure 5.2). Thus, the nodes are created by the port-cities and the links refer to the goods exchanged from one port to another (the greater number of goods, the thicker the link). We need to bear in mind that the graph represents the knowledge of the author at one point in time and includes the biases and limitations inherent to a single source. Nevertheless, the visualization as a graph allows us to infer many pieces of information that otherwise remain implicit in the text.

Thus, Barygaza appears to be the main hub for imports and exports; and the second major center is Adulis, but mainly for imports. With imports and exports coming from multiple places of origin, these two ports appear as the principal platforms of trade. Interestingly, the items of trade that appear to

Figure 5.1   Indian Ocean networks of trade according to the *Periplus*
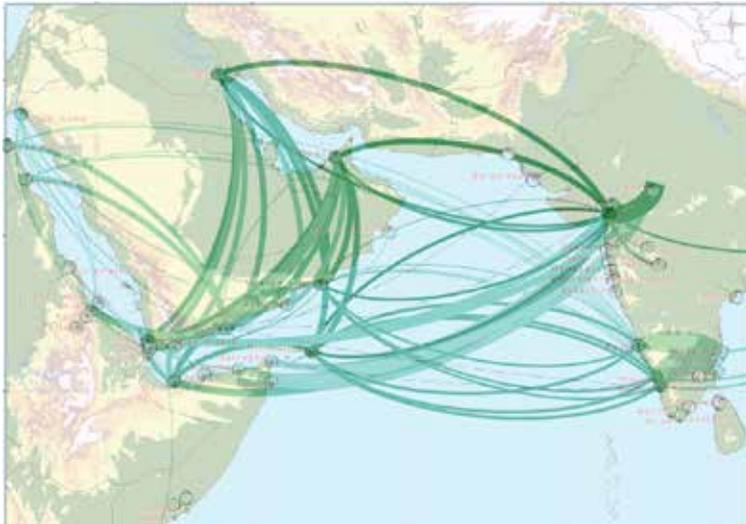
Figure 5.2   Indian Ocean networks of trade according to the *Periplus*, without geolocalization
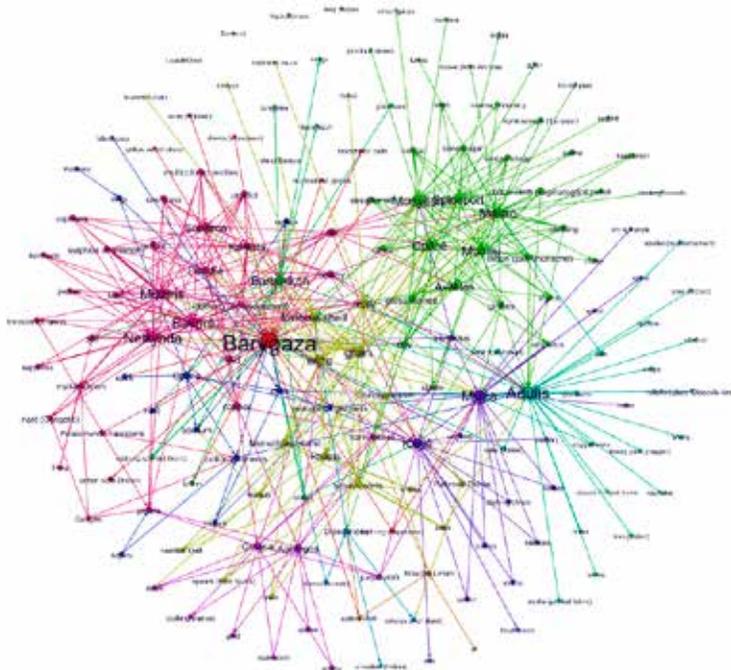
have the highest number of links are not pepper or gold—which are the most well-known items in literature—but grain, wine, and tortoise shell. Cotton also stands out, but it is less obvious in the graphs because of the multiple categories mentioned in *Periplus* (e.g., garments, molochinon, cloth, etc.) Money, ivory, rice, and ghee also appear in prime positions. Pepper is in a peripheral position on the graph since it originates only from two localities and its destinations are not mentioned by the author.

The links between the Persian Gulf and Arabia are emphasized in the graphs, as well as the contacts between Africa and the west coast of India. Connections are found between North Africa and Barygaza through the exchange of ghee; between North Africa and Arabia through ivory, myrrh, and frankincense; and between South India and Arabia through wine and frankincense. This last example suggests how the redistribution network might have worked, as some frankincense exported from Kane (South Arabian Coast) to the Gulf sites may also have traveled from there to Muziris (Malabar Coast), as well as local wine, as the remains of incense and torpedo jars in Pattanam testify (Tomber 2015).

As a result, the picture we get is far more complex than the traditional view of the three main routes mentioned in Pliny (André-Filliozat, 2003, paras. 100–104) that were noticeable for ancient authors because of technical breakthroughs, such as the direct sailing across the Indian Ocean from Arabia to South India. The commercial information in the *Periplus* made into graphs forwards major links between central India and Africa (even though the quantity of archaeological material remains limited) and between the Gulf cities and the coast of Arabia. The direct route between Arabia and South India appears as well, but only as one part of a much larger picture. It can be considered a "weak tie" (Granovetter 1973); that is, two dense local networks—one in India and one in South Arabia-North Africa—were related via a small number of long-distance links. These weak ties play a fundamental role in connecting different subnetworks and thus creating a vast network as a whole: few links end up being key elements in the global picture by creating a broader area of connections.

If we focus on the archaeological remains, the graph we obtain with the data is slightly different and an interesting counterpart to the textual information in the *Periplus*. This next graph (see Figure 5.3) has been constructed using the inventory of archaeological remains on the shores of the Indian Ocean, in the Indian Peninsula, and in Sri Lanka. These include Mediterranean products in India and Sri Lanka and Indian products in the Gulf, Arabia, Africa, and Egypt. Here as well, the different ports constitute the nodes of the graph, and the goods are defined by their origin and destination to create links between the ports. To build a faithful image requires

Figure 5.3   Indian Ocean networks of trade according to archaeological data

information on both the source and the destination of the products. The destination is known by the archaeological site where the remains have been discovered. As far as the source of the material is concerned, it can be accurate if only one source was available but uncertain whenever several possibilities existed. Some products can thus be sourced with precision, such as traceable garnet, sapphire, pepper, glass, teak wood, lapis lazuli, and Z/Z cotton (typical weaving pattern of Indian cotton). Others, such as carnelian, agate, onyx, beryl, and some food products may have several origins but can be reasonably related to a region based on other sources, notably written ones. I have included three areas in the graph—Egypt, the Arabian Coast, and Persian Gulf—when any of them might be the source. It makes the graph a little denser than it should be for these three regions, but it also allows us to visualize all possible options without arbitrarily choosing one of them.

The archaeological remains complement the textual information in many ways. Contrary to Figures 5.1 and 5.2, the Berenike-Barygaza axis appears here as a major link, followed by connections between Berenike and South India (west and east). Similarly, the link between Sri Lanka and the Gulf is visible, thanks to the Persian material found in Sri Lanka (Bopearachchi 2002, 111–113). Additionally, the link with South Arabia has become apparent over the past few years, notably through the ceramic studies identifying Sri Lankan pottery in Khor Rori and Sumhuram, in Oman (Schenk 2007; Schenk and Pavan 2012). The African Coast and the Gulf are underrepresented because archaeological data is limited in these regions, either because of

socio-political (e.g., conflicts and destructions of sites) or academic reasons (e.g., small number of excavations). Nevertheless, a graph, because it focuses on more than just the three routes mentioned in *Periplus* and by Pliny, helps in visualizing the density and complexity of the networks. Subnetworks in Arabia and the Gulf become more visible and show how they greatly helped the long-distance network to function effectively. I have mentioned elsewhere (Saxcé 2015b) on the importance of subnetworks within South Asia. These were along the coasts of India and, in particular between South India and Sri Lanka and between North India and Sri Lanka. These local exchanges were also fundamental for the distribution of long-distance goods in South Asia.

Imports and Their Distribution

Before I offer the details of mapping foreign cultural artifacts discovered in India's territory, it is important to point out the results of a quantification of archaeological remains in the Indian Ocean trade.[1] Even though an exhaustive quantification of all artifacts remains challenging because of the heterogeneity of old and new data, I attempt here to evaluate the proportion of foreign artifacts discovered in South India and Sri Lanka and to highlight their distribution in these territories.

As seen in Table 5.1, the number of imports may seem impressive in absolute numbers but, when compared to the quantity of local artifacts of the same category, it appears that they constitute a very small proportion of the preserved remains.

Table 5.1   Imports versus local artifacts

Material type	Absolute number of remains	Percentage in the same category of remains
Amphorae	9,906	0.06% to 0.2%, ceramic assemblages
Coins	1,278	1% to 12%, stratified coins
Sigillata and fine ware	241	0.004% to 0.01%, fine ware
Glass vessels	260	3% to 30%, glass ware
Glass beads	N/A*	around 3%, analyzed samples
Coral beads	151	0.2% to 50% (aver. 13%), stone beads
Bronzes	21	N/A
Intaglios	3	N/A
Terracotta lamps	3	N/A

Objects found in the Indian Peninsula south of the River Narmada and in Sri Lanka
* N/A: not available or not applicable (figures not available or % not significant)

1   For more details, see de Saxcé 2015a.

It is important to bear in mind that the objects under consideration here are quantitatively limited yet culturally significant. These artifacts are therefore crucial in highlighting regional differences and local ways of dealing with foreign material.

First, while useful for quantification purposes, considering each category of remains separately proves much less relevant when studying their distribution in the landscape. It is thus preferable to use an anthropological method of categorizing these artifacts so as to interpret their localization. An approach based on "praxis," as proposed by J. P. Warnier (2006, 2009), proves interesting in dealing with this material. It considers the relationship between the body and the object and the ways in which an individual builds technical skills in this relationship. Artifacts can then be grouped into three main sets. A first set comprises "containers," including amphorae, unguentaria, terra sigillata and other ceramics, glass vessels, bronze vessels, and terracotta lamps. A second set includes "ornaments," which are objects that determine the interface of the body with the outside world. These are, among other items, glass and coral beads, bracelets, rings, intaglios, and bullae. A third group is "valuables," which include objects like coins, figurines, emblemata, and mirrors that are not in direct contact with the body.

The map of containers (see Figure 5.4) shows an overlap pattern of either amphorae and glass or amphorae and sigillata vessels, suggesting that foreign wine (or, to a lesser extent, olive oil and garum) might have been consumed in foreign vessels, as mentioned in the Tamil epics evoking the beautiful vases used to drink wine (see Meile 1940, 103; Zvelebil 1956, 402). However, one can observe an opposition between the Deccan (the plateau area of Central India) and Tamiḷakam (Tamil country, corresponding to the tip of the Indian Peninsula). Finds such as amphorae are found inland on the Deccan but are limited to the coasts of Tamiḷakam, except for the capital Karur. This might be related to the location of Yavanas (Westerners), who lived in the south in neighborhoods around port-cities (see Meile 1940, 113; Zvelebil 1956, 405). But in the Deccan, they were integrated into Buddhist trading communities (Champakalakshmi 1996), at least to the extent that they sometimes adopted Sanskrit names (Rajamani 2009, 88). Interestingly, no containers seem to have reached the areas in the center of the map. This is especially evident for glass vessels, possibly because the Yavanas did not move into inner parts of the Deccan or perhaps because the fragility of the material would have made it difficult to transport over great distances.

The map of ornaments (see Figure 5.5) reveals a completely different picture, with a higher concentration in the center of the peninsula and fewer finds on the coasts. The important hubs for trade such as Muziris (Pattanam on the southwest coast) and capitals such as Paithan (in the Deccan) are also

Figure 5.4   Distribution of containers

absent. Roman glass beads were most probably mixed with locally made beads and traded regionally in small markets and perhaps more easily carried long distances. Similarly, coral beads are easily portable and represented precious items away from the coasts. Moreover, they would have been included in

Figure 5.5   Distribution of ornaments
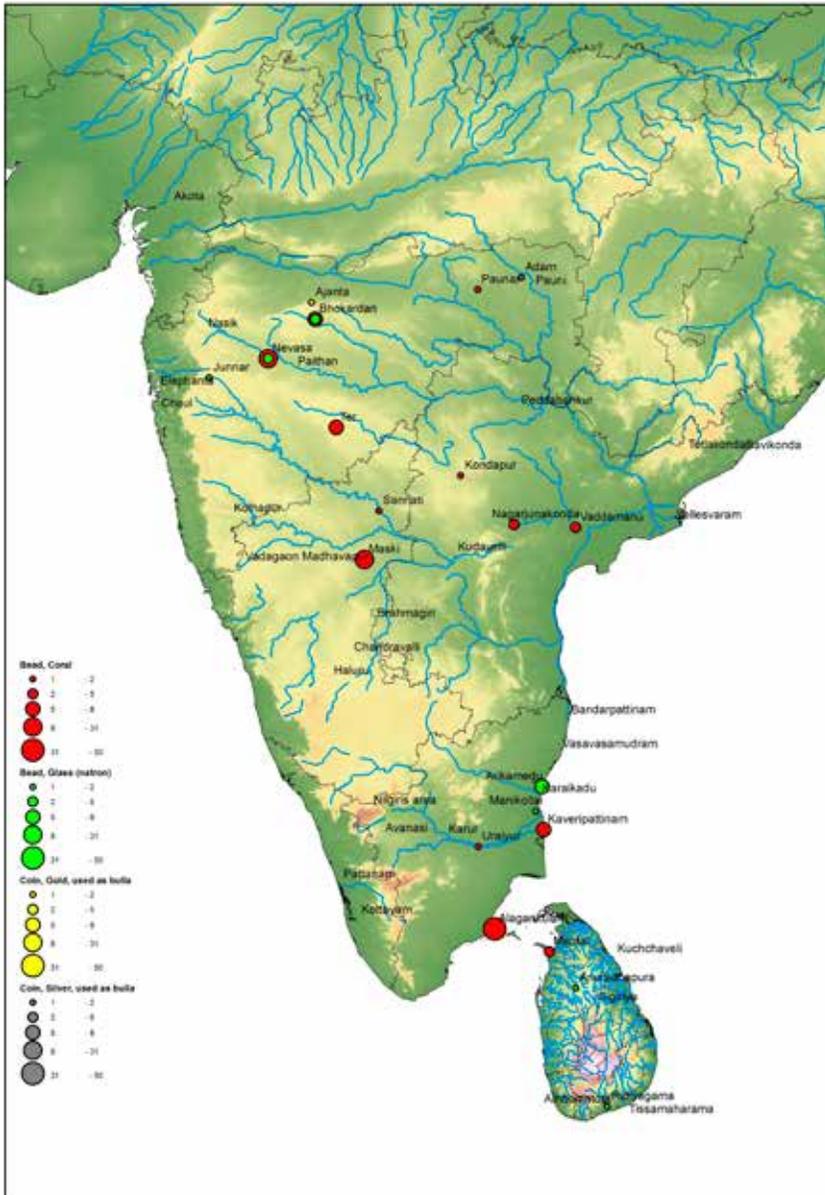
Buddhist offerings. There are examples in the treasure of the Jetavanarama
(Ratnayake 1984) and in Buddhist sites of the Deccan such as in Ter; Kondapur
(Yazdānī 1941); Sannati (Devaraj and Talwar 1996); Nagarjunakonda (Sarkar
and Misra, 1966); and Vaddamanu (Sastri, Kasturi Bai, and Veerender 1992).

Figure 5.6   Distribution of valuables
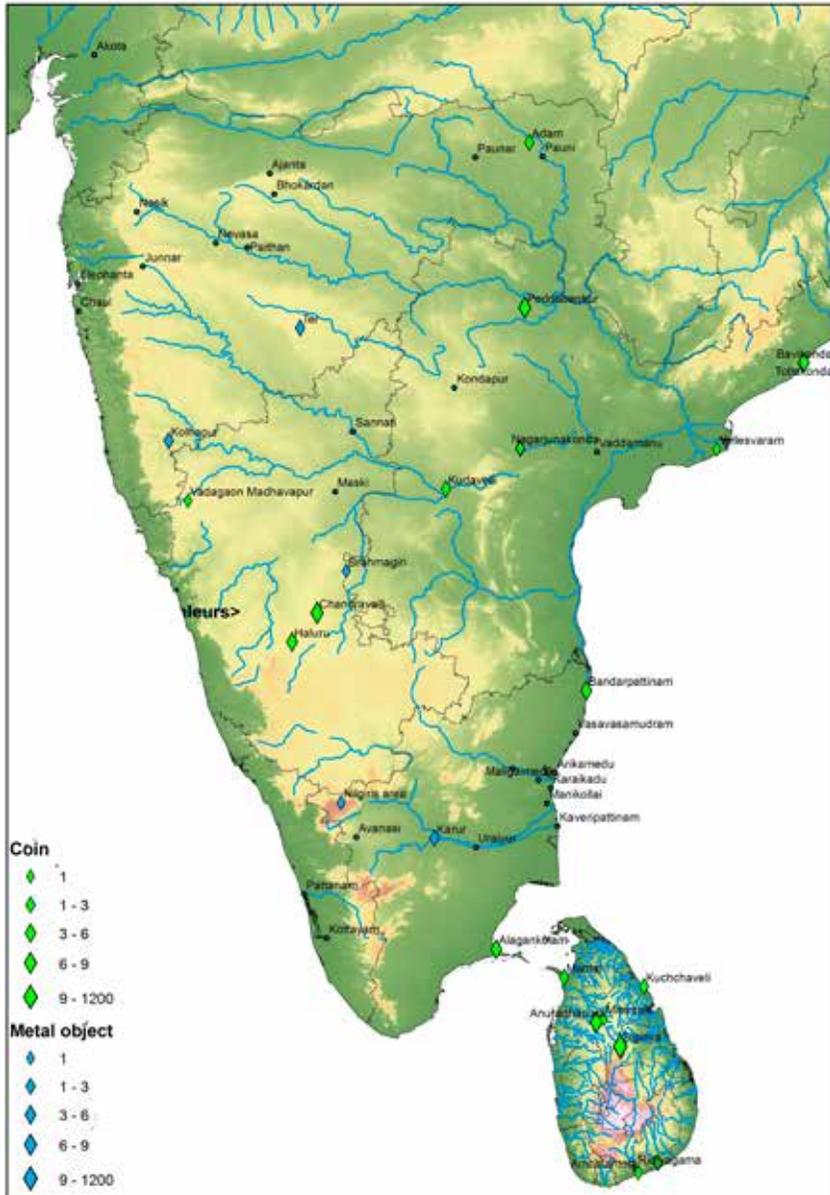
The map of valuables (see Figure 5.6) corresponds well to the locations and compositions of coin hoards: more coins from the second century CE are found in the central and eastern parts of the peninsula, whereas more coins from the first century are in the southwest. In stratigraphy for the area considered (i.e.,

south of Narmada), there are more bronze coins (sixteen) than gold and silver ones (thirteen), as the former were more likely to be circulated. These bronze coins are located mainly in Sri Lanka. Items made of bronze, such as figurines and mirrors, have been found deep inland in Karur, Brahmagiri, and Ter.

If we superimpose these maps, it is striking that the three groupings of containers, ornaments, and valuables do not show much overlap. Each appears to have its own logic and territorial organization, thus demonstrating the extent to which local geopolitical and cultural contexts determined choices and appropriations of objects. Rather than imagining a Yavana "package" of goods and technologies in large trade hubs or capitals, we need to think about the different needs and cultural habits based on context. Only four cities—Ter, Nagarjunakonda, Alagankulam, and Anuradhapura—include all three sets. Contrary to what one might assume, they are neither all located on the coast nor capitals. All four cities nevertheless were points of contact and network hubs.

These hubs facilitated not only trade but also cultural interactions and exchanges of ideas, iconographies, and artistic practices. The next section examines the nature and distribution of the material involved.

Cultural Adoptions

Trade exchanges between the Arabian Peninsula and India were followed by cultural contacts via specific artifacts. I focus particularly on small portable objects that were more likely to travel and bear some traces of these travels.

I have been careful to avoid the concept of "influence" (Baxandall 1991, 106–111) because it fails to take into account the multiple actions that take place on the "reception" side of an exchange. The conceptual background of intercultural relations is rich in closely related terms like transfer (Espagne 1999, 286), *métissage*, interculturalism, or acculturation. Most of these terms denote a process of equal exchange between two cultures when two social groups have a close interaction or physical contact. In the present context, we instead have a situation in which very small numbers of people brought new objects into a given culture and the objects were circulated and exchanged within that host population. The agency of the local people needs to be underscored, so I suggest using the term "adoption" to evoke how a main ethnic group may borrow, reproduce, or appropriate[2] the artifacts of a minority.

2   Appropriation is how a majority borrows cultural features from a minority. However, in some cases, it implies a process of oppression and sometimes violence. This process does not seem to have been the case in the Indian context.

Figure 5.7   Distribution of bullae, molded ware, figurines, and jewels
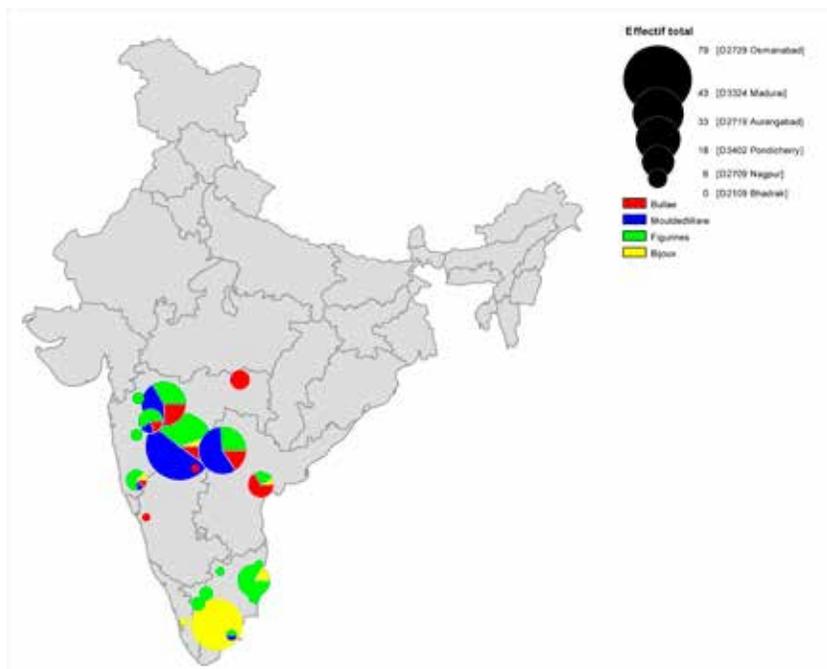
Indeed, with small, scattered groups of Yavanas bringing their culture with them, local populations might have wished to borrow, appropriate, adapt, or adopt some of their habits and objects. This appears to have occurred with ceramic types, jewels, terracotta figurines, and coin imitations (see Figure 5.7).

An opposition again occurs between the Deccan and the Tamiḷakam in the types and quantities of objects bearing traces of borrowing. I detail the materials under discussion and show how socio-political contexts help explain some of these disparities. In the Deccan, the Yavanas seem to have integrated well into the local social networks; their appear frequently appear on inscriptions as donors to the Buddhist community. The organizational support given to trade by Buddhists, and the ideal of a society without caste, helped outsiders integrate into this community. Conversely, in the south, Yavanas appear to have remained more isolated, resided in specific neighborhoods, and earned livings in specific professions—such as guards, carpenters, and artisans (Zvelebil 1956, 404, 406, 407)—but their names do not appear on inscriptions. The elitist society, relying greatly on lineage and kinship, would have kept Yavanas apart from them. In this context, local people may have had direct contact with Yavanas and their objects (as either related to trade

Figure 5.8   Distribution of moldmade ware and an example

Ter Museum
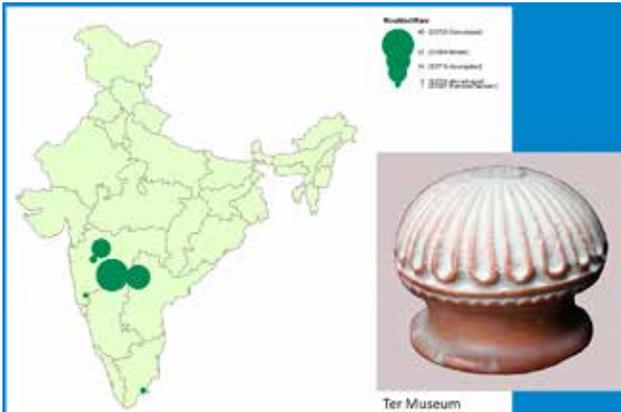
or as personal belongings) or a more distant access to some of these Western artifacts, which is why local productions in the Deccan and in South India show very different ways of borrowing external artistic features. The "border," or point of contact, between these two areas coincides well with the limit of the Aśokan Empire: the southern tip of the peninsula, not included in the empire, presents a number of cultural features that distinguishes it from the center, which was part of the realm. The south of modern Karnataka and Andhra constitute the transition area between the two regions.

On the Deccan Plateau, the main productions were "moldmade ware" (Begley 1991; Rotroff 1982, 3), bullae, and terracotta figurines. All of them integrate the presence or the figures of the Yavanas in one way or another. The moldmade ware (see Figure 5.8), dated between the second century BCE and first century CE, is found in very few sites (Bhokardan, Kolhapur, Kondapur, Nevasa, Paithan, and Ter) and consists of small bowls created with a double-mold technique. This technique was an innovation in this area and could have come through Mediterranean prototypes such as Athenian (Rotroff 1982) and Delian (Laumonier and Athanassiadi 1977) bowls as well as Hellenistic metal vessels. The shapes appear to be borrowed from their Western counterparts, whereas the design reproduced "long petals" in a different way, bringing it closer to the local ornament of the lotus. Some vases (in Paithan and Kondapur) even bear the eight Buddhist auspicious symbols.[3] We see from these artifacts that local producers borrowed an exotic technique and integrated it into local traditions; and if these bowls were used for offerings and processions, into religious habits as well.

3   Fish, *srivatsa*, *chakra*, *pūrna ghata*, *triratna*, *kalpa-vṛkṣa*, *pushpa caitya*, and *swastika*.

Figure 5.9   Distribution and examples of bullae: Tiberius on the obverse (two examples) and seated Livia on the reverse

As for the bullae (see Figure 5.9) and terracotta figurines, they show interesting adaptations of the Yavana image. Reproducing coins in terracotta in areas where metal Roman coinage was rare would have been a convenient and inexpensive way to disseminate exotic images, which were probably fashionable at the time. Bullae representing Tiberius type of coins are by far the most common, as are examples of Augustan portraits. In some cases, the emperor's face appears to borrow features of local rulers, such as of Vasiṣṭhiputra Siri Sātakarṇi, whose rule from Paithan was associated with a time of prosperity. Other bullae with local images include auspicious symbols that seem to have played an apotropaic role (e.g., protective, turning away evil spirits), suggesting that the Yavana portraits might have used for protection as well to present an image of powerful and prosperous foreign rulers.

Most of the figurines (see Figure 5.10) also use the double-mold technique and reveal numerous connections with their Egyptian counterparts, including figures of grotesques, young children, and women giving birth. The figurines found in the Deccan show various ethnic types, from Central Asia, China, and Africa, as well as figures with curly hair resembling those from the Mediterranean. They recreate a microcosm that gives an image of the macrocosm and integrate Yavanas who were present in the social networks.

By contrast, in the Tamil country, the context and types of borrowings are very different. Various terracotta figurines seem to owe some of their features to the Mediterranean World, and to Egypt in particular. Such is the case of Tanagra-like statuettes, fertility goddesses (*lajja-gauri*), children's heads,

Figure 5.10   **Distribution and examples of terracotta figurines, from the Deccan and the Tamil area**

and some heads with plaited hair dress. The latter share iconographical features with their Egyptian counterparts, but in all likelihood appeared in different contexts. Whereas the Egyptian figurines are interpreted as being profane decorative heads (Breccia 1934, 44), the ones from Tamil Nadu are sometimes seen as incarnations of deities, such as Dakṣiṇāmūrti (Sridhar 2009, 67, 97). Even though this identification can be debated, the votive nature of the figurines is likely, thus suggesting that the borrowed features were fully integrated into the local tradition. In the Deccan, images of foreign identities were part of a representation of the world; in the south, the borrowed features were wholly assimilated into local cults. Similarly, a small figurine of a young boy found in Arikamedu[4] shows some features of Harpocrates: the position of the legs, the hair dress and necklace. But it could also be seen locally as a Skanda with its bird, thus showing a particularly interesting example of syncretism and assimilation of motifs.

Jewelry (see Figure 5.11) presents striking aspects in terms of adaptation of cultural habits rather than iconography. Indeed, the different kinds of Western-related jewels in Tamiḻakam notably include key-rings,[5] inscribed rings, and intaglios. These were luxury items that were probably gifted

4   Now in the Musée Guimet, Paris.
5   Key-rings were originally created as a way to attach a key to a ring so that it was not lost. Other decorative shapes were created but the rings with this protruding decoration kept the name "key-ring."

Figure 5.11   Distribution map of jewelry and some examples from Sri Lanka and South India
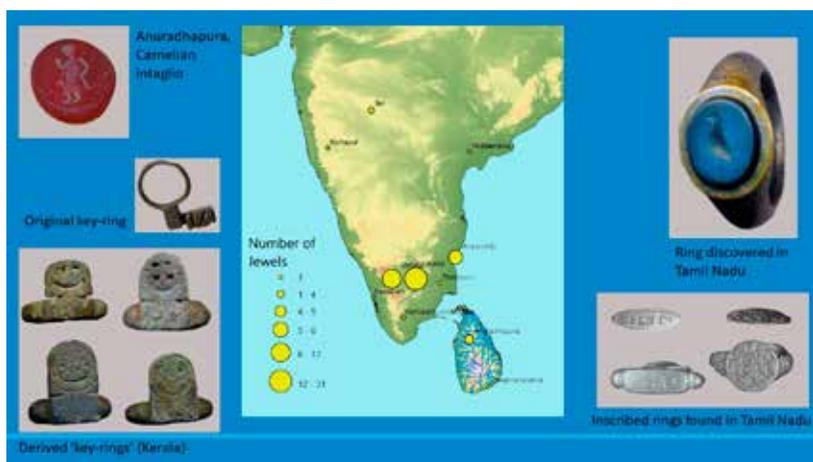
among the elite in a system of strong kinship ties. Again, their iconography is often of a local type, but the use of such objects testifies to the creation of new habits. For instance, it seems that key-rings and inscribed rings appeared in the first few centuries of the Common Era in connection with the presence of Yavanas in the region. The tradition of wearing a key-ring or a ring bearing one's name was adopted for local purposes and readapted with local motifs and names. The local elite or rulers would have most likely used these foreign objects as luxurious, exotic items and as a visual expression of their power within the community.

In Sri Lanka, as in the Deccan, foreign motifs were imported and reused locally, notably on stone intaglios. For instance, two intaglios from the Jetavanarama treasure, respectively on quartz and carnelian, show an Augustan-type profile and a man carrying a sphere, similar to figures on Antoninus coins. In the Abhayagiri Monastery, one carnelian intaglio was found that shows a standing woman dressed in a tunic and scarf that strongly evokes Roman deities like Nephelai and Maenads.

Conclusion

An important question to ask is: How does the location of the artifacts discussed in this chapter relate to the presence of Yavanas in the territory? The adapted objects are in areas where Yavanas were apparently present. But

were these items meant to be used by foreigners, or only by local people? In Tamiḷakam, the motifs discovered on inscribed rings that bear local names or symbols suggest usage by local people. Meanwhile, the iconography of the figurines, based on the numerous borrowings of Egyptian style, were likely used as a locally made substitute for travelers unable to bring their own. Depending on the category of objects, it is possible that the Yavanas wanted artifacts bearing similarities to the ones they had left behind. In the Deccan, the figurines and ceramics seem to be part of a local assemblage, uniting foreign and local designs through functional similarities (e.g., ornamentation as pendants, ceremonial bowls, etc.). We may assume that they were all used within a local context.

In conclusion, subnetworks and local hubs were essential parts of long-distance exchanges. Notably, the presence of established connections between North India, South India, and Sri Lanka were important for the Mediterranean trade to flourish, just as were contacts between South Asia and South Arabia, and South Asia and Africa. Within South Asia, internal regional specificities played a predominant role in the way imported objects were reused or imitated. Import distribution maps indicate that a number of choices were made in correspondence with local needs rather than as wholesale acceptance of all Mediterranean products. The socio-political context produced different attitudes vis-à-vis these foreign objects as well as various types of syncretic creations of artifacts and practices. In particular, a discrepancy appears between Central India (that is, the Deccan) and South India (that is, Tamil country) in the types of objects they chose to recreate and the practices or iconographic features they adopted, thus showing the agency of populations involved in both long-distance and local trade, and the strength of regional nodes in the global network.

References

Baxandall, Michael. 1991. *Formes de l'intention, Sur l'explication historique des tableaux*. Nîmes, France: Editions Jacqueline Chambon.

Begley, Vimala. 1991. "Ceramic Evidence for Pre-Periplus Trade on the Indian Coasts." In *Rome and India: The Ancient Sea Trade*, edited by Richard de Puma and Vimala Begley, 157–196. Madison: University of Wisconsin Press.

Bopearachchi, Osmund. 2002. "Archaeological Evidence on Shipping Communities of Sri Lanka." In *Ships and the Development of Maritime Technology in the Indian Ocean*, 92–127. London: RoutledgeCurzon.

Breccia, Evaristo P. 1934. *Terrecotte Figurate Greche e Greco-Egizie Del Museo Di Alessandria, 2*. Bergamo: Officine dell'Istituto italiano d'arti grafiche.

Casson, Lionel. 1989. *The Periplus Maris Erythraei. Text with Introduction, Translation, and Commentary*. Princeton, NJ: Princeton University Press.

Champakalakshmi, R. 1996. *Trade, Ideology, and Urbanization: South India 300 BC to AD 1300*. Delhi: Oxford University Press.

Devaraj, D. V, and H. T Talwar. 1996. *Interim Report on the Excavations at Sannati, 1993–95*. Mysore, India: Directorate of Archaeology and Museums.

Espagne, Michel. 1999. *Les transferts culturels franco-allemands*. Paris: Presses Universitaires de France.

Granovetter, M. S. 1973. "The Strength of Weak Ties." *American Journal of Sociology* 78 (6): 1360–1380.

Laumonier, Alfred, and Iro Athanassiadi. 1977. *Exploration archéologique de Délos: Faite par l'École Française d'Athènes*. Athens: de Boccard.

Meile, Pierre. 1940. "Les Yavanas Dans l'Inde Tamoule." *Journal Asiatique* 232: 85–123.

Pliny, *Histoire naturelle, Livre VI, 2è partie.* Translated by Jacques André and Jean Filliozat. Paris: les Belles Lettres, 2003.

Rajamani, Radhika. 2009. *Society in Early Historic Tamiḷakam*. Delhi: Bharatiya Kala Prakashan.

Ratnayake, Hema. 1984. *Jetavanaramaya Project, Anuradhapura: First Archaeological Excavation and Research Report (January–June 1982)*. Colombo: Central Cultural Fund, Ministry of Cultural Affairs.

Rotroff, Susan I. 1982. *Hellenistic Pottery: Athenian and Imported Moldmade Bowls*. Edited by the American School of Classical Studies at Athens. Princeton, NJ: American School of Classical Studies at Athens.

Sarkar, H., and B. N. Misra. 1966. *Nagarjunakonda*. New Delhi: Archaeological Survey of India.

Sastri, T.V.G., M. Kasturi Bai, and M. Veerender. 1992. *Vaddamanu Excavations (1981–85)*. Hyderabad: Birla Archaeological and Cultural Research Institute.

Saxcé, Ariane de. 2015a. "Commerce, transferts, réseaux. Des échanges maritimes en mer Érythrée entre le IIIe s. av. n.è. et le VIIe s. de n.è." Master's thesis, University of Paris-Sorbonne.

Saxcé, Ariane de. 2015b. "Local Networks and Long-Distance Trade: The Role of the Exchanges between Sri Lanka and India during the Mediterranean Trade." In *Imperial Rome, Muziris and the Indian Ocean*, 53–73. New Delhi: Manohar.

Schenk, Heidrun. 2007. "Parthian Glazed Pottery from Sri Lanka and the Indian Ocean Trade." *Zeitschrift Für Archäologie Außereuropäischer Kulturen* 2:57–90.

Schenk, Heidrun, and Alexia Pavan. 2012. "Crossing the Indian Ocean before the Periplus: A Comparison of Pottery Assemblages at the Sites of Sumhuram (Oman) and Tissamaharama (Sri Lanka)." *Arabian Archaeology and Epigraphy* 23:191–202.

Seland, Eivind Heldaas. 2016a. "Here, There and Everywhere: A Network Approach to Textile Trade in the Periplus Maris Erythraei." In *Textiles, Trade and Theories: From the Ancient Near East to the Mediterranean*, edited by Kerstin Droß-Krüpe and Marie-Louise Nosch, 211–220. Münster: Ugarit-Verlag, 2016.

Seland, Eivind Heldaas. 2016b. "The Periplus of the Erythraean Sea: A Network Approach." *Asian Review of World Histories* 4 (2): 191–205.

Seland, Eivind Heldaas. 2017. "Gemstones and Mineral Products in the Red Sea/ Indian Ocean Trade of the First Millennium." In *Gemstones in the First Millenium AD: Mines, Trade, Workshops and Symbolism*, edited by Alexandra Hilgner, Susanne Greiff, and Dieter Quast, 45-58. Mainz: Verlag des Römisch-Germanischen Zentralmuseums.

Sridhar, T. S., ed. 2009. *Archaeological Antiquities: A Catalogue (with Special Reference to Terracotta)*. Chennai: Department of Archaeology, Government of Tamil Nadu.

Tomber, Roberta. 2015. "The Roman Pottery from Pattanam." In *Imperial Rome, Indian Ocean Regions and Muziris. New Perspectives on Maritime Trade*, edited by K. S. Mathew, 381–394. New Delhi: Manohar.

Warnier, Jean-Pierre. 2006. "Inside and Outside: Surfaces and Containers." In *Handbook of Material Culture*, edited by Christopher Tilley, Webb Keane, Susanne Küchler, Michael Rowlands, and Patricia Spyer, 186–195. London: Sage Publications.

Warnier, Jean-Pierre. 2009. "Les Technologies du sujet. Une approche ethno-philosophique." *Techniques & Culture* 52–53: 148–167.

Yazdānī, Ghulām. 1941. "Excavations at Kondapur: An Andhra Town (Cir. 200 B.C. to 200 A.D.)." *Annals of the Bhandarkar Oriental Research Institute* 22 (October): 171–185.

Zvelebil, K. 1956. "The Yavanas in Old Tamil Literature." In *Charisteria orientalia praecipue ad Persiam pertinentia*, edited by Jan Rypka, Felix Tauer, Věra Kubičková, and Ivan Hrbek, 401–409. Prague: Československé akademie věd.

Zambia
Zimbabwe
Botswana

Indian Ocean

6 Southern Africa and the Indian Ocean World

Relocating Agency from the "Center" to the "Periphery" and from the Maritime Silk Road to the Maritime Ivory Route

Shadreck Chirikure

Abstract

This contribution combines the picture in overland southern Africa with that emerging around the wider Indian Ocean region to amend and/or augment understandings of the nature and consequence of the region's participation in the highly complex early global trade. Traditional narratives framed within the core and periphery thinking emphasized that Asia was the center controlling the southern African periphery. A reassessment of circulatory knowledge involved in the Indian Ocean trade shows that southern Africa had a long-term active participation but had agency in selecting what to and what not to incorporate. This calls for balanced narratives that consider the overland and maritime trade from a local agency point of view to fully understand the participation and impact of southern Africa's involvement with the Maritime Silk Road routes.

Keywords: local agency, circulation, Indian Ocean, core-periphery, overlooked histories

Introduction

A significant amount of intellectual disquiet continues to bubble around the observation that knowledge about ancient African societies and their interactions with each other and with other parts of the world remains fundamentally colonialist in texture (Manyanga and Chirikure 2017; Mavhunga 2017; Mbembe 2000; Mudimbe 1998; Ndlovu 2016; Ogundiran 2016;

Ndlovu-Gatsheni 2018). In southern Africa, this is a result of several factors, the most important being the unmitigated legacies of colonialism—especially a stubborn refusal to let go of colonial privileges by some archaeologists—long after the achievement of political independence (Hall 1983, 2005; Shepherd 2002). During colonialism, archaeology had no meaningful role for African scholarly participation, including theoretical and methodological development. Africans were only hired as labor in excavations or as sources of information then written up by white archaeologists (Shepherd 2003). They were never made coauthors; neither were they asked to review the published information they passed to colonial archaeologists for accuracy (Chirikure 2020a). Furthermore, different countries gained political independence at different times, and South Africa, even with its advanced economy and large settler population, was the last to finally gain independence in 1994. The continuation of colonial practice and marginalization by archaeologists continued post-1994. The situation still has not changed much, with some doubts continually cast over the abilities of highly qualified African archaeologists but rarely for their poorly qualified white counterparts. Circumspect of narratives that were produced by some colonial archaeologists under the name of scientific archaeology, Garlake (1982) argued for Africans to apply their experience and local understanding to rescue the African past from coloniality. More than a decade later, Bourdillon (1998, 61) questioned why some archaeologists even entertain illogical and pretentious reconstructions of the African past made under the name of science. The answers have everything to do with a desire to delegitimize African contributions and narratives while perpetuating colonial privilege at all costs.

Colonial privilege, including its dark side of racism, still motivates some researchers, who in the twenty-first century consider Africans—both past and present—as silage for exploitation by white archaeologists (Meskell 2011, 155). Outlandish as it sounds, colonialist knowledge holds African situations and understanding captive to interpretive models and logics drawn from Western cosmologies and ways of knowing (Chirikure et al. 2016; Lane 2011; Ndoro 2001; Ogundiran 2016). The consequence is that ancient southern Africa, especially the last two thousand years, are yet to be fully understood through African lenses, free from suffocating influences of coloniality and inappropriate logics imported from elsewhere (Bourdillon 1998; Stahl 2014).[1] This coloniality prompted Schmidt and Pikirayi (2018) to argue for resetting some archaeologically reconstructed narratives of the past two thousand

---

1   For the pervasive nature of the problem in African archaeology, see McIntosh 1999; Ogundiran 2016.

years of southern Africa to rid them of Western prejudices. Fundamentally, such a revision of approach and concepts (see Chirikure et al. 2017) is vital for articulating southern Africa's place in early global histories in ways that complement rather than undermine African agency and initiative.

From 500 CE onward, southern Africa was, via Indian Ocean maritime connections, intensely entangled through direct and indirect multidirectional exchange with regions of the world, including Asia and Europe (LaViolette 2008; Wood et al. 2012; Moffett and Chirikure 2016). Starting from the southwest to southeast, the circulation system coupled southern Africa with the Far East; south to north it linked southern Africa with the Middle East; and east to west it interconnected Asia and Europe. Bits and pieces of information gathered from archaeology, oral traditions, and rudimentary reports by Arab writers indicate that as mediated by local agency, southern Africa exchanged ivory, gold, iron, food, and bark cloth, among other items, in return for cloth (perhaps including silk), glass beads, and ceramics from the Indian Ocean World (Bhila 1982; Mudenge 1988; Pwiti 1991; Wood 2012). The system pooled together knowledge and resources from the interior of southern Africa and mixed them with maritime exchanges with China, India, Indonesia, Persia, and other Indian Ocean rim places (Biginagwa, Mapunda, and Ichumbaki 2021; Chirikure 2014; LaViolette and Fleisher 2005). While the identification of commodities that were exchanged is less challenging, the use and impact of those resources in both southern Africa and the Indian Ocean World still attracts controversy. The controversy flows from the speculation created by colonial narratives and core-periphery perspectives that argued that Asia, as the center, transmitted superior wealth and cultural innovations to passive recipients in the southern African margin. Indian Ocean elites, the narrative goes, introduced new preciosities such as glass beads to southern and eastern Africa, creating African elites who monopolized the distribution and redistribution of Indians Ocean World imports in the interior. This stimulated the rise of socio-political complexity and state formation in southern Africa (Huffman 1972, 2007; Pikirayi 2017). Meanwhile, African elites were supposedly happy to part with local resources to feed their conspicuous consumption, hardly translating proceeds into import substitution production (Killick 2009). The implication is that without Indian Ocean benevolence, southern Africa would have failed to develop states such as Mapela, Great Zimbabwe, Mapungubwe, and others. Unfortunately, this thinking resonates with late nineteenth-century and early twentieth-century views that attribute the origins of these places and their related cultural achievements to the physical presence of external people from the Middle East (Bent 1896; Hall

and Neal 1902). The Middle East and other regions of Asia are implicated by bringing in "wealth." With such a colonialist logic, references to Mapela, Mapungubwe and Great Zimbabwe, for example, as indigenous appear counterintuitive (Chirikure 2020a).

Admittedly, indigenous populations are not entirely ignored in colonialist and core-periphery narratives, but they are primarily viewed as subordinate exporters of resources such as gold and recipients of "superior objects" from the Asian or Indian Ocean World center. This Asia-centric construction of African history perpetuates "top-down" models of historical change, privileging objects from an imagined core that became an imagined source of change in the periphery (Feuchtwang and Rowlands 2020; Lightfoot and Martinez 1995; Wolf 1982). Worse still, the narratives rely on the macro picture. That is, a limited micro scale resolution is used to consider the frictions and interfaces prompted by the uptake of objects from other worlds within coastal and hinterland southern Africa. This omission is material because objects are spatially and temporally fluid, allowing them to create and permeate boundaries, establish categories, and seep through the same as they travel in and out of communities, space, and time from the coast to the interior and vice versa (Lightfoot and Martinez 1995; Prestdholdt 2008; Stahl 2002; Vis 2018).

What outcomes emerge, though, if the interactions between southern Africa and the Indian Ocean World, and by extension the Maritime Silk Route (MSR), are considered first from the inside (Africa side) and then from the outside (Indian Ocean World)? To answer the question, this chapter recasts early global histories and entanglements between southern Africa and the Indian Ocean rim from Africa-centered positions. It shows that local perceptions of wealth and prestige, definitions of imports (including those from within southern Africa), and locations of boundaries are totally at variance with colonialist and core-periphery logics. Furthermore, the contribution of African exotics to cultural change is overlooked. Within southern Africa, the coastal–hinterland interaction included in-between communities, prompting the strategic deployment of indigenous (African World) and Indian Ocean World objects by southern Africans to strengthen, not undermine, their preexisting hierarchies of social orders, prestige, and influence. In the process, worlds and boundaries were maintained, created, or re-created. Therefore, the consequences of these interactions were multisided, opportunistic, and everchanging. Conceptualized from a southern African perspective, the Maritime Ivory Route (to take one popular commodity in the exchange) then becomes a local alternative to phenomena labeled the MSR in Eurasian-centric narratives.

Definitions of Concepts: Exotics, Luxury, Value, Boundaries, Etc.

This section defines some of the fundamental concepts used in this chapter as some of them were traditionally understood from Euro-American perspectives that are not compatible with indigenous African meanings and contexts. Often, colonial archaeology and its neo-colonial residues apply templates drawn from elsewhere (Ogundiran 2016) to explain historical change in a region as diverse as southern Africa (Mbembe 2000). This distorted meanings and denied Africans historical initiative (Ndlovu 2016; Ndlovu-Gatsheni 2018). It remains uncontested that to date Africans, especially those working on the last two thousand years of the southern African past have never really been given a chance to speak for themselves, using local ways of knowing and cosmologies, even after the achievement of political independence (Ndoro 2001). They are expected to listen to Euro-American archaeologists, especially those who worked in the colony, follow models set by the colony and the neo-colony, even if their inappropriateness is well known (Bourdillon 1998; Lane 2011; McIntosh 1999). This motivates a reversal of that capture through concept revision (Chirikure et al. 2017).

Concerning concepts, the name exotics—defined and understood as imports, alien or foreign objects—has traditionally been applied to commodities from the Indian Ocean World and not to objects from southern Africa. And yet, with a size exceeding 6.8 million square kilometers (roughly the size of Australia), southern Africa is characterized by diversity and hosted communities that were variously organized as cities, states, and other options. Communities were separated by distance and boundaries, including the physical and sociocultural. Iron gongs and copper ingots made in Central Africa but found about two thousand kilometers south at Great Zimbabwe (Swan 2007) were considered exotics in the receiving community. They were imports originating in a foreign or distant place. By comparison, a distance of twelve-hundred kilometers separates London from Vienna, while objects from France, a territory separated from England by a mere thirty-four-kilometer-wide channel at Dover, are regarded as imports (Chirikure 2020a). This contrasting situation strongly implicates colonialism and negative ideas about (southern) Africa. Necessarily, discussions of foreign objects or imports ought to include those acquired through trade, exchange, or gifts from other African communities in different geographies and territories. Therefore, in this chapter a distinction will be made between Indian Ocean World and African World exotics.

Luxury is another useful concept, often solely associated with goods from the Indian Ocean World such as glass beads. Generally, economists define

luxury goods as those enjoyed by people with high levels of wealth. The application of this concept to a precapitalist economy may be inappropriate. However, their status as luxury goods change; they may become necessities or normal goods as time passes and as consumer income, taste, and demand transforms. Archaeological evidence attests to the presence of internal African luxury commodities such as ivory, metals, and, among others, bark cloth that were circulated in southern and Central Africa. Therefore, luxury is not only associated with the Indian Ocean World but also with African World commodities. Luxury is closely related to value or the worth of resources and objects derived from them. Value is however situational and in ancient Africa—the worth of objects was often determined on a per transaction basis (Guyer 2004). All objects—regardless of categories such as luxury or ordinary—can store value and can be exchanged for similar or different objects of more or less value, depending on need (Stahl 2015). Based on context, cattle, land, metals, and salt, among others, were stores of value—possessing them was like "having money in the bank" in that they could be exchanged for other things when the need arose. Cattle could multiply with time, giving more value to the owner. Not surprisingly, these African objects performed the role of a "currency"—a form in which goods were exchanged to satiate individual or collective needs. Because of its sheer size, southern Africa had multiple, everchanging physical, social, and economic boundaries. Indian Ocean World interactions with a region involved relationships with a heterogenous entity. This also makes it inappropriate to single out a single place such as Chibuene, Mapungubwe, or Great Zimbabwe as representing a region larger than Australia. The coloniality inherent in such thinking and the continued marginalization and misapplication of African thoughts by some in southern Africa motivates a recentering of historical change, from being externally pivoted to one where the region had agency in determining how it interacted with the wider Indian Ocean World, including the MSR.

The First Millennium CE Economy in Southern Africa

Traditionally, the history of interactions and interchanges of ideas and objects between southern Africa and the wider Indian Ocean World has not paid adequate attention to the local economy in the former before and after entanglement with the latter. The oversight is fundamental because it fueled the production of skewed histories that undermine local agency by creating the impression that southern Africa only started societally transformative production and circulation with the advent of linkages

with the Indian Ocean trade and the MSR. Generally, archaeological studies of southern Africa bifurcate indigenous populations into farmers and hunter-gatherers (Mitchell 2002; Phillipson 2005; Pwiti 1996; Schoeman 2020). Farmers migrated southward from Central Africa, making a distinctive type of pottery, cultivating crops, and making metal while living in permanent homesteads. By comparison, hunter-gathers are assumed to represent continuities from the Later Stone Age and were ideologically different from the farmers. Regardless of the differences, Wilmsen (1989) exposed a long history of multidirectional interactions between farmers and hunter-gatherers, showing a deep entanglement beyond what labels allow.

Before and after farmers, there was a vibrant and diverse economy in existence in southern Africa. Hunter-gatherers exchanged beads made from ostrich eggshells, seashells, game meat, animal skins, and, among other objects, the pigment specularite (Fe_2O_3) over long distances (Mazel 1989; Mitchell 1996; Wilmsen 1982). Between 400 and 1000 CE, farmers were established in parts of southern Africa and had a working economy. Details are sketchy, but exchanges involved, among other items, grains, cattle, ores, and metals (Pwiti 1991). This exchange was multidirectional and connected areas in the region—from north to south of the Zambezi River, from north to south of the Limpopo River, and from the Indian Ocean into the interior. In current-day South Africa, the KwaZulu-Natal region was linked with communities on the highveld, thus connecting coastal with highland communities (Maggs 1994; Mazel 1989). In what is now modern-day Botswana, trade in cattle was highly developed, as it was in other parts of the region (Denbow 1984; see also Garlake 1978). Commodities that were exchanged were regarded not as autochthonous but as alien by the receiving communities (Mitchell 1996). However, the economy involved both farmers and hunter-gatherers, which shows interdependence (Forssman 2020; Hall and Smith 2000). Evidence from archaeological sites in the Thukela Basin of South Africa includes that farmers exchanged beads made from ostrich eggshells with hunter-gatherers and with copper producers based far from the coastal areas (Maggs 1994; Mitchell 1996). Wilmsen (1989) made similar observations about Botswana: the economy involved everyone—farmers and hunter-gatherers—over short and long distances. Suggestions too are that by the close of the first millennium CE, communities in Botswana were linked to those in current-day Democratic Republic of the Congo with long and deeply established internal African connections (Rademakers et al. 2019; Stephens et al. 2020). Ivory was used, traded, and exchanged in the region from 600 CE onward, before the intensification of trade with the Indian Ocean World (Denbow, Klehm, and Dussubieux 2015; Reid and

Segobye 2000). Large-scale evidence for local ivory production and use was recovered from coastal sites in KwaZulu-Natal, proving the established nature of the craft for internal consumption (Coutu et al. 2016).

Salt is another resource whose production and distribution connected multiple communities in southern Africa over short and long distances (Beach 1974; Denbow, Klehm, and Dussubieux 2015; Reid and Segobye 2000). Antonites (2016) discusses salt production and circulation in the lowveld of South Africa in the late first and early second millennium CE. The salt was produced by small groups of people, who then circulated in other areas. Beach (1974) also highlighted an intricate historical trade in salt (seventeenth to nineteenth centuries) based in current-day southeastern Zimbabwe and adjacent areas. The salt was exchanged for goats, chickens, iron objects, and other commodities. Traders often visited salt production areas where exchanges took place, and the surplus accumulated as wealth for the salt producers. In addition, the famed Njanja iron smelters exploited the Hwedza ores in Zimbabwe, and the iron spread to regions as far as two hundred to three hundred kilometers away (Chirikure 2006; MacKenzie 1975). The smelters established a hierarchical confederacy sustained by surplus from the trade and exchange. Phalaborwa and Musina were active sites in southern Africa for copper and iron production and their trade (Mathoho et al. 2016; Moffett 2017; Thondhlana 2013). The surplus was generated within and outside social formations such as state-level society (Chirikure 2018). A number of southern African archaeological sites, such as Great Zimbabwe, Danamombe, and Thulamela, have yielded iron gong artifacts assumed to have been produced in Central Africa. Copper was another commodity that was produced in Central Africa and circulated as far south as Great Zimbabwe (Swan 2007). Tin, too, was a metal that was exchanged in regions to the north and south of the Limpopo River (Grant 1999). This supports the observation by Coquery-Vidrovitch (1969) that these regions could circulate everyday and precious objects without inter-continental trade. Indeed, as Herbert (1984) highlighted, copper was a local luxury (see also Nikis and Livingstone-Smith 2017; Rademakers et al. 2019), as was cattle, and the inventory of African luxuries was large. Depending on where these resources were sourced within the region, they were defined as imports or exotics (Mitchell 1996). During the period between 500 and 800 CE, evidence exists that there were only limited exchanges involving objects from the Indian Ocean World. This highlights the skewed nature of historical narratives that assume that foreign and luxury objects are only from the Indian Ocean World while undermining the commonsense view that local people consumed local luxuries, such as the ivory bangles

recovered at multiple sites in the region, including in Mosu, Kaitshaa and KwaGandaganda (Coutu et al. 2016; Reid and Segobye 2000).

   In summary, and although requiring more work, it is clear that in the first and second millennium CE, southern Africa had a complex economy that involved both farmers and hunter-gatherers. The commodities traded included specularite (used as pigment), iron ores, beads made from ostrich eggshells, cattle, goats, chickens, grains, and perhaps labor. Some European observers describe objects used as currency, such as cattle, iron hoes, and copper ingots, among many others, because they were mediums of exchange (Bhila 1982; Mudenge 1988). The exchanges created surpluses that were used in locally mediated ways. Concurrent with the intensification of this regional trade was also an increase in the size of settlements by the late first millennium CE. The economies could sustain these growing populations, and they were diversified to buffer against risk. The power of these local and regional economies must not be underestimated. Indeed, Coquery-Vidrovitch (1969) showed that without foreign objects from the Indian Ocean World, long-distance trade and regional economies produced surplus that created indigenous-birthed inequality and state formation in Central Africa. This ability of local and regional exchanges to stimulate historical change in Africa is rarely factored into colonialist and core-periphery models that privilege the Indian Ocean World. Furthermore, as Wilmsen (1989) has continually showed, farmers and hunter-gatherers were involved together in complex social, economic and political systems. The next section presents a synopsis of the evidence of interactions between southern Africa and the Indian Ocean World. Thereafter, a synthesis and discussion will be proffered to articulate Africa-centered perspectives on southern Africa's engagement with the Maritime Ivory Route versus the MSR (if we are to adopt different terminology).

Southern Africa–Indian Ocean World Interactions and Exchanges: The Evidence

What is the earliest known evidence of interconnections between southern Africa and the Indian Ocean World? Available evidence suggests that since deep time, the interior of southern Africa had an active network with the coast. Exchanges of objects increased in frequency over time (Mitchell 1996); and in the first few centuries of the first millennium, evidence shows that some farmers trekked southward from East Africa following the coast (Maggs 1994; Phillipson 2005). With the understanding that the coast is

part of southern Africa, this section discusses exchanges between the region and the wider Indian Ocean World, including India, China, and other parts of Asia. So far, there is no evidence of local production of glass in southern Africa, thus glass beads represent some of the earliest evidence of interactions between southern Africa and the Indian Ocean World (Mudenge 1988; Pwiti 1991, 2005; Wood 2012). The earliest known beads—Chibuene series—were found at the coast and in a few places in the interior (Denbow, Klehm, and Dussubieux 2015; Wood et al. 2012). These beads were followed by types known as Zhizo, K2/Mapungubwe, Zimbabwe, and Khami, with European beads becoming prevalent only from the nineteenth century onward (Koleini et al. 2017; Robertshaw et al. 2010; Wood 2012). In southern Africa, Indian Ocean World beads were melted to produce new and bigger beads known as Garden Rollers. These have been recovered from numerous sites, including, among others, in K2 in the Limpopo Valley, Great Zimbabwe, Kaitsaa in Botswana, and Zambia. To date, the highest number of Garden Rollers comes from Period II levels (early second millennium CE) in Great Zimbabwe. This shows that the agency and technology to rework objects from another region into new forms with new meanings was pervasive in the region. While scholars rarely pay attention to pyrotechnology, the Danamombe ruins (1450–1820 CE) (Machiridza 2020) yielded evidence of remelting glass beads, which shows continuity in this practice.

Ceramics are another category of remains from the Indian Ocean World found at the coast and in the interior of southern Africa. These include stoneware, celadon pottery, and porcelain (Pikirayi 2017). The earliest appear to be ceramics from the Middle East recovered from sites such as Chibuene in Mozambique. Most of the ceramics were found in interior sites by antiquarians, and at a time when standards of excavations and ethics were different from those of the present. A free-for-all atmosphere by early colonialists means that it is difficult to make an accurate count of the total numbers of ceramics recovered. Garlake (1968) attempted to count the fragments of Indian Ocean World ceramics recovered from late first millennium and second millennium CE sites in southern Africa, and he concluded that although the range covered long temporal and spatial spans, the numbers were very low. For its size, Great Zimbabwe yielded less than 100 fragments of porcelain. Factoring in new discoveries made to date, the numbers do not exceed 130 (Chirikure 2020a). The Mapungubwe site yielded only two fragments of celadon. Other sites such as Khami produced imported ceramic fragments but also in considerably small numbers (Mukwende et al. 2018). The only sites that included imported ceramic fragments in the thousands are in the Portuguese trading sites in northern Zimbabwe, such

as Dambarare (Garlake 1968). Fragments of Islamic frit ware were also found at Great Zimbabwe, along with pieces of Islamic glass. There is an eclectic assortment of objects recovered from the Renders Ruin at Great Zimbabwe, including, among many other objects, a bronze bell, a lamp holder, and a jade teapot that Garlake (1973) interpreted as gifts brought by a trader to open the path for trade and exchange. On a temporal scale, the number of Indian Ocean World ceramics and objects remained very low until the Portuguese trading settlements of the sixteenth and seventeenth centuries. The reason why the frequency is so low has to do with lack of local interest and not that the ceramics were rarities with high values. This is because they were recovered in high numbers at the coast and from Portuguese trading settlements in the interior but not in African settlements showing differences in tastes, values, and interests (Chirikure 2014).

Cloth is yet another category of Indian Ocean World objects imported into southern Africa. Because it is perishable, not much is known about the types of cloth, and while it is tempting to speculate that silk would have been included, there are no descriptions of the names and types of cloth locally known as *machira* in historical records (Mudenge 1988). The speculation gets some support from the fact that Chinese objects were also found in Great Zimbabwe and other sites; however, southern Africa had its own cloth-making industry, as shown by the recovery of spindle whorls in places where commoners or elites lived (Antonites 2019; Ruwitah 1999. There are also finished metals objects that were traded between the Indian Ocean World and the African interior. The Chibuene site yielded some finished objects, and ongoing studies of crucibles excavated by Paul Sinclair are pointing toward a well-developed craft production system based on working copper in the first millennium CE. Furthermore, Indian Ocean World bronze, brass, and iron objects were recovered from the interior of South Africa that date from the late first millennium into the second millennium CE (Bandama et al. 2016; LaViolette 2008; Miller 2002). The intensification of trade and exchange with the Indian Ocean World saw an increased presence of seashells into the interior of Africa. The types are varied and include cowry shells and conus species (Moffett, Hall, and Chirikure 2020).

An interesting but poorly studied topic relates to the routes and mechanisms by which people, objects, and information traveled between hinterland and coastal southern Africa. Evidence at the coast, such as at the Chibuene site, suggests the existence of trading entrepôts in first millennium CE. The intensification of trade and exchange with the Islamic World saw the shift of activities from earlier entrepôts like Chibuene to Sofala in Mozambique

and other places (Pikirayi 2017; Wood et al. 2012). The limited available data and the large swathes of territory that remain archaeologically unexplored make it difficult to reconstruct the routes through which commodities, ideas, and people flowed from the interior into the coast and vice versa. There are several possible theories, however, and the first is that traders would have followed long-established routes used by hinterland and coastal communities (Mitchell 1996). The second is that communities at the coast or in the interior would have exchanged commodities with the nearest communities, resulting in a relay from the interior into the coast and vice versa (Chirikure 2017). A third theory is that traders followed rivers to the coast and back, making major rivers such as the Zambezi, Pungwe, Save, and Limpopo vital parts of their routes. Trade and exchange would have followed communities and areas where resources and their production took place, so the routes must have been multidirectional and branched into settlements and areas of resource production. While comprehensive data is still missing, we do know that the distribution of Indian Ocean exotics in the interior is variegated. For example, Chibuene glass beads were recovered in current-day Botswana and at the coast, but not in other in-between places. Rather than a quixotic existence of routes, as suggested by Western and Westphalian notions of command, multidirectional traffic is attested by the wide dispersal of Indian Ocean World exotics in multiple southern African areas (Chirikure 2018).

The quantities of objects from the Indian Ocean World appear to increase in frequency in the interior after the second millennium CE, although Swahili settlement sites on the coast of East Africa have yielded evidence of a stronger presence of imported Near and Far East ceramics. This indicates a higher level of imports than in the interior (Chirikure 2014; LaViolette 2008). This begs the question: What was the role of Indian Ocean World exotics in African communities in the interior? Evidence suggests it was context dependent. First, some exotics were given local names; for example, glass beads became *zvuma* (plural) and cloth became *machira* (plural). Glass beads were used as decorative items, attached to items of dress, used on accessories related to spiritual and religious activities, as well as in more private activities such as sex (Moffett and Chirikure 2016). Zvuma applied to beads made from ostrich eggshells as well as other types of beads. Cloth was used to make wearables for both the rich and the poor. Depending on local material culture, items from the Indian Ocean World sometimes functioned as social and gender status symbols (Norman 2015; Stahl 2015) but sometimes as mundane objects. Given that everyone could access Indian Ocean exotics, it was the wearer who made objects significant and prestigious. For example, a brass bangle

won by the king was more symbolic than a bangle of the same type and shape worn by a commoner (Moffett and Chirikure 2016). Therefore, always associating glass beads with luxury, prestige, and high status without any context may be inaccurate (Chirikure 2014). Equally misleading is the idea that Indian Ocean World imports such as glass beads were also currency and therefore were the only stores of value. This is because iron, copper, ivory, and salt were used as mediums of exchange, and thus as currency with value (Chirikure 2020b). The nature of the economy was such that goods were bartered for other goods. It should be noted here that value and luxury were not reserved categories for Indian Ocean World objects but also applied to African World resources in the interior.

Models based on core periphery and that are Asia-centric argue that Indian Ocean World exotics were luxuries whose distribution generated surpluses then monopolized by elites (Denbow, Klehm, and Dussubieux 2015; Huffman 2007; Pikirayi 2017). Yet Beach (1974) has shown that local exchange included local luxuries that also generated surplus that added to social and economic hierarchies (see also Coquery-Vidrovitch 1969). More importantly, frameworks centered on the Indian Ocean World rarely define "surplus" and "luxury" or offer adequate measures of such variables. According to Morehart and De Lucia (2015), surplus refers to goods that exceed functional needs of different social units. While no universal definition of surplus may be possible, is it appropriate to label the MSR items recovered from Great Zimbabwe, such as a whole Chinese jade teapot (n: 1), Near (n: 2) and Far Eastern ceramics (n: less than 130) as surplus and as wealth (Chirikure 2020b)? It is difficult to envisage the objects as politically charged commodities that defined and reinforced systems of social rank in which the political economy operated (Brumfiel and Earle 1987). While such imports might have been gifts from traders that then became possessions of the high-ranking giftees (Weiner 1985), lesser-order settlements, and nonelite (commoner) homesteads also had variable amounts of exotic goods. This demonstrates that imports should neither always be equated with surplus wealth (Moffett and Chirikure 2016) nor always be associated with the elite. A quantitative comparison of the frequency of glass beads at commoner and elite sites in the Shashi-Limpopo Valley failed to find significant differences (Wood 2012). Outside of burial contexts, the number of glass beads recovered from sites that archaeologists classified as belonging to common people were quantitatively comparable to those from places interpreted as belonging to elites.

Inland–coastal interactions in southern Africa were multidirectional and involved a large array of imports from the Indian Ocean and African Worlds. However, an unmitigated tendency to value the role of such exotics

using Anglo-American, colonial, and Western value systems undermined African imports and luxuries in historical narratives. Hinterland-coastal exchanges were comprised of social networks informed largely by resource availability and needs in different areas. This created complicated networks of circulation that were nonlinear and multidirectional. The way in which Indian Ocean World exotics were incorporated locally cut across traditional exotic–luxury and indigenous–mundane boundaries. The social biography of beads (whatever their name was in areas of production) from producer regions such as India involved crossing into a southern Africa cultural space (Chirikure 2014). This shows that boundaries were permeable but also conditioned by existing cultural logics (Lightfoot and Martinez 1995). The name of cloth too did not reference its foreign source; it was simply machira, which did not distinguish it from cloth made from local fibers. This localization of alien material culture coming from faraway places shows that the meaning and value systems were locally centered, and this applied to exotic objects and resources acquired from great distances that circulated all over southern Africa (Chirikure 2020b; Mitchell 1996). The entangled nature of values and the use of southern African objects and Indian Ocean materials invites a fresh discussion from a nuanced position based on this local agency. This is the focus of the next section.

Southern Africa–Indian Ocean Circulations: From the Maritime Silk Road to the Maritime Ivory Route

Connections between southern Africa and the Indian Ocean World have long attracted interest in archaeological studies, in both colonial and post-colonial times. The interest, however, was dominated by models that were colonially inclined and core-periphery centered. These models allocated more agency and social and economic powers to Indian Ocean World items and their imagined status as preciosities than to local commodities and objects (Caton-Thompson 1931; Denbow, Klehm, and Dussubieux 2015; Huffman 2007; Pikirayi 2017). Consequently, Indian Ocean trade and the MSR are traditionally considered more vital in terms of their transformative power than the localized or long-distance trade and exchange involving foreign and local objects from within southern Africa. The implication of such a viewpoint is that luxury, prestige, wealth, and transformative value were associated only with Indian Ocean products. Such a narrative is an artifact of the colonial origins of southern African archaeology, which set up the refractory Eurasian-centric scholarly trajectory. The evolution of the

archaeology of interaction between the Indian Ocean World and southern Africa shows that Indian Ocean World imports were traditionally implicated in the rise, flourish, and decline of states such as Great Zimbabwe. This belief was initiated by antiquarians and expanded by successive generations of archaeologists. For example, Bent (1896) and Hall and Neal (1902) used exotics as evidence that Great Zimbabwe was not built by locals, while Randall-MacIver (1906) and Caton-Thompson (1931) argued that the imports played a prominent role in the emergence of Great Zimbabwe. This argument, dressed in Western prejudice, was propagated by cohorts of colonial archaeologists, including those who continued to work in postcolonial times. It is only of late that writing African history from the point of Africa to understand global exchange became imperative (Manyanga and Chirikure 2017; Ndoro 2001).

A desire to write overlooked histories and highlight local African agency is often misunderstood as taking Africa out of global history. Some scholars abuse the peer-review platform to label attempts to restore agency to African communities as political, nationalist, and tribal. The desire to perpetuate colonial privilege remains strong, which is why it is vital that we recast global history by acknowledging African people as powerful and thinking agents who contributed to world history from their own perspective and in their own way (Feuchtwang and Rowlands 2020; Wolf 1982). Obviously, this is not the subordinate, passive status that colonial and core-periphery models have long used. The process of writing global history by building on local perspectives highlights essential issues. For example, people do not trade only for profit, gain, or surplus; they do so also to fulfill social obligations and to build (or rebuild) social relations (Mauss 1925). There is no need to impose a presentist, capitalist logic onto precapitalist societies, in which everything is seen as motivated by profit, wealth, and or conspicuous consumption. Another prejudicial omission from traditional and colonial interpretations relates to the role of local and regional resources as luxury and wealth, and how they contributed to the economic history of southern Africa over the past two thousand years. Furthermore, exotics are imported not only as luxury or elite objects; they can be necessities or for mundane use. This motivates new histories aimed at correcting these salient but overlooked points.

A critical reassessment of the available evidence shows that when the Indian Ocean World trade bloomed, southern Africa was already involved in diversified and multilayered internal trade that involved ordinary objects such as salt, honey, animal skins, cloth, iron, copper and beads made from ostrich eggshells. Hunter-gatherers and farmers were interconnected, as were farmers with each other in different areas of the region (Antonites 2016; Beach 1974; Maggs 1994; Mazel 1989; Mitchell 1996; Pwiti 1991; Reid

and Segobye 2000; Wilmsen 1989). The trade and exchange systems involved everyday items, preciosities, and luxuries (Bhila 1982). Various distribution mechanisms were in operation, including itinerancy; that is, people traveling from village to village and area to area moving resources such as salt. In other circumstances, communities exchanged resources with nearby communities. Contra colonialist and core-periphery narratives, southern African exchanges of ordinary and luxury objects improved the social, economic, and political standing of producers, distributors, and consumers alike. Those with the skills, talent, and knowledge to work with these raw resources gained prestige, wealth, and political advantages (Guyer and Belinga 1995). This system evolved in complex ways and was in existence millennia before European colonialism (Moffett and Chirikure 2016; Mitchell 1996; Mudenge 1988).

When long-distance trade with the Indian Ocean World began around 500 CE or shortly thereafter, it tracked with existing networks (Mitchell 1996). As Maggs (1994) has shown, inhabitants of coastal and interior southern Africa had specialized economies by the mid-first millennium CE. New and existing objects were circulated and easily fit into cultural logics and understandings (Chirikure 2014). For example, imports of cloth from the Indian Ocean World were vital in the interior, even though it already had bark cloth (Mudenge 1988). Or while copper and its alloys were imported from the Indian Ocean World, southern Africa already had copper. The exchange in glass beads followed a long trajectory that had been established by shell and other types of beads (Mitchell 1996). Glass beads added colors that resonated with established cultural practices (Chirikure 2014). Other objects, however, such as celadon pottery, porcelain, Islamic fritware pottery, and glass have generally not been found in abundance at sites.

Little is known about the mechanics of distribution involved in Indian Ocean World exotics moving from South Africa's coast into its interior. It is logical to assume that imports fit into existing distribution networks of circulation from the coast into the interior and further inland. Communities between the coast and the interior often acted as intermediaries. For example, Tsonga (parts of Mozambique, northeastern South Africa, and Southeastern Zimbabwe) traders circulated products from the interior to the coast and back (Bandama 2013). Clearly, a long network of overland circulation fed into the MSR and Maritime Ivory Route and vice versa. The waters connected people on opposite shores, near and far.

As mentioned earlier, since colonial times, investigations into reconstructing circulation systems for objects from the Indian Ocean World have concentrated on the impact of Indian Ocean items on the receiving

communities of southern Africa. These studies assumed every import was a luxury with perceived benefits to elites, not ordinary people. The reality is that Indian Ocean World items such as glass beads were associated with everyone, commoners and elites alike. This rebuts the argument—which goes as far back as Randall-MacIver (1906) and Caton-Thompson (1931)—that exotics from the Indian Ocean World represented a new form of storable surplus wealth that traditional local options such as cattle could not achieve (Huffman 1972, 2007). The wealth gained from monopolizing exotics was allegedly converted into political power, thereby stimulating the emergence of Indigenous states such as Mapungubwe. This thinking is partly a leftover from colonial archaeology and anthropology that took away agency from locals and locally produced goods, and it is fraught with omissions and contradictions. For example, the African long-distance internal exchange of copper between southern Africa and Central Africa was supposedly needed for state formation and development of social ranks and hierarchies (Coquery-Vidrovitch 1969; Nikis and Livingstone-Smith 2017). A logical question then becomes, given that trade involved the same groups of people (that is, Bantu, San, and a mixture of both), why did intra-African long-distance trade and other factors stimulate the development of hierarchies and class distinction in Central but not southern Africa? As argued earlier, exchange with the Indian Ocean World came at a time when southern Africa was undergoing fundamental transformations and development of social hierarchies and class distinction. Indian Ocean World imports were simply additives but not primary drivers of transformative processes. Furthermore, the definition of wealth and luxury in capitalist and colonial terms is different, so the assumption that all Indian Ocean World exotics were luxuries is not accurate. Honey, for example, was a luxury in some southern African contexts yet widely exchanged in the region (Wilmsen 1989). Given these challenges with existing frameworks, it is vital to rewrite the trade history of southern Africa by factoring in the contributions of both everyday local and luxury items when discussing Indian Ocean World imports in order to produce a balanced history.

Equally, the application of core-periphery thinking has hindered an understanding of wealth and luxury in local value systems (Killick 2009). Asia and the wider Indian Ocean World is generally considered as the center of distributed finished objects to the southern African periphery, which in turn supplied raw materials such as gold. Thus, these objects, including those distributed as part of the MSR, are assumed to be politically charged, which supposedly explains the rise of an indigenous elite in the south African interior. Asia and the wider Indian Ocean World are also credited with

introducing knowledge of gold, tin, bronze, and brass working to southern Africa in the early second millennium CE (Miller 2002). However, not only is the timing of innovations such as the advent of gold production poorly dated but also the mechanics of the introduction are not clear. Current evidence suggests that by around 1000 CE, gold was being worked in states such as Great Zimbabwe, and by 1200 CE it was worked in several other places (Bandama et al. 2016). The first location where gold was used—either at the coast or interior—is not known, and perhaps it will never be known. Nevertheless, it makes sense that information and knowledge exchange occurred in multiple forms. Archaeological knowledge tracks discoveries, which raise vital questions. In this case, what did southern Africa get in exchange for iron, ivory, and other resources before the introduction of gold around 1000 CE? Why did gold come afterward? Could it be that its adoption was gradual and only become evident after 1000 CE? These unanswered questions require new research into the possibility that gold, tin, and bronze exchanges were already occurring by about 800 CE, or a few centuries after the inception of Indian Ocean World trade (around 500CE).

The marginalization of local concepts of luxury and their replacement with European notions in reconstructions of southern Africa–Indian Ocean interactions are magnified by this elevated status of gold. There is no doubt that compared to exchanges that involved iron and copper, gold was a later addition (Miller 2002). However, most archaeological gold fragments have been recovered from sites that archaeologists associate with elites. Indeed, Mapungubwe became an important site because it yielded spectacular gold objects weighing a combined 2.3 kilograms from burials on the summit of the hill. Occasional gold beads were also recovered in midden deposits (rubbish dumps). The Eurocentric nature of knowledge is also clear from descriptions of the Mapungubwe gold as "crown jewels." This biased and Euro-American centric language prompts yet further questions. Why bury crown jewels with an individual? Were these personal possessions that became inalienable possessions? Were not objects associated with power to be handed from one leader to the next, such as knobkerries (a stick with a knob at the top) and ceremonial axes (Mudenge 1988)? Hall and Neal (1902) provide an inventory showing significant amounts of gold recovered from a large number of other sites besides Mapungubwe, some of which chronologically overlap with Mapungubwe. This gold weighed several kilograms and was in some cases more than that recovered from Mapungubwe, but it was stolen by treasure hunters and lost forever from scholars. Understood in this way, discussions of Mapungubwe gold by most archaeologists lack a regional and historical context and therefore appear to be opportunistic. Some elite sites have

yielded significant amounts of gold, but the history of looting precludes us from performing a systematic comparison of the quantities of gold from looted and unlooted sites (Hall and Neal 1902). In terms of value systems, Herbert (1984) made the interesting observation that copper was more valuable than gold. Even after start of exchanges with the Islamic and other Indian Ocean Worlds, copper continued to be more valuable than gold. That is why copper was traded, either directly or indirectly, over long distances. If the locals valued copper more highly than gold, why do we attach more significance to places that yielded some gold remains as compared with more copper? This has to do with the colonial and Eurocentric values attached to gold by some archaeologists. And colonies—such as what became Southern Rhodesia (Zimbabwe)—were established on the basis of perceived wealth in gold. Colonial archaeologists, including those who continue to work in the postcolony, carry on with the trope. Copper was currency, but so was iron and salt, among other items. Clearly, the interactions between southern Africa and the Indian Ocean World must be framed in less biased ways to show the history of the people of South Africa more accurately (Wolf 1982).

Conclusion

Conceptually, the major problem is that the history of interaction and interchange of ideas within southern Africa and between inland southern Africa and the Indian Ocean World has been narrated from the outside looking in. The implication so far is that in the interactions and interchanges of ideas, inland communities were happy to part with their gold and ivory in return for glass beads and imported ceramics, and that coastal communities were keen to act as conduits for inbound and outbound flows of commodities. These colonialist views and embedded core-periphery thinking promoted insular models of sociocultural transformation that treat southern Africa as a homogenous and passive recipient of core innovations. Considered from inside, however, there is a great deal of agency, diversity of practices, and initiative involved. Africans had their own sense of luxury, understandings of exchange, and boundaries between the everyday and the specialized. The biased nature of traditional scholarship is that David Livingstone reported that glass beads were used as currency. Archaeologists then interpretated that they were stores of value, or "money in the bank," not matched by local goods (Denbow, Klehm, and Dussubieux 2015; Huffman 2007). However, countless European observers noted that iron (MacKenzie 1975), copper (Stayt 2018), salt (Bhila 1982), and cattle were also used as currency and

thus were "money in the bank." There is no logical reason to sustain an argument that privileges glass beads over many other local stores of value.

The most important question then becomes: Who is best served by continuing the existing colonialist knowledge that marginalizes African communities? The knowledge is colonialist-based because it uses local ethnographies and oral traditions to produce narratives that oppress local initiatives under the pretense of adherence to superior models and dubious scientific methodologies (Beach 1998). As noted earlier in this chapter, it is important to clarify that Africans were not involved with the archaeological research that formed and crystallized the biases of Euro-Americans through-out the colonial period. When Africans finally joined the research, they followed a path that was already set, mimicking the colonialist orientation and biased nature of core-periphery perspectives. It was only later, after the huge chasm between lived experience and these models became evident, that the need to produce restorative histories was magnified. Applying local history in a locally grounded framework to build global history is vital because it gives attention to overlooked areas. This is also important for another reason: concepts such as the MSR produce Sinocentric histories, which simply relocates an imagined core from one region of the world to another. Rather, multiple resources, ideas, and people were involved in interactions within Africa and around the Indian Ocean World. To highlight silenced histories and to magnify the legacies of colonial and racist structures of power in their ongoing and evolving forms, it is vital to write the history of southern Africa's interaction with the Indian Ocean from the inside. Reversing the perspective directs more attention to African contributions and places Africans in the center as active participants interacting with those on the other shore. Their interactions ought to be named differently to highlight their diversity of and to emphasize overlooked histories. The Maritime Silk Road then becomes the Maritime Ivory Route with Africa being actively involved and dynamically contributing to historical change.

Acknowledgments

References

Antonites, Alexander. 2016. "The Organization of Salt Production in Early First Millennium CE South Africa." *Journal of Anthropological Archaeology* 44:31–42.

Antonites, Alexander. 2019. "Fiber Spinning during the Mapungubwe Period of Southern Africa: Regional Specialism in the Hinterland." *African Archaeological Review* 36 (1): 105–117.

Bandama, Foreman. 2013. "The Archaeology and Technology of Metal Production in the Late Iron Age of the Southern Waterberg, Limpopo Province, South Africa." PhD diss., Department of Archaeology, University of Cape Town.

Bandama, Foreman, Abigail. J. Moffett, Thomas Panganayi Thondhlana, and Shadreck Chirikure. 2016. "The Production, Distribution and Consumption of Metals and Alloys at Great Zimbabwe." *Archaeometry* 58:164–181.

Beach, David Norman. 1974. "The Shona Economy: Branches of Production." Working paper, Henderson Research Seminar Series, History Department, University of Rhodesia.

Beach, David Norman, 1998. "Cognitive Archaeology and Imaginary History at Great Zimbabwe." *Current Anthropology* 39 (1): 47–72.

Bent, J. Theodore. 1896. *The Ruined Cities of Mashonaland: Being a Record of Excavation and Exploration in 1891.* London: Longmans Green.

Bhila, Hoyini. H. K. 1982. *Trade and Politics in a Shona Kingdom: The Manyika and Their African and Portuguese Neighbours, 1575–1902* (Studies in Zimbabwean History). Harlow: Longman.

Biginagwa, Thomas J., Bertram B. Mapunda, and Elgidius B. Ichumbaki. 2021. "Multi-Directional Connectivity in Eastern and Southern Africa during the First and Early Second Millennia AD: Archaeological Evidence from Lupilo, Southern Tanzania." *Journal of African Archaeology* 19 (1): 72-89.

Bourdillon, Michael. F. C. 1998. Comments on David Beach "Cognitive Archaeology and Imaginary History at Great Zimbabwe." *Current Anthropology* 39 (1): 61.

Brumfiel, Elizabeth M., and Timothy K. Earle. 1987. *Specialization, Exchange, and Complex Societies.* Cambridge: Cambridge University Press.

Caton-Thompson, Gertrude. 1931. *The Zimbabwe Culture: Ruins and Reactions.* Oxford: Clarendon Press.

Chirikure, Shadreck. 2006. "New Light on Njanja Iron Working: Towards a Systematic Encounter between Ethnohistory and Archaeometallurgy." *South African Archaeological Bulletin* 61 (184): 142–151.

Chirikure, Shadreck. 2014. "Land and Sea Links: 1500 Years of Connectivity between Southern Africa and the Indian Ocean Rim Regions, AD 700–1700." *African Archaeological Review* 31 (4): 705–724.

Chirikure, Shadreck. 2017. "Documenting Precolonial Trade in Africa." In *Oxford Research Encyclopaedia of African History. Published Online.* https://doi.org/10.1093/acrefore/9780190277734.013.68

Chirikure, Shadreck. 2018. "Early Metallurgy and Surplus Without States in Africa South of the Sahara." In *Überschuss ohne Staat-Politische Formen in der Vorgeschichte: 10. Mitteldeutscher Archäologentag* 19 (21) October 2017 *in Halle (Saale)* 431–446. Halle: Landesmuseum für Vorgeschichte.

Chirikure, Shadreck. 2020a. *Great Zimbabwe: Reclaiming a 'Confiscated' Past* (Routledge Studies in African Archaeology and Cultural Heritage). Abingdon: Routledge.

Chirikure, Shadreck. 2020b. "New Perspectives on the Political Economy of Great Zimbabwe." *Journal of Archaeological Research*: 28:139–186.

Chirikure, Shadreck, Foreman Bandama, Michelle House, Abigail Moffett, Tawanda Mukwende, and Mark Pollard. 2016. "Decisive Evidence for Multidirectional Evolution of Sociopolitical Complexity in Southern Africa." *African Archaeological Review* 33 (1): 75–95.

Chirikure, Shadreck., Robert T. Nyamushosho., Herbert Chimhundu., Collet Dandara, Harvey Pamburai, and Munyaradzi Manyanga. 2017. "Concept and Knowledge Revision in the Post-Colony: Mukwerera, the Practice of Asking for Rain amongst the Shona of Southern Africa." In *Archives, Objects, Places and Landscapes: Multidisciplinary Approaches to Decolonised Zimbabwean Pasts,* edited by Munyaradzi Manyanga and Shadreck Chirikure, 14–55. Mankon, Bamenda: Langaa RPCIG.

Chirikure, Shadreck., Robert T Nyamushosho, Foreman Bandama, and Collet Dandara, 2018. "Elites and Commoners at Great Zimbabwe: Archaeological and Ethnographic Insights on Social Power." *Antiquity* 92 (364): 1056–1075.

Coquery-Vidrovitch, Catherine. 1969. "Recherches sur un mode de production africain." *La Pense* 144:61–78.

Coutu, Ashley N., Gavin Whitelaw, Petru Le Roux, and Judith Sealy. 2016. "Earliest Evidence for the Ivory Trade in Southern Africa: Isotopic and ZooMS Analysis of Seventh–Tenth Century AD Ivory from KwaZulu-Natal." *African Archaeological Review* 33 (4): 411–435.

Denbow, James. 1984. "Cows and Kings: A Spatial and Economic Analysis of a Hierarchical Early Iron Age Settlement System in Eastern Botswana." In *Frontiers: Southern African Archaeology Today*, edited by M. Hall, G. Avery, D. M. Avery, M. L. Wilson, 24–30 (Cambridge Monographs in African Archaeology 10, International Series 207). Oxford: BAR.

Denbow, James, Carla Klehm, and Laure Dussubieux. 2015. "The Glass Beads of Kaitshàa and Early Indian Ocean Trade into the Far Interior of Southern Africa." *Antiquity* 89 (344): 361–377.

Feuchtwang, Stephan, and Michael Rowlands. 2019. *Civilisation Recast: Theoretical and Historical Perspectives*. Cambridge: Cambridge University Press.

Forssman, Tim. 2020. *Foragers in the Middle Limpopo Valley: Trade, Place-Making, and Social Complexity*. Oxford: Archaeopress.

Garlake, Peter. S. 1968. "The Value of Imported Ceramics in the Dating and Interpretation of the Rhodesian Iron Age." *Journal of African History* 9 (1): 13–33.

Garlake, Peter. S. 1973. *Great Zimbabwe*. London: Thames & Hudson.

Garlake, Peter. S. 1978. "Pastoralism and Zimbabwe." *Journal of African History* 19 (4): 479–493.

Garlake, Peter. S. 1982. "Prehistory and Ideology in Zimbabwe." *Africa* 52 (3): 1–19.

Grant, Mike. R. 1999. The Sourcing of Southern African Tin Artefacts. *Journal of Archaeological Science* 26 (8): 1111–1117.

Guyer, Jane I., 2004. *Marginal Gains: Monetary Transactions in Atlantic Africa* (Vol. 1997). Chicago: University of Chicago Press.

Guyer, Jane I., and Samuel-Martin Eno Belinga. 1995. "Wealth in People as Wealth in Knowledge: Accumulation and Composition in Equatorial Africa." *Journal of African History* 36 (1): 91–120.

Hall, Martin. 1983. "Tribes, Traditions and Numbers: The American Model in Southern African Iron Age Ceramic Studies." *South African Archaeological Bulletin* 38 (138): 51–57.

Hall, Martin. 2005. *Situational Ethics and Engaged Practice: The Case of Archaeology in Africa*. In *Embedding ethics*, edited by Lynn Meskell and P. Pels, 169–194. London: Routledge.

Hall, R. N., and W. G. Neal. 1902. *The Ancient Ruins of Rhodesia: (Monomotapæ Imperium)*. London: Methuen & Company.

Hall, Simon, and Smith, Ben. 2000. "Empowering Places: Rock Shelters and Ritual Control in Farmer-Forager Interactions in the Northern Province." *Goodwin Series* 8:30–46.

Herbert, Eugenia W. 1984. *Red Gold: Copper Arts of Africa*. South Hadley, MA: Mount Holyoke College Art Museum.

Huffman, Thomas N. 1972. "The Rise and Fall of Zimbabwe." *Journal of African History* 13 (3): 353–366.

Huffman, Thomas N. 2007. *Handbook to the Iron Age*. Durban: University of KwaZulu-Natal Press.

Killick, David J. 2009. "Agency, Dependency, and Long-Distance Trade: East Africa and the Islamic World, ca. 700–1500 CE." In *Polities and Power: Archaeological Perspectives on the Landscapes of Early States*, edited by Steven Falconer and Charles Redman, 179–207. Tucson: University of Arizona Press.

Koleini, Farahnaz, Linda C. Prinsloo, Wim M. Biemond, Philippe Colomban, Anh T. Ngo, Jan C. Boeyens, and Maria M. Van der Ryst. 2016. "Towards Refining the

Classification of Glass Trade Beads Imported into Southern Africa from the 8th to the 16th Century AD." *Journal of Cultural Heritage* 19:435–444.

Lane, Paul. 2011. "Possibilities for a Postcolonial Archaeology in Sub-Saharan Africa: Indigenous and Usable Pasts." *World Archaeology* 43 (1): 7–25.

LaViolette, Adria. 2008. "Swahili Cosmopolitanism in Africa and the Indian Ocean World, AD 600–1500." *Archaeologies* 4 (1): 24–49.

LaViolette, Adria, and Jeffrey Fleisher. 2005. "The Archaeology of Sub-Saharan Urbanism: Cities and Their Countrysides." In *African Archaeology*, edited by Ann Brower Stahl, 392–419 (Blackwell Studies in Global Archaeology). Oxford: Blackwell Publishers.

Lightfoot, Kent G., and Antoinette Martinez. 1995. "Frontiers and Boundaries in Archaeological Perspective." *Annual Review of Anthropology* 24 (1): 471–492.

Machiridza, Lesley Hatipone. 2020. "Landscapes and Ethnicity: An Historical Archaeology of Khami-Phase Sites in Southwestern Zimbabwe." *Historical Archaeology* 54 (3): 647–675.

McIntosh, S. K., ed. 1999. *Beyond Chiefdoms: Pathways to Complexity in Africa*. Cambridge: Cambridge University Press.

MacKenzie, John. M. 1975. "A Pre-Colonial Industry: The Njanja and the Iron Trade." *Nada* 11 (2): 200–220.

Maggs, Tim. 1994. "The Early Iron Age in the Extreme South: Some Patterns and Problems." *Azania: Archaeological Research in Africa* 29 (1): 168–178.

Manyanga, Munyaradzi, and Shadreck Chirikure. 2017. "Archives, Objects, Places and Landscapes: The Multidisciplinary and Decolonising Imperative." In *Archives, Objects, Places and Landscapes: Multidisciplinary Approaches to Decolonised Zimbabwean Pasts*, edited by Munyaradzi Manyanga and Shadreck Chirikure, 1–14. Mankon, Bamenda: Langaa RPCIG.

Mathoho, Eric, Foreman Bandama, Abigail J. Moffett, and Shadreck Chirikure. 2016. "A Technological and Anthropological Study of Iron Production in Venda, Limpopo Province, South Africa." *Azania: Archaeological Research in Africa* 51 (2): 234–256.

Mauss, Marcel. 1925. *The Gift*. London: Routledge and Kegan Paul.

Mavhunga, Clapperton Chakanetsa 2017. *What Do Science, Technology, and Innovation Mean from Africa?* Cambridge, MA: MIT Press.

Mazel, Aron D. 1989. "People Making History: The Last 10,000 Years of Hunter-Gatherer Communities in the Thukela Basin." *Natal Museum Journal of Humanities* 1 (1): 1–168.

Mbembe, Achille. 2000. *On the Postcolony*. (Studies on the History of Society and Culture, Vol. 41). Berkeley: University of California Press.

McIntosh, S. K., ed. 1999. *Beyond Chiefdoms: Pathways to Complexity in Africa*. Insert city: Cambridge University Press.

Meskell, Lynn. 2011. "From Paris to Pontdrift: UNESCO Meetings, Mapungubwe and Mining." *South African Archaeological Bulletin* 66 (194): 149–156.

Miller, D. 2002. "Smelter and Smith: Iron Age Metal Fabrication Technology in Southern Africa." *Journal of Archaeological Science* 29 (10): 1083–1131.

Mitchell, Peter. 1996. "Prehistoric Exchange and Interaction in Southeastern Southern Africa: Marine Shells and Ostrich Eggshell." *African Archaeological Review* 13 (1): 35–76.

Mitchell, Peter. 2002. *The Archaeology of Southern Africa* (Cambridge World Archaeology). Cambridge: Cambridge University Press.

Moffett, Abigail J. 2017. "'Phalaborwa Where the Hammer Is Heard': Crafting Together the Political Economy of Iron Age Communities in Southern Africa, AD 900–1900." PhD diss., Department of Archaeology, University of Cape Town.

Moffett, Abigail J., and Shadreck Chirikure. 2016. "Exotica in Context: Reconfiguring Prestige, Power and Wealth in the Southern African Iron Age." *Journal of World Prehistory* 29 (4): 337–382.

Moffett, Abigail J., Simon Hall, and Shadreck Chirikure. 2020. "Crafting Power: New Perspectives on the Political Economy of Southern Africa, AD 900–1300." *Journal of Anthropological Archaeology* 59:101–180.

Morehart, Christopher T., and Kristin De Lucia. 2015. "Surplus: The Politics of Production and the Strategies of Everyday Life: An Introduction." In *Surplus: The Politics of Production and the Strategies of Everyday Life*, edited by Christopher T. Morehart and Kristin De Lucia, 3–44. Boulder: University Press of Colorado.

Mudenge, S. I. G. 1988. *A Political History of Munhumutapa, c1400–1902*. Harare: Zimbabwe Publishing House.

Mudimbe, V. Y. 1998. *The Invention of Africa: Gnosis, Philosophy, and the Order of Knowledge* (African Systems of Thought). Bloomington: University of Indiana Press.

Mukwende, Tawanda, Foreman Bandama, Shadreck Chirikure, and Robert T. Nyamushosho. 2018. "The Chronology, Craft Production and Economy of the Butua Capital of Khami, Southwestern Zimbabwe." *Azania: Archaeological Research in Africa* 53 (4): 477–506.

Ndlovu-Gatsheni, Sabelo J. 2018. *Epistemic Freedom in Africa: Deprovincialization and Decolonization*. Oxon: Routledge.

Ndlovu, N., 2016. "Old archaeology camouflaged as new and inclusive? South African community archaeology in the twenty-first century" In *Community archaeology and heritage in Africa*, edited by Peter R Schmidt and Innocent Pikirayi, 150–166, London: Routledge.

Ndoro, Webber. 2001. "Your Monument Our Shrine: The Preservation of Great Zimbabwe." PhD diss., Department of Archaeology and Ancient History, Uppsala University.

Nikis, Nicholas, and Alexandre Livingstone-Smith. 2017. "Copper, Trade and Polities: Exchange Networks in Southern Central Africa in the 2nd Millennium CE." *Journal of Southern African Studies* 43 (5): 895–911.

Norman, Neil L. 2015. "Surplus Houses: Palace Politics in the Bight of Benin West Africa, AD 1650–1727." In *Surplus: The Politics of Production and the Strategies of Everyday Life*, edited by Christopher T. Morehart and Kristin De Lucia, 203–220. Boulder: University Press of Colorado.

Ogundiran, Akin. 2016. "Collapsing Boundaries: A Continental Vision for African aAchaeology." In *African Archaeology Without Frontiers: Papers from the 2014 Panafrican Archaeological Association Congress*, edited by Karim Sadr, Amanda Esterhuysen, and Christine Sievers, xxix–xliii, Johannesburg: Wits University Press.

Phillipson, David W. 2005. *African Archaeology*. Cambridge: Cambridge University Press.

Pikirayi, Innocent. 2017. "Trade, Globalisation and the Archaic State in Southern Africa." *Journal of Southern African Studies* 43 (5): 879–893.

Prestholdt, Jeremy. 2008. *Domesticating the World: African Consumerism and the Genealogies of Globalization* (California World History Library, Vol. 6). Berkeley: University of California Press.

Pwiti, Gilbert. 1991. "Trade and Economies in Southern Africa: The Archaeological Evidence." *Zambezia* 18 (2): 119–129.

Pwiti, Gilbert. 1996. "Continuity and Change: An Archaeological Study of Farming Communities in Morthern Zimbabwe AD 500–1700." PhD diss., Department of Archaeology, Uppsala University.

Pwiti, Gilbert. 2005. "Southern Africa and the East African Coast." In *African Archaeology: A Critical Introduction*, edited by Ann Stahl, 378–391. London: Blackwell.

Rademakers, Frederik W., Nicolas Nikis, Thierry De Putter, and Patrick Degryse. 2019. "Provenancing Central African Copper Croisettes: A First Chemical and Lead Isotope Characterisation of Currencies in Central and Southern Africa." *Journal of Archaeological Science* 111:105010.

Randall-MacIver, David. 1906. *Mediaeval Rhodesia*. London: Macmillan.

Reid, Andrew, and Alinah Segobye. 2000. "Politics, Society and Trade on the Eastern Margins of the Kalahari." *South African Archaeological Society Goodwin Series* 8:58–68.

Robertshaw, P., M. Wood, E. Melchiorre, R. S. Popelka-Filcoff, and M. D. Glascock. 2010. "Southern African Glass Beads: Chemistry, Glass Sources and Patterns of Trade." *Journal of Archaeological Science* 37 (8): 1898–1912.

Ruwitah, A. R. 1999. Kupakasa: 'Pre-Colonial Cotton Production and Trade in the Zambezi and Save Valleys. *Zimbabwea* 7(1): 3–42.

Schmidt, Peter R., and Innocent Pikirayi. 2018. "Will Historical Archaeology Escape Its Western Prejudices to Become Relevant to Africa?" *Archaeologies* 14 (3): 443–471.

Schoeman, Alex. 2020. "Archaeology of Farming Communities in Mpumalanga Province and the Adjacent Lowveld in Northeastern South Africa." *Oxford Research Encyclopedia of African History.* https://doi.org/10.1093/acrefore/9780190277734.013.767

Shepherd, Nick. 2002. "The Politics of Archaeology in Africa." *Annual Review of Anthropology* 31 (1): 189–209.

Shepherd, Nick. 2003. "'When the Hand that Holds the Trowel is Black …' Disciplinary Practices of Self-Representation and the Issue of 'Native' Labour in Archaeology. *Journal of Social Archaeology* 3 (3): 334–352.

Stahl, Ann Brower. 2002. "Colonial Entanglements and the Practices of Taste: An Alternative to Logocentric Approaches." *American Anthropologist* 104 (3): 827–845.

Stahl, Ann Brower. 2015. "The Transactional Dynamics of Surplus in Landscapes of Enslavement." In *Surplus*: *The Politics of Production and the Strategies of Everyday Life*, edited by Christopher T. Morehart and Kristin De Lucia, 267–306. Boulder: University Press of Colorado.

Stahl, Ann Brower. 2014. "Africa in the World: (re)Centering African History Through Archaeology." *Journal of Anthropological Research* 70 (1): 5–33.

Swan, Lorraine M., 2007. Economic and ideological roles of copper ingots in prehistoric Zimbabwe. *Antiquity*, *81* (314): 999–1012.

Stayt, Hugh Arthur. 1931 *The Bavenda*. London: Routledge.

Stephens, Jay, David Killick, Edwin Wilmsen, James Denbow, and Duncan Miller. 2020. "Lead Isotopes Link Copper Artefacts from Northwestern Botswana to the Copperbelt of Katanga Province, Congo." *Journal of Archaeological Science* 117:105124.

Thondhlana, Thomas Panganayi. 2013. *Metalworkers and Smelting Precincts: Technological Reconstructions of Second Millennium Copper Production around Phalaborwa, Northern Lowveld of South Africa*. PhD diss., University College London.

Vis, Benjamin N. 2018. "Understanding by the Lines We Map: Material Boundaries and the Social Interpretation of Archaeological Built Space." In *Digital Geoarchaeology: New Techniques for Interdisciplinary Human-Environmental Research* (Natural Science in Archaeology), edited by Christoph Siart, Markus Forbriger, and Olaf Bubenzer, 81–105. Cham: Springer. https://doi.org/10.1007/978-3-319-25316-9_6

Weiner, Annette B. 1985. "Inalienable Wealth." *American Ethnologist* 12 (2): 210–227.

Wilmsen, Ed. N. 1989. *Land Filled with Flies: A Political Economy of the Kalahari*. Chicago: University of Chicago Press.

Wilmsen, Ed. N. 1982. "Exchange, Interaction and Settlement in North-West Botswana: Past and Present." In *Settlement in Botswana, Johannesburg*, edited by R. R. Hitchcock and M. R. Smith, 98–109. Johannesburg: Heinemann.

Wolf, Eric. R. 1982. *Europe and the People without History*. Berkeley: University of California Press.

Wood, Marilee. 2012. "Interconnections: Glass Beads and Trade in Southern and Eastern Africa and the Indian Ocean—7th to 16th Centuries AD." PhD diss., Department of Archaeology and Ancient History, Uppsala University.

Wood, Marilee, Laura Dussubieux, and Pete Robertshaw. 2012. The Glass of Chibuene, Mozambique: New Insights into Early Indian Ocean Trade. *South African Archaeological Bulletin*, 67 (195): 59–74.

Localities

Angkor

Straits of
Melaka

Java

Indian Ocean

7   Chinese Ceramics on the Maritime Silk Road

The Importance of Context

John N. Miksic

Abstract

Archaeologists are just beginning to exploit the potential of Chinese ceramics to reconstruct patterns of trade. This chapter summarizes data showing the fluctuation in the quantity of Chinese ceramics exported to the region over this period. It also explores the connection between Chinese ceramics and Southeast Asia's sociocultural evolution during this period, including the influence of the China trade on Southeast Asian urbanization and relations between ports and their hinterlands. It has been suggested that ports in Southeast Asia dominated their hinterlands, but this chapter will argue that hinterland dwellers as well as inhabitants of offshore islands exerted a significant degree of political and economic autonomy until the colonial period.

Keywords: Tang, Song, Yuan; Ming, porcelain, stoneware

Introduction

For many years, the study of Chinese ceramics exported to Southeast Asia during the Song to Ming Dynasties (960–1643 CE) was the domain of art historians. Archaeologists are now beginning to exploit the potential of this material to reconstruct patterns of trade. This chapter has three main aims. The first aim is to summarize data available to describe the fluctuation in the amount of Chinese ceramics exported to the region over this period of almost seven hundred years, with reference to the cultural and historical geography particular to Southeast Asia. The second aim is theoretical:

to explore the potential (and limitations) of these data to shed light on Southeast Asia's sociocultural evolution during this period, including the influence of the China trade on Southeast Asian urbanization and relations between ports and their hinterlands. It has been suggested that ports in Southeast Asia dominated their hinterlands, but this chapter will argue that hinterland dwellers as well as inhabitants of offshore islands exerted a significant degree of political and economic autonomy until the colonial period. The third aim is methodological: to emphasize the importance of differentiating between the archaeological contexts in which Chinese ceramics are found.

Southeast Asian Geography and History

The special relationships among people living in different topographic zones along Asia's south coast adds a level of complexity to the analysis of the Maritime Silk Road (MSR). We can distinguish four ecological zones in Southeast Asia, each of which participated in the MSR, but in different ways. These are: (1) the coastal zone, where water is salty and not potable; (2) deltas and estuaries, in which a mixture of fresh and brackish tidal water may extend inland for one hundred kilometers or more; (3) plains with streams of fresh water navigable for boats of moderate size (up to about five tons); and (4) highlands, where water courses are passable only by rafts or canoes or not passable at all. The relationship between the societies inhabiting these four zones has so far been explained only in general terms, marked by dubious assumptions of dominance/subordination. The distribution of economic and political power among these zones has major implications for interpreting the significance of the distribution of early Chinese ceramics beyond China. Our knowledge of this distribution is based on data that is incomplete, but it suffices to show why the relative quantities of Chinese ceramics in the different zones is *not* directly correlated with the political or economic power between these zones.

No ports in ancient Southeast Asia lay directly on the seacoast due to the gentle east-west slope of the Sunda Shelf. Most important ancient ports were located at the inland apexes of deltas. Since the mouths of the distributaries that cross the deltas all look alike from the sea, local knowledge is necessary to discern which mouth leads to the main port. Tidal fluctuations and tidal bores also require precise knowledge of the times when it is possible to sail upstream. Foreign sailors could not be expected to possess this information, so Southeast Asian sailors had a major advantage in the form

Figure 7.1   Map of Southeast Asia
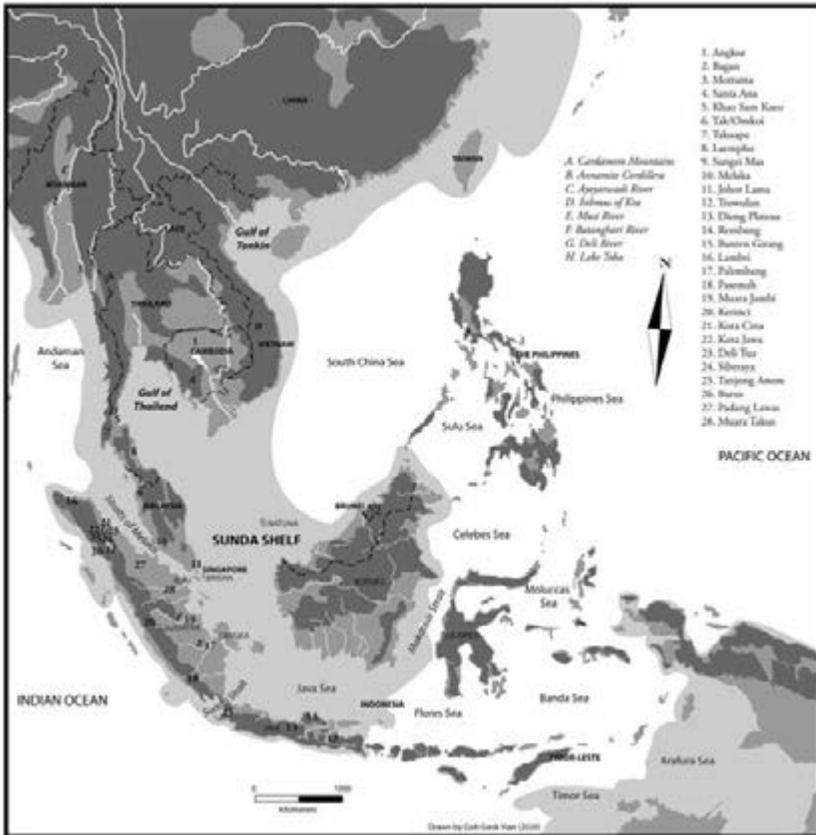
Credit: Geok Yian Goh

of vast experience in navigating the complicated route between the Indian Ocean and the South China Sea. Premodern ports seldom built large forts, temples, or palaces, preferring to invest in other structures of perishable materials, and sought to retain autonomy from hinterland empires by forming networks for the exchange of goods and ideas with other ports (Fox 1971). Water-borne trade had quite different effects on societies along Asia's south coast compared to the influence of overland trade routes on in central Asia. A record from the Liu Song Dynasty, which ruled southern China in the fifth century, shows that China already preferred the Maritime Silk Road to the Central Asian route:

> When the two Han dynasties had sent expeditions these [overland] routes had been found to be particularly difficult and merchandise, on which

[China] depended, had come from Tongking; it had sailed on the waves of the sea … Precious things come from the mountain and the sea by this way. There are articles such as rhinoceros' horn and kingfisher feathers and rarities such as serpent pearls and asbestos; there are thousands of varieties, all of which the rulers eagerly coveted. Therefore ships came in a continuous stream, and merchants and envoys jostled with each other. (quoted in Wolters 1967, 77)

The coasts of the South China Sea were unified by maritime trade around 400 BCE (Bellina 2017). Overland trade between the regions of northeast India and Bangladesh may have begun around that time, along with the expansion of that network to incorporate shipping across the Bay of Bengal to southern India and Southeast Asia. For the last fourteen hundred years, a series of major ports linking the South China Sea and Indian Ocean has existed near the northern and southern entrances to the Straits of Melaka, the main route between the two bodies of water.

Ports and Hinterlands

Seaports are complicated places to study because human activities such as loading and unloading ships, and natural factors such as waves, currents, and tides, disturb the soil and deposit important items in the mud or under water, making it difficult to recover artifacts or understand their contexts. These factors have deterred archaeological research on these sites in comparison with hinterland routes and sites. Anthropologist Frederick Dunn (1975) published a diagram depicting the geographical pattern of extraction of resources from the highlands of the southern Malay Peninsula. Two years later, archaeologist Bennet Bronson (1977) published a similar model that he proposed as a spatial system that defined the relationship between port-kingdoms in Southeast Asia, their hinterlands, and China.

The Bronson model equates political economic systems with a hierarchy in which local capitals are found at river mouths, while secondary and tertiary levels of political authority are at the inland junctions of tributaries that are in turn dominated by an overseas superpower. This model has become widely popular among historians and archaeologists of early Southeast Asia. I have argued elsewhere (Miksic 1985, 2009b) that the Bronson model (also called the Upstream/Downstream model) as well as Dunn's special case study are identical to the dendritic model devised by locational geographers (Haggett 1966), which became influential in anthropology and archaeology in the 1970s (e.g., Smith 1974). I also have shown why the dendritic model

Figure 7.2   Sumatran trade model
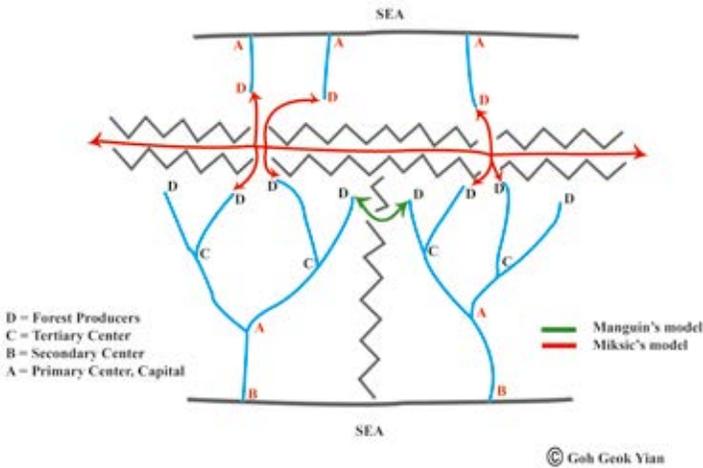
Credit: John N. Miksic/Geok Yian Goh

is not applicable to precolonial Southeast Asia, although it did come into existence during the period of European imperialism. The Bronson model is an example of geographic determinism. The relationships between the altitudinal zones in Sumatra and the other islands in the vast Southeast Asian archipelago, the courts and cities in China and India, and the network of ports that connected them, were much more sophisticated, complex, and heterarchical than the Bronson model implies. I have created a model that delineates the complex web of relationships between ports, hinterland plains, uplands, and overseas trading partners.

"The sea unites, the land divides" is an old cliché in Southeast Asian studies. The dichotomy that this phrase implies may be true in ethnographic and linguistic terms (highlands are much more diverse than lowlands in these dimensions), but it masks a pattern of upland-lowland interaction that made it possible for this diversity to evolve and for the lowlands to begin to prosper. Much of Southeast Asian cultural evolution can be seen as a result of symbiotic relations (rather than domination/subordination) between societies located in estuaries and those in the highlands. Of the four zones defined above, the highlands and the estuaries have been the most prominent in Southeast Asian history. These two zones formed spheres of interaction, both economic and ritual. In the precolonial period, relations between the deltaic fringes, the uplands,

and the offshore islands were characterized by reciprocity rather than market exchange or forced extraction (as documented, for example, in *piagem* documents found in south Sumatra; Miksic 1985, 444–446). In the colonial era, this framework was destabilized by European weaponry and a great increase in the volume of trade. Estuarine ports, at the direct or indirect urging of Europeans, began to subjugate highland groups to extract trade commodities by force.

The region termed Zomia includes northern mainland Southeast Asia, southwest China, northeast India, and northeast Bangladesh (van Schendel 2002). It covers 2.5 million square kilometers, or about as large as Europe. Anthropologist James Scott acknowledges, even celebrates, the fact that, contrary to the implications of Bronson's model, lowland polities still have difficulty subjugating areas above an elevation of three hundred meters, but he observes that commerce is not fazed by the same obstacle: "peripheral peoples had always been firmly linked economically to the lowlands and to world trade" (Scott 2009, 4). He emphasizes that "it is impossible to provide a satisfactory account of the valley states without understanding the central role played by Zomia in their formation and collapse" (16).

Numerous overland routes existed in premodern Southeast Asia, but only the Angkorian road system has been well documented. For example, Hendrickson (2017), Tran (2013), and Jindasu (2019) have studied the extension of this route across the Annamite Cordillera into Vietnam. It is commonly assumed that overland routes were less important than riverine transport. Research, however, shows that overland transport played a more important role than hitherto recognized in highland societies, and that highlanders were able to negotiate their relationships with lowland ports and overseas markets from a position of equality. Major religious centers in the Sumatran highlands in the eleventh through fourteenth centuries were located at important junctions where highland routes crossed rivers (Miksic 1985).

Chinese Ceramics as a Source of Data

Ancient Chinese ceramics are some of the most useful markers of nodes and routes because they are almost indestructible and can be precisely dated. Chinese ceramics were correlated in some cases with high status, but this is not always true. In Cambodia, archaeological research on the Angkor period (tenth through fourteenth centuries) has unearthed few Chinese ceramics, and these have mainly been found in elite residential areas and temples. In island Southeast Asia, all strata of society owned Chinese wares

(Miksic 2013a). In eighteenth-century Mexico, Chinese porcelain was no more expensive than European mayòlica and locally made pottery (Gasco 1992, 69–71; Skowronek 2016, 66–68). Chinese nobles during the Imperial period did not consider ceramics as suitably distinguished gifts for visiting embassies (Wong 1979). The distribution of Chinese ceramics should thus be considered an independent rather than dependent variable in the search for proxies for dominant/subordinate relationships between nodes of trade and settlement. As will be described below, Chinese ceramics played different roles in societies inhabiting different elevation zones in Southeast Asia, so the quantity and quality of Chinese ceramics in different sites cannot be used as the sole criterion to reconstruct political or economic hierarchies.

Much more Chinese porcelain and stoneware is found in insular Southeast Asia than on the mainland. The largest concentrations of Chinese wares have been found along the Straits of Melaka and in Java, with other significant sites in Sulawesi, Borneo, the Riau Archipelago, and the Philippines. Possible variables responsible for this situation include different levels of demand caused by local social and cultural preferences; different buying power due to the variable occurrence of natural products sought by China; differences in accessibility and cultural attitudes toward Chinese ceramics; and the importance of trade as an occupational specialization. Chinese ceramics first reached Southeast Asia around 200 BCE (Peronnet and Srikanlaya 2017) but did not become a major export commodity until a millennium later (Flecker 2001). The reasons why this change occurred are obscure. Possible factors include technological changes to ceramic production in China, such as more aesthetically pleasing products, much larger kilns, and efficient production processes, and the general growth in trade with Southeast Asia that took place during the Tang Dynasty. Possibly a synergistic feedback loop occurred between increasing imports from Southeast Asia and the Indian Ocean and changes in Chinese society, spurred in part by the gradual incorporation of southern China into the empire. The study of the interaction among these variables will require much research, but so far little documentation for them exists.

Exchanges between China and foreign countries before the Southern Song Dynasty (1126–1279 CE) took place in the framework of "tributary trade," whereby the Chinese court accepted tribute and reciprocated by giving presents to foreign envoys. Ceramics are not listed among Chinese diplomatic gifts (Bielenstein 2005), with one exception noted by Wong (1979). Foreign envoys, however, were sometimes permitted to trade privately with designated Chinese during their missions. The products exchanged in this way are not recorded. Early Chinese ceramics may have reached

Southeast Asia through this channel. Additionally, the tributary system was manipulated by foreign rulers whom the Chinese treated as vassals for their own internal political reasons (Zhang and Saxer 2017, 18).

Trade in Chinese ceramics arose in the late Tang Dynasty (618–907 CE), increased rapidly during the Song Dynasty (960–1279 CE) and Yuan Dynasty (1279–1367 CE), declined in the early Ming Dynasty (1368–1643 CE) due to imperial trade policy, and almost completely ceased between 1430 and 1488. China gradually reopened its ports to foreign trade after 1488, and eventually removed most restrictions in 1567. The rise and fall in Chinese trade during the Ming Dynasty had only minor effects on Southeast Asia's economy. Southeast Asia also imported large quantities of textiles from the lands bordering the Indian Ocean, but they did not survive in archaeological sites. Our picture of international trade in early Southeast Asia is thus possibly biased by the durability of Chinese exports. A large proportion of Chinese exports consisted of other commodities besides ceramics, including textiles (silk), metals (iron, bronze, and silver, both as raw material and finished products), and consumables (including wine and spices such as star anise). Many of the Chinese ceramics found in Southeast Asia were not the commodities themselves; they were the containers for the commodities being exported.

Early Phase: Tang Dynasty (618–906 CE)

Tang Dynasty sherds have been found as far west of China as the Persian Gulf. They have also been recovered in Sri Lanka and South India, and in great quantities at port sites at the north and south ends of the Straits of Melaka. Chinese ceramics of the Tang to Ming Dynasties are also widespread in Thailand (Matsong 2019; Srisuchat 1994). For example, Tang objects were found buried around Buddhist complexes in Thailand as well as in Java, Indonesia. Even so, no statistical information and few data on their contexts have yet been published. Fragments of ninth-century Changsha bowls litter the beaches on both sides of the Isthmus of Kra, southern Thailand, possibly marking two termini of a transpeninsular route that avoided the Straits of Melaka. Unfortunately, sites of this period, such as Takuapa, Thung Tuk, and Laem Pho, have been severely looted, so that no statistical information is available (Ho Chuimei 1994).

On the northwest coast of peninsular Malaysia, major sites include Sungai Mas and Sungai Batu in Kedah (Jacq-Hergoualc'h 2002; Nik Hassan Shuhaimi 2011). Inscriptions from the fifth century, statuary and ruined brick sanctuaries, and ceramics from the Tang Dynasty have been found,

Figure 7.3   Road to Dieng Plateau

Credit: John N. Miksic

but again no comprehensive report of these imported ceramics has yet been published.

An early survey found Tang Dynasty sherds widely distributed over twenty-five hundred square kilometers[2] in the north-central coastal plain of Java (Van Orsoy de Flines 1941–1947). This is the only published large-scale survey of the distribution of Chinese ceramics anywhere in Southeast Asia. An excavation on the Dieng Plateau in central Java's hinterland in 2010 recovered Chinese and Persian ceramics in association with Hindu temples of the eighth and ninth centuries (Team Proyek Dieng 2010; Figure 1.3). Tang ceramics have also been discovered near ninth-century religious sites in the Yogyakarta area (*Idem*), but no large-scale surveys have been conducted in the hinterland. Van Orsoy de Flines (1941–1947) also found surface scatters of pottery from the Song Dynasty at more than twenty sites in the north coastal residency of Rembang and at over a hundred sites in seven neighboring regencies.[1]

1   A residency is a Dutch colonial term. It is approximately equal in size and position in the administrative hierarchy to a county in the United States; the analogous unit in independent Indonesia is *kabupaten,* which can be translated as "regency."

Since no significant habitation sites or ports of the Tang period have yet been identified in Java, it is impossible to delve further into this problem by simply correlating the distribution of Chinese ceramics with local communication networks or status. The broad distribution of Tang ceramics in the north-central coastal area suggests that they were generally available there, but whether they were reserved for the elite in the hinterland cannot be determined.

The largest single collection of Tang ceramics has been found on a shipwreck in western Indonesia, at Belitung Island. Over fifty-five thousand ceramics were recovered, along with other Chinese artifacts. The ship itself was of Arabo-Persian origin. The ultimate destination of the cargo is still a subject of discussion, but there is good reason to believe that it was on its way to Java. China and Java exchanged numerous missions in the early ninth century, and the place where the ship sank is at the western edge of the Java Sea, which is the main route to Java (Hsieh 2010; Miksic 2013b).

Middle Phase: Song and Yuan Dynasties (960–1367 CE)

By the early twelfth century, the Chinese tributary system had declined in importance (Wolters 1975, 1) as China's government gradually became more tolerant of private commerce, but the volume of Chinese ceramics exported to Southeast Asia increased greatly during this period. By the fourteenth century, Chinese began to form permanent settlements in the region. The impact of these changes on Southeast Asia is not yet well understood. Chinese ceramics are one of the most common sources of data relevant to this study, but without contextual information such as find spots, no inferences can be drawn from them. The Song Dynasty fell in 1279 and was replaced by the Yuan Dynasty, but this transition was not accompanied by any major stylistic change in ceramics. However, a major new type of ware appeared around 1328: white pottery decorated with cobalt-blue designs. Most early examples of this pottery were shipped to Southeast Asia, and the Song–Yuan era can be considered the First Peak Period of porcelain in Southeast Asia. Data from shipwrecks indicate that the number of Chinese ceramics exported to Java exceeded the number of the island's inhabitants during this period (Liebner 2014, 309–311). This ended in 1352 when the Jingezhen kiln complex was destroyed during the civil war that ended with the victory of the Ming in 1368.

Mainland Southeast Asia: Chinese Ceramics at Angkor and Bagan

The empires of Angkor in Cambodia and Bagan in Myanmar are roughly contemporaneous with the early period of major Chinese ceramic exports during the Song and Yuan Dynasties. Earlier scholars overestimated the quantity of Chinese ceramics in the Angkor region (Cremin 2006). For example, the only Chinese reference to a diplomatic gift of porcelain during the Song Dynasty concerned a gift to royalty in Srivijaya (Sumatra) in 963 CE (Wong 1979), making it likely that Chinese porcelain reached Angkor through informal channels. The distribution of Chinese ceramics within the Greater Angkor area is consistent with the conclusion that Chinese ceramics were restricted to the elite. For example, at the Royal Palace, imported wares—mainly Chinese—comprised about 10 percent of the ceramic assemblage (Dupoizat 1999). Approximately 5 percent of these were excavated in the 1990s by Japanese archaeologists, who date the sherds to the period between the late thirteenth and late fourteenth centuries (Nakagawa 2000, 361). The Japanese Team for Safeguarding Angkor, during restoration of the Prasat Suor Prat complex (a series of towers near the Royal Palace), found a large quantity of Chinese and other ceramics; the results of their analysis (which have not been published) would add much to our knowledge of Chinese ceramics at Angkor (Cheng et al., 2005). Compared to the findings at the Royal Palace, the Prasat Suor Prat assemblage includes coarser wares and blue and white wares of the Yuan and Ming Dynasties. They indicate the existence of a different social milieu than that of the royal complex that existed nearby during the eleventh and twelfth centuries, due to the use of a wider variety of Chinese wares at Prasat Suor Prat. Quite possibly, as Dupoizat (1999) suggested, the Khmer royalty of the eleventh and twelfth centuries was interested in only specific types of Chinese ceramics, perhaps because they were used in rituals, the nature of which is as yet unknown.

Just outside the north gate to the enclosure where the palace probably stood, Chinese wares comprised less than 3 percent of a sample of almost sixty-five hundred sherds (Cremin 2006). The colors and shapes of the Chinese ceramics at Angkor are limited, suggesting a process of local selection. The discovery of fifteenth-century Chinese and Thai ceramics at jar burial sites in the Cardamom Mountains in southwest Cambodia suggests that by then Angkor's highly centralized economy had broken down (Beavan et al., 2012).

China's relationship with Bagan, Angkor's contemporary in the Ayeyarwadi Valley, was probably similar to its relationship with Angkor. Like

Angkor, Bagan sent few missions to China. Few Chinese sherds have been recovered from archaeological research at Bagan's palace complex.

Straits of Melaka

The shores of the Straits of Melaka[2] and the Java Sea have yielded huge quantities of Chinese sherds at sites where monuments are small in scale or nonexistent and where trade and manufacturing apparently formed major activities. Large portions of the coasts on both sides of the Straits of Melaka are peat swamps, and tides affect rivers up to one hundred kilometers upstream. Large swathes of the coastal plains are uninhabitable due to lack of fresh water. Some traditional settlements were built in the lower courses of major rivers such as the Musi and Batanghari, but larger habitation sites were usually located at the inland apexes of river deltas, where fresh water and dry land a few meters above sea level are found. This eliminates the central pillar of the Bronson model, which requires that the largest cities be located at river mouths. Early ports such as Muara Jambi and Palembang, in southeast Sumatra, were located at the inland apexes of deltas. Their placement in early settlement networks more closely fulfills the requirements of central-place systems (Miksic 1984, 2009b).[3]

   The greatest concentration of ports both ancient and modern in the Asian maritime network is found in and near the Straits of Melaka. Over the last two millennia, major ports have always existed at the northern and southern entrances to the Straits. This is partly due to the monsoon winds, which enable ships leaving the Straits to reach India or China in one season but not to make the complete journey from India to China. It is also partly due to the provision on the surrounding land and sea of many commodities that were highly sought after throughout Asia. This ensured that major ports would emerge along this waterway, which still carries a large proportion of the world's shipping. The possible locations of these ports have also been partly determined by environmental factors, including sources of potable water, and partly by the navigability of the rivers on which they are located. Several major rivers in the region are unsuitable because of sandbars at the rivers' mouths or because of tidal bores, which are standing waves caused by the interaction of tides and river currents.

2   The Philippines and Brunei have also yielded abundant Chinese ceramics from this period. Archaeological and historical documentation of these discoveries is, however, not as plentiful as that for the Straits of Melaka and Java.
3   The term "central place" in economic geography refers to a regular pattern of geographical distribution of markets typical of modern societies (Haggett 1966, 119–125).

Southern Sumatra, Srivijaya, and Muara Jambi

Sumatra's earliest center of complex society evolved in the Pasemah highlands at the Musi River's headwaters rather than in the Palembang lowlands. When Chinese ceramics began to be exported to Southeast Asia, the region's greatest trading kingdom was Srivijaya, the capital of which lay ninety kilometers up the Musi River at Palembang. Archaeological research in the city has yielded Chinese ceramics of the ninth through fourteenth centuries. The Museum Badaruddin site alone yielded fifty-five thousand artifacts weighing over eight hundred kilograms, 40 percent of which belong to the Srivijayan period (seventh through eleventh centuries); imported ceramics (mainly Chinese) comprised 18 percent of this assemblage (Eka Asih Putrina Taim 1992; Manguin 1987, 1992). The data support the hypothesis that Palembang was a major trading partner of China and of West Asia during the Tang through Ming Dynasties. No major surveys have been conducted in the rest of the Musi basin, so Palembang's relationship to the regional settlement pattern cannot yet be ascertained. It may well have resembled the administrative hierarchy that prevailed in the early twentieth century, which fulfills criteria for a central-place system (Miksic 1985).

Palembang's major competitor for the position of southern node of the Straits of Melaka maritime network was located at Muara Jambi, ninety kilometers up the Batanghari. As in the Musi watershed, a center of sophisticated art evolved in late prehistory in the Batanghari highland at Kerinci. Chinese wares in Muara Jambi span the early eleventh through the thirteenth centuries. Surveys along the river have yielded Chinese ceramics dating from the Five Dynasties (907–960 CE) through the Yuan period (Abu Ridho 1995; Edwards McKinnon 1982). Muara Jambi was probably the largest port along the Straits of Melaka in the eleventh to thirteenth centuries, though this is difficult to prove since Muara Jambi was abandoned in the fourteenth century. Meanwhile, Palembang continued to be densely inhabited; ancient ruins in Palembang are known to have been destroyed during the Dutch colonial era (Bosch 1930). Population in lowland Sumatra has always been sparser than in Java due to the swampy landscape. Nevertheless, Jambi data demonstrate that Chinese ceramics of the Song period were distributed over much of the island, even reaching the hinterland, where is where most of the population resided until the twentieth century.

Zhu Yu in the early 1100s described Chinese merchants going abroad, taking mainly pottery, "the small pieces packed in the larger, till there is not a crevice left" (quoted in Hirth and Rockhill 1911, 31). A century later, however, Zhao Rugua recorded that trade in Chinese ceramics was mainly

Figure 7.4   Musi River at Palembang, South Sumatra

Credit: John N. Miksic

in the hands of foreign merchants. He reported that Chinese ceramics were exported to north Vietnam, Cambodia, south Sumatra, the northern Malay Peninsula, the Philippines, south India, and even Zanzibar. He noted that different colors of porcelain were popular in different markets. This was apparently important information, indicating that the Chinese traders and ceramic producers had to adapt to the tastes of local markets.

Northern Sumatra

In northeast Sumatra, where the coastal plain is narrower than further south, a site known as Kota Cina ("Chinese Stockade") lies at the inner fringe of the delta formed by the Deli River, which flows from the highlands near Lake Toba. The river's hinterland provided important exports in demand in medieval China. Archaeological excavations in the 1970s discovered large quantities of Chinese ceramics, coins, and gold artifacts dating from 1080 to 1260 CE (Edwards McKinnon 1984; Miksic 1979, Figure 1.5).

Kota Cina is one of the more mysterious sites of the eleventh to thirteenth centuries. The presence of large quantities of Chinese ceramics and other artifacts, and the very name of the site, suggest that Chinese may have lived

Figure 7.5   Laying out excavation site at Kota Cina, northeast Sumatra

Credit: John N. Miksic

there, but no Chinese references to it have been traced. The site is important because it is the largest port contemporaneous with the Song Dynasty yet discovered in Southeast Asia.

Approximately contemporary with Kota Cina was Barus, on Sumatra's northwest coast, which is first mentioned in Arab sources of the ninth century. The site was famous for camphor. Barus has yielded the most West Asian artifacts yet found at any Southeast Asian site. Chinese artifacts found at Barus include ceramics from the late tenth century until the early twelfth century, similar to types found at Fustat (Old Cairo) in Egypt (Dupoizat 1999, 155). Pengkalan Bujang, in Kedah, which is on the opposite shore of the Straits of Melaka from Kota Cina, was also a major importer of Song Dynasty pottery (Lamb 1961). No quantitative or qualitative analyses of this material have yet been published.

In the fourteenth century, the headwaters of the upper Batanghari (several hundred kilometers inland from Muara Jambi) and fertile valleys (one hundred kilometers further north), supported a polity with sophisticated sculpture, abundant inscriptional remains, and access to resources such as gold, incense, and ivory. These were avidly sought after by people living in the ports at the edges of the lowland deltas (Dobbin 1983). This access is why the Majapahit kingdom of East Java invaded at least twice in the thirteenth and fourteenth centuries. Yuan Dynasty ceramics have been found at several

sites in the upper Batanghari basin, proving that the inhabitants there were linked to the long-distance maritime trade routes of that era (Miksic and Goh 2017: 485-486).

Singapore and the Riau Archipelago

Singapore, the largest known port of the fourteenth century, is located in the Straits of Melaka. Singapore is also the oldest site where both archaeological and written evidence for a Chinese community in Southeast Asia have been found. In 1320 the Yuan Dynasty sent envoys to Longya men ("Dragon's Tooth Strait"), a rocky outcrop now equated with the western end of Keppel Harbor in Singapore. In 1325 Longya men sent a mission to China (Hsü Yün-Ts'iao 1972). The first Chinese trader to write about Southeast Asia, Wang Dayuan, published *Dao yi zhi lue* in 1349. Wang Dayuan devoted much more attention to ceramic trade than Zhao Rugua had in 1225. According to Wang, most of the ceramics were destined for consumers around the Straits of Melaka. Wang mentioned two overseas Chinese communities. One consisted of Chinese soldiers who had been sent to attack Java in 1292 but fell ill during the voyage and were left on *Goulan Shan* (possibly Gelam Island, off west Borneo). In Wang's day, forty years later, "over 100" of these men were still living there, "mixed up with the native families" (quoted in Rockhill 1915, 261).

Wang's second reference to overseas Chinese living "mixed up with the native families" occurs in conjunction with Longya men. Wang describes it as a place where pirates preyed on Chinese ships, but he also mentions that "products of Quanzhou traders," including "coarse pottery," were available there (quoted in Rockhill 1915, 191, 129–132). It is hard to believe that Chinese merchants would live among people who attacked Chinese ships. This apparent contradiction has not been explained.

There was also a trading community with an organized government at the Singapore River, to which Chinese traders brought more expensive commodities including porcelain. In the fourteenth-century, Temasek covered an area of about eighty-five hectares, and seven sites with dense remains of urban life have been discovered in this zone (Heng, Chapter 8, this volume; Miksic 2013). Excavations have recovered several hundred thousand sherds of Chinese ceramics and an approximately equal number of local earthenware (Miksic 2013, 222–263). About 50 percent of the assemblage consists of Malay pottery; the other half comprises mainly Chinese ceramics, coins, and beads. Wang depicted the Singapore River community as an average port, but more Yuan Dynasty blue and white porcelain has been recovered from archaeological excavations there than at any comparable

Figure 7.6   Midai Island, fourteenth-century ceramics

Credit: John N. Miksic

Figure 7.7   Yuan Dynasty jar, from eastern Riau Archipelago, Indonesia

Credit: John N. Miksic

site. This may be due to a lack of research on other sites, but it proves that Singapore was well-connected with the network through which the newest Chinese porcelain designs were distributed during the fourteenth through sixteenth centuries.

An archaeological survey in 1992 confirmed that intact Chinese ceramics of the twelfth to fourteenth centuries are widely distributed throughout the Riau Archipelago, which extends for five hundred kilometers to the

south and east of Singapore (Miksic 1994). Foreign merchants avoided these islands, even though the region contained maritime commodities in high demand in China, such as sea cucumber, coral, pearls, and tortoise shell. This aversion meant that Singapore could play the role of go-between in the trade of ceramics for these natural products. The 1992 survey team collected eighty kilograms of ceramics on Midai and other islands in the eastern part of the archipelago, most of which replicated Yuan period artifacts found in excavations in Singapore (except for *qingbai*, a more refined ware). Song Dynasty wares also found there indicate that Riau islanders were in contact with another international port, perhaps Palembang or Jambi, before Singapore arose as a node in the maritime trade network. Vietnamese and Thai ceramics show that the Riau Archipelago was connected via Singapore to the maritime network until the arrival of the Europeans in 1509. This discussion is continued in the section "The Cultural Significance of Pottery in Premodern Southeast Asia."

In ports on the main routes to the Indian Ocean and South China Sea, Chinese ceramics were used in everyday contexts, and in areas off the main routes they were used as burial offerings. For example, Chinese ceramics in Singapore are found in habitation contexts, while those in the Riau Archipelago are found in graves. This practice of using Chinese ceramics as offerings for the dead is also known in sites of the Song to Ming Dynasties in the Philippines, northwest Borneo, and south Sulawesi. During the fourteenth and fifteenth centuries, in Sumatra, Java, Bali, and Singapore, the dead were cremated. Ming sources also describe this practice on the east coast of Sumatra, Bangka, and Johor (Groeneveldt 1960, 77, 79, 135, respectively), and southwest Borneo (Rockhill 1915, 266). As these data show, Chinese ceramics had very different functions in different parts of the Southeast Asian archipelago. Without understanding the contexts of the finds, it is impossible to use quantities and types of Chinese wares to derive inferences regarding political or economic relationships among the sites.

No archaeological research has been performed on the island of Tioman, off the east coast of peninsular Malaysia, but collectors report that numerous examples of Chinese ceramics of the Song Dynasty were found there, many in intact condition (Southeast Asian Ceramic Society [West Malaysian Chapter] 1985). This island was a navigational landmark and source of fresh water for ships sailing across the South China Sea to southeastern Vietnam, but there is no evidence that it was ever a trading center. Its inhabitants were probably adherents of the same burial customs as those of the Riau Archipelago.

Eastern Java, the Majapahit Empire, and the Philippines

Trowulan, the capital of the Majapahit Empire, sprawled over at least eleven thousand hectares in eastern Java. According to the *Desawarnana*, a Javanese poem written in 1365, many foreign merchants, including Siamese and Chinese, visited the court of the Majapahit Empire. The poem lists Singapore as one of Majapahit's dependencies (Miksic 2013, 145–208). Huge quantities of high-quality ceramics of the fourteenth through sixteenth centuries from China, Vietnam, and Thailand are known from excavations conducted by the Indonesian National Research Centre for Archaeology (Miksic and Endang Soekatno 1995; Miksic and Kamei 2010). Unfortunately, the area has been severely disturbed. Though quantitative data are sparse, and no overall report has been published, glazed ceramics have been analyzed. Preliminary analysis shows that in systematically acquired collections, ancient Chinese ceramics comprise 81 percent of the imported wares found at Trowulan: 17 percent comes from Southeast Asia (Thailand and Vietnam), and 2 percent comes from "other" sources (mainly nineteenth-century Europe). Wares from Vietnam outnumber those from Thailand by a four-to-one ratio (Dupoizat and Harkantiningsih 2007, 17). The artifacts from Singapore and Trowulan are still being tabulated, but sherds of large Chinese jars decorated with cobalt-blue from the fourteenth century are common in Trowulan but rare in Singapore. At least among the ports in Southeast Asia of the late Yuan Dynasty, it may be possible to use this variable to compare the relative wealth of different sites.

The best-known site for porcelain in the Philippines is Santa Ana. Excavations revealed burial sites from a three-hundred-year period—from the late eleventh through fourteenth centuries—many of which included intact Chinese ceramics (Fox and Legaspi 1977; Locsin and Locsin 1967). Many other burial sites in the country, unfortunately, have been looted.

Late Phase: Ming Dynasty (1368–1643 CE)

The Ming Dynasty was characterized by an isolationist policy during which foreign trade was banned until 1567. Thus, archaeological discoveries of Ming ceramics outside China are correspondingly rare. In the fifteenth century, the Ryukyu Kingdom in the East China Sea served as a buffer between China and maritime Asia, and some documents from this period shed important light on the nature of the ceramic trade. Archives from Ryukyu

record that licenses were issued for voyages from Ryukyu to Palembang in 1428, 1429, and 1430; the one in 1428 carried "a cargo of porcelain and other products" (quoted in Kobata and Matsuda 1969: 136). This record and archaeological discoveries prove that some Chinese ceramics were still available in Southeast Asia during the so-called "Ming gap," although many fewer than during the Song–Yuan era.[4] Most of these exports must have therefore been the result of smuggling activity. From 1368, when the Ming Dynasty was founded, until 1430, the proportion of Chinese ceramics in shipwrecks declined to 34 percent. Very few Chinese ceramics are found on the sites of shipwrecks that occurred between 1430 and 1488. Export of Chinese ceramics gradually resumed during the Hongzhi reign (1488–1505 CE) (Brown 2009).

The Thais, the Vietnamese, and the inhabitants of lower Myanmar, including the Ayeyarwadi Delta and Martaban (Mottama), competed with each other to fill this vacuum in the market for high-fired ceramics. In the Philippines, Thai ceramics are found at fourteenth- and fifteenth-century sites such as Calatagan (Fox 1959). Thai ceramics from around 1400 until the late sixteenth century have been found at Angkor, Java, and Singapore, and on numerous shipwrecks. Ceramics from Myanmar were found on the Pandanan shipwreck (Dizon 1996).

The use of jars in burials in Southeast Asia began over two thousand years ago. The custom has reappeared at different times and places. For example, twelve cave burial sites of the mid-fifteenth century have been discovered in the remote Cardamom Mountains of Cambodia, each containing a mixture of Thai, Khmer, and Chinese ceramics (Beavan et al., 2012). Between 1984 and 1986, many burial sites were looted at Tak and Omkoi, along the Thai-Burma border. Brown (1988, 3) noted that these were jar burials that date between 1350 and 1550 and include roughly equal proportions of Chinese and Thai wares. The Tak-Omkoi sites offer further proof that high-fired ceramics were not only available to elites in courts and trading ports; people in the hinterlands were also able to acquire trade ceramics in significant quantity and of good quality.

Several important fifteenth-century port sites are known to exist in Southeast Asia, but some have not yet been excavated. Melaka was the most important port in Southeast Asia during the fifteenth century. Despite the Ming ban on Chinese trade, the sultan in 1468 wrote that his kingdom had never been more prosperous (Kobata and Matsuda 1969, 11). When the

---

4   The term "Ming gap" refers to the period between 1368 and 1488, when exports of porcelain from China declined steadily until it practically ceased.

Figure 7.8   Removal of fifteenth-century jars from Site 4, Cardamom Mountains, Cambodia
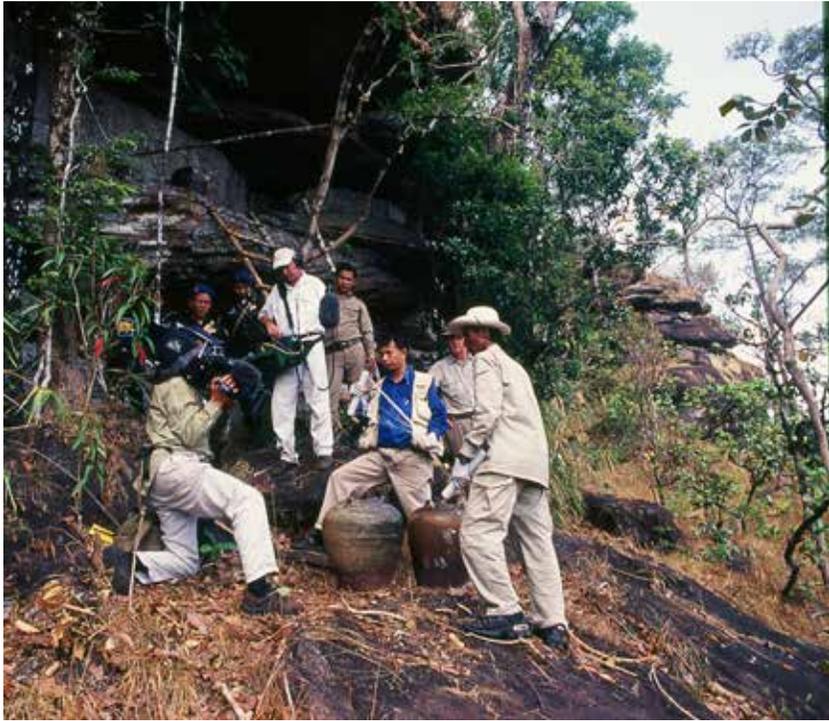
Credit: John N. Miksic

Portuguese arrived there in 1509, Indian Muslims were the most important traders. To date, however, no archaeological data on Chinese ceramics from the pre-Portuguese period in Melaka are available.

The Malay court, driven from Melaka by the Portuguese in 1511, found refuge near the estuary of the Johor River. Its capital was moved several times before it was established on the island of Bintan in 1720. The Malaysian sites of Johor Lama and Kota Sayong have been archaeologically studied (Kamarudin Ab. Razak 1998), and excavations at Johor Lama at the Malay Peninsula's southern tip yielded local earthenware and sixteenth-century Chinese porcelain (Solheim and Green 1960).

Bantam, Melaka's successor as the greatest spice trading port of the sixteenth and seventeenth centuries, developed at the mouth of the Banten River in West Java. An earlier port was located about twenty kilometers upriver at Banten Girang (Guillot, Nurhakim, and Wibisono 1994), where Chinese ceramics of the fourteenth century as well as fifteenth-century

Vietnamese and Thai wares have been found. The shift of the port from the hinterland to the coast in the sixteenth century was probably connected to basic changes in the hinterland-coastal relationship in much of Southeast Asia at that time, due to Islamization, renewed Chinese contact and immigration, and the arrival of Europeans that greatly increased demand for Southeast Asian commodities.

The province of Aceh, at the north tip of Sumatra, is mentioned in many early sources as an important region both in terms of local products and the availability of port facilities. In 1225 Zhao Rugua reported that ships spent the months between monsoons at the port of Lambri in northwest Sumatra. Wang Dayuan in 1349 called it an important trade center but said that "the natives live all over the hills" (quoted in Rockhill 1915, 148), implying that much of its population lived in the hinterland. A Chinese fleet under the leadership of Admiral Zheng He visited Lambri in 1414 and 1430, and the *Ying-ya Sheng-lan*, written in 1433 by Ma Guan, one of Zheng He's officers, estimated the population of Lambri at one thousand families (Groeneveldt 1960, 98; Mills 1970, 122). If the population of this important port in north Sumatra comprised only about five thousand inhabitants, the ports might not have been much larger than highland villages. Lambri's precise location was unknown, but in the 1980s Edwards McKinnon discovered its probable site, which is marked by sherds of Chinese porcelain of the Song–Yuan Dynasties and fifteenth-century Thai and Vietnamese wares. The rapid subsidence of the area is submerging archaeological sites that contain important information on early Sumatran trade; and Islamic-period graves and building foundations of the sixteenth century are now under water (Edwards McKinnon 1988).

Brunei's capital in northwest coastal Borneo in the late Song period contained over ten thousand people (Hirth and Rockhill 1911, 155), placing it in the upper tier of Southeast Asian ports. In the fourteenth century, Brunei was a vassal of the Majapahit Empire. In the early fifteenth century, Brunei sent embassies to China, signifying that it claimed to be an independent polity. At the Kota Batu port site in Brunei, Chinese stoneware comprise 66.5 percent of the ceramics in a surface collection (Harrisson 1970). The Sungai Lumut site yielded stoneware, porcelain, and Thai ceramics of the fifteenth century. This site may have been used as a burial ground; the provision of ceramics as offerings would indicate that the population was not yet Islamicized. A Bruneian archaeologist believes that Sungai Lumut was a ceremonial center where pots were buried, but not as grave offerings (Matussin Omar 1981).

Chinese Ceramics from Coast to Highlands

The only survey designed to trace the distribution of Chinese pottery from the coast to the highlands via a river valley in Sumatra was conducted along the Deli River in 1977. This revealed a series of sites stretching from the coast to the Deli River's source in the Karo Highlands, with sites located in the river delta (the first type), the middle lowland (the second type), the upper end of the river navigable by ships (the third type), and the river's source in the uplands (the fourth type) (Miksic 1979, 222–237). The survey revealed several sites of the second type in the middle lowlands. One of these sites, Kota Bangun, ten kilometers upstream from Kota Cina, yielded surface scatters of Song Dynasty ceramics. Two kilometers further upriver lies Kota Jawa ("Javanese Fort")," near the remains of a fort possibly erected in the fourteenth century by the Majapahit Empire (Anderson 1971, 9, 28). The survey and test excavation yielded sherds from the Song and Yuan Dynasties and wares from fifteenth-century Thailand. Sixteen kilometers west of Kota Cina, a site in the lower Wampu Valley called Tanjong Anom, also yielded Chinese and Thai ceramics of the fifteenth century as well as ancient bricks. Like Kota Cina, Tanjong Anom lies at the inland edge of the mangrove zone that flanks the Straits of Melaka. Tanjong Anom may have once been accessible by river, but it no longer is; river courses in this type of environment are subject to frequent change.

The next sites discussed are of the third type (at the point where rivers become too shallow for boats). The next site upstream from Kota Cina, following the Deli River from the coast, is such a site. It is Deli Tua, which is thirty kilometers inland. It is at a transition point where the land rises and the river becomes shallow and boulder-strewn, making it impassable for boats. Deli Tua is thus an example of sites at the end of the navigable portions of rivers. This specific site consists of two complexes of earthen ramparts and dry moats. No excavations have been carried out here, but a survey in the 1970s recovered Chinese ware of the Song to Ming Dynasties and fifteenth-century Thai ware. It is possible that a kingdom called Haru was based here, which is mentioned in Malay, Chinese, Portuguese, and Arabic sources between 1282 and 1619 (Miksic 1979, 230–235). Proceeding inland from Deli Tua, the next site is Siberaya, which is of the fourth type. It is located on the Karo Plateau, at the source of the Deli River. Surveys there yielded sherds of Yuan and early Ming Dynasties and fifteenth-century Thai origins. In the nineteenth century, before Siberaya was incorporated into the Netherlands East Indies, the village had a meeting hall where chiefs of the Karo Plateau held assemblies, even during periods of inter-village warfare

(Miksic 1979, 235–237). Nearby is the stream Lau Garut, where a survey in 1977 discovered a cliff with an artificial chamber. This was perhaps meant for secondary burial, as the entrance is flanked by relief carvings of boats. "Secondary" refers to exhumation, ritual cleansing, and reburial of human skeletons. This was practiced by inhabitants of the Lau Garut area until the late twentieth century. The carvings of boats suggest that this spot was chosen because of its relationship to the point where boats had to stop and unload their cargoes. These were strategic locations where trade was conducted. From here, commodities would be transported by land either by human porters or on horseback.

Traces of early trade between China and sites in the north Sumatran highlands at the same elevation as Siberaya were still vivid in the early twentieth century. Chinese plates were used to cover chiefs' graves, and porcelain was used by *datu* (shamans) in rituals. An observer recorded that "in recent years [i.e., before 1920,] old Chinese porcelain has been rather thoroughly cleaned out of the Batak lands by Atjehnese and Malay peddlers, to supply a lively demand for old china from European residents and tourists" (quoted in Bartlett 1973, 147 n22). The data on distribution of Chinese porcelain in the Sumatran highlands may have been badly skewed by the propensity of highlanders to bury Chinese ceramics or to keep them intact in houses, rather than to use them in daily life until they were broken accidentally and the pieces discarded, as occurred in lowland societies.

Padang Lawas is an upland plain located on the eastern side of a pass across the mountain range between the west and east coasts of Sumatra. The Panai River, which flows from this plain into the Barumun River and the Straits of Melaka, may be connected with the kingdom of Pannei, which was conquered by the Cholas in 1025 and claimed by the Majapahit Empire in 1365 (Wolters 1967, 193). No search for early sites in the river's lower course has been attempted. In addition to the area's strategic location on overland transport routes, forest products from here were marketed via Aru (located at an unknown place in the northeastern lowlands in the fifteenth century), and gold was mined in the eighteenth century (Perret 2014, 286–290) and probably much earlier. At least twenty-six elaborate complexes of brick shrines dedicated to esoteric Buddhism were built here between the eleventh and thirteenth centuries. At one site, Si Pamutung, Chinese ceramics show that occupation began in the late tenth century, increased in the eleventh and twelfth centuries, and then declined until abandonment in the early fourteenth century (Dupoizat 2014; Perret et al. 2007, 70). Here, Chinese wares constitute only 12 percent of the ceramic assemblage (Desbat 2014, 193) as compared to 30 percent at Kota Cina.

Muara Takus, a complex of brick structures with many similarities to those found at Padang Lawas and Muara Jambi, is site of the third group on the upper Kampar River, one hundred kilometers south of Padang Lawas. The Buddhist complex is associated with Chinese ceramics of late Song–Yuan age. No habitation site has yet been found in the vicinity. It was probably associated with a monastery like most Buddhist sites, which implies the existence of a supporting community, but its remains have not yet been found.

One of the most important vassals of the Majapahit Empire was Malayu. By the late thirteenth century, Malayu's center was located several hundred kilometers inland, in the mountain range along Sumatra's west coast. Several sites in Malayu have yielded statues of Buddhist deities, inscriptions, and remains of brick temples from the fourteenth century. Chinese porcelain of the Song and Yuan Dynasties found at temple sites proves that imported ceramics were transported hundreds of kilometers up the Batanghari River (Peneliti 1992). A probable palace site has also been discovered here (Tjoa-Bonatz 2013), but no habitation or market sites have yet been identified.

The Cultural Significance of Pottery in Premodern Southeast Asia

Ancient Khmer inscriptions indicate that pottery-making was used in metaphors to express the majesty of the ruling elite. An inscription dated 674 CE compares the ruler to the potter's wheel, constantly in motion and a source of creation (Brown 1977, 43 n1). In addition to evidence for the use of ceramics in rituals, linguistic and ethnographic evidence shows that the ancient Khmer made many types of ceramics for specific everyday purposes. Nevertheless, few Southeast Asian historical archaeologists have utilized data on ceramics, and early French scholars working in Cambodia did not consider ceramics a subject for serious research (Groslier 1981, 9).

Chinese ceramics in Southeast Asia carried many symbolic functions never intended by their makers. For example, in Brunei, a sultan had a Chinese jar that he believed would warn him of impending danger (Cole 1912, 11). The Borneo ethnic group known as Dayaks venerated Chinese jars. Some could be owned only by chiefs. Water stored in them could be sold because it was believed to absorb the jar's special powers (Spinks 1978, 104 n9). In Thailand, old jars found by accident were taken to monasteries out of fear that to keep them would bring misfortune to the finder, due to a jar's inherent supernatural power (Spinks 1978, 105). The belief that celadon

(bluish-green porcelain) would react with poison and thus detect or even neutralize it, was common in Southeast Asia and the Islamic world as well.

As noted earlier, during the fourteenth century, Singapore functioned as an intermediary between China and the Riau Archipelago. The Chinese were avid consumers of such rarities as laka wood, hornbill crane crests (which they carved into ornaments of dress and small containers), and products of the surrounding seas that the inhabitants of the Riau excelled in gathering. Chinese porcelain was one of the major commodities that Chinese exchanged for these products. The Chinese did not venture into the Riau Archipelago because the currents and reefs were unknown to them and the inhabitants were reputed to be piratically inclined. Thus, the Riau people would have traveled to Singapore to exchange their products for Chinese manufactured goods, such as glazed pottery, glass beads and bottles, and textiles.

Southeast Asian societies, such as the people of Singapore and the Riau Archipelago, differed in their uses and attitudes toward Chinese ceramics, which highlight certain features of their relations with each other. Hundreds of thousands of Chinese ceramic sherds of the fourteenth through sixteenth centuries have been found along the left bank of the Singapore River. Of these, only about fifteen ceramic items were found intact. The vast majority are fragments, indicating that these ceramics were used in everyday life until they broke. Most of the intact pieces were crude stoneware bottles that had been simply discarded in the same trash heaps as ashes, bones, shells, and other detritus, suggesting how cheap and abundant ceramics were. In the Riau Archipelago, by contrast, the same types of Chinese ceramics were carefully buried with the dead as grave offerings, together with gold ornaments, weapons, and even boats.

Thus, Singaporeans and Riau Islanders perceived Chinese pottery from very different perspectives: as cheap mass-produced items, on the one hand, and as items with mystical properties, on the other. The Riau Islanders maintained a distinct cultural identity rather than adopting the values of urban Singapore. Singaporeans built brick temples, probably for Buddhist rituals, and most likely cremated their dead. The people of the Riau Archipelago believed in the power of their dead ancestors to influence the living, and therefore propitiated their spirits.

A Malay chronicle, the *Sululatu's-salatin*, was composed in the fifteenth century and revised regularly thereafter. The oldest version now in existence was composed in the early seventeenth century (Brown 1970). The *Sululatu's-salatin* depicts two societies: cosmopolitan Malays and *Orang Laut* (Sea Nomads). The latter played significant roles in the courts of the

former. The Sea Nomads saved the last king of Singapore from invading Javanese, helped him to escape into the forests of the Malay Peninsula, and guided him to a new site where he built a capital that became Melaka. The relationship between the Malays and the Sea Nomads appears to have been symbiotic. The Malays depended on the Sea Nomads for defense and various services. The Malays may have convinced the Sea Nomads to bring the products of the sea to Singapore by giving presents, such as rare Chinese goods, to the leaders of the Sea Nomads in the same way that the Malay rulers were linked to the producers of the products of the hinterlands of Sumatra, Borneo, and the Malay Peninsula.

Overseas Chinese trade revived after 1567, when an imperial edict rescinded the ban on Chinese contacts with foreigners. It is no surprise that Chinese ceramics become abundant again in Southeast Asian sites from the late sixteenth and early seventeenth centuries. This resumption of legal trade, after an interlude of two hundred years, had interesting effects on the ceramic industry. One such effect was that Vietnamese and Thai bowls and ewers almost completely vanished from Southeast Asia, although jars from Thailand, Vietnam, and Myanmar continued to be used as shipping containers. A second effect was the development of new types of Chinese ceramics, including some of finest and most original wares, for export to Southeast Asia. Chinese archaeologists have not published reports on the types of ceramics used in domestic sites of the seventh through sixteenth centuries, so it is not possible to compare the styles and quality of ceramics used in domestic versus foreign markets. It has been assumed that "export wares" were of lower quality, but research during the last forty years has shown that reality is considerably more complex than this (Miksic 2009a).

Conclusion

Most studies of Chinese ceramics along the Maritime Silk Road focus on identifying types of wares and the unique or unusual pieces found in particular sites. This approach is interesting for art historians, but it tells us little about the social structure of the societies in South or Southeast Asia. On the other hand, statistical studies of Chinese ceramics found in Southeast Asia could tell us much. Knowledge of the proportion of Chinese to local wares in specific sites would be useful for comparing the role of Chinese ceramics in MSR ports and hinterlands. The proportions of different types of Chinese wares in various sites would offer insights into such variables as

the role of consumer taste in dictating the types of Chinese wares produced for export, and the diversity of life in port-cities in Southeast Asia as well as on the coasts of the Indian Ocean. Unfortunately, little quantitative data on the distribution of ceramics in Chinese sites is available, so it is difficult to make objective comparisons of the economics and social significance of ceramic consumption in their domestic and foreign markets.

Another aspect of the study of Chinese ceramic exports that has been largely neglected (with a few exceptions, such as O'Connor 1991) concerns the contexts in which they have been found. For example, in museums and private collections, many Chinese ceramics discovered in Southeast Asia lack information about their provenance or find spot. Without this information, we cannot use them as windows into early Southeast Asian societies. This chapter has endeavored to show that quantitative studies of Chinese ceramics in sites of the same types (e.g., ports, hinterland settlements, religious complexes, shipwrecks) could be informative, but comparisons of ceramics in different types of sites will not be productive.

The study of Chinese ceramics outside China has much unexploited potential. Collaboration among Chinese and Southeast Asian archaeologists could illuminate many important aspects of economic, technical, and cultural exchanges via ancient maritime networks.

References

Abu Ridho. 1995. "Penelitian Keramik di Situs-Situs Arkeologi Provinsi Jambi." In *Laporan: Hasil Penelitian Arkeologi dan Geologi Propinsi Jambi 1994–1995*, edited by Tim Redaksi, 198–231. Jambi: Pemerintah Daerah Tingkat I Provinsi Jambi.

Anderson, John. 1971. *Mission to the East Coast of Sumatra in 1823.* Kuala Lumpur: Oxford University.

Bartlett, Harley Harris 1973. *The Labors of the Datoe, and Other Essays on the Bataks of Asahan* (*North Sumatra*)*.* Michigan Papers on South and Southeast Asia No. 5. Ann Arbor: The University of Michigan Center for Southeast Asian Studies.

Beavan, Nancy, Sian Halcrow, Bruce McFadgen, Derek Hamilton, Brendan Buckley, Tep Sokha, Louise Shewan, Ouk Sokha, Stewart Fallon, John Miksic, et al. 2012. "Radiocarbon Dates from Jar and Coffin Burials of the Cardamom Mountains Reveal a Previously Unrecorded Mortuary Ritual in Cambodia's Late- to Post-Angkor Period (15th–17th Centuries AD)." *Radiocarbon* 54 (12): 1–22.

Bellina, Bérénice, ed. 2017 *Khao Sam Kaeo: An Early Port-City between the Indian Ocean and the South China Sea*. Mémoires Archéologiques 28. Paris: École française d'Extrême-Orient.

Bielenstein, Hans. 2005. *Diplomacy and Trade in the Chinese World 589–1276.* Leiden: Brill.

Bosch, F. D. K. 1930. "Verslag van een Reis door Sumatra." *Oudheidkundige Verslag*: 133–157.

Bronson, Bennet. 1977. "Exchange at the Upstream and Downstream Ends: Notes toward a Functional Model of the Coastal State in Southeast Asia." In *Economic Exchange and Social Interaction in Southeast Asia*, edited by Karl Hutterer, 39–52. Ann Arbor, MI: Center for South and Southeast Asian Studies.

Brown, C.C. 1970 *Sejarah Melayu Malay Annals.* Kuala Lumpur: Oxford.

Brown, Roxana M. 1977. *The Ceramics of Southeast Asia, Their Dating and Identification.* Kuala Lumpur: Oxford.

Brown, Roxana M. 1988. *The Ceramics of Southeast Asia, Their Dating and Identification*, 2nd rev. ed. Kuala Lumpur: Oxford.

Brown, Roxana M. 2009. *The Ming Gap and Shipwreck Ceramics in Southeast Asia. Towards a Chronology of Thai Trade Ware.* Bangkok: The Siam Society.

Cheng Pei-Ki, Li Guo, and Wan Chui Ki, eds. 2005. *Proceedings of the International Conference: Chinese Export Ceramics and Maritime Trade, 12th–15th Centuries.* Hong Kong: Chinese Civilisation Centre, University of Hong Kong.

Cole, Faye Cooper. 1912. *Chinese Pottery in the Philippines.* Chicago: Field Museum of Natural History

Cremin, Aedeen. 2006. "Chinese Ceramics at Angkor." *Bulletin of the Indo-Pacific Prehistory Association* 26: 121–123.

Desbat, Armand 2014. "Earthenware from Si Pamutung." In *History of Padang Lawas I. The Site of Si Pamutung (9th century- 13th century AD),* edited by Daniel Perret and Heddy Surachman (Cahier d'Archipel 42), 193–267. Paris: Association Archipel.

Dizon, Eusebio Z. 1996. "Anatomy of a Shipwreck: Archaeology of the 15th-Century Pandanan Shipwreck." In *The Pearl Road, Tales of Treasure Ships in the Philippines*, edited by Christophe Loviny, 62–75. Makati City: Christophe Loviny.

Dobbin, Christine. 1983. *Islamic Revivalism in a Changing Peasant Economy: Central Sumatra, 1784–1847.* London: Curzon.

Dunn, Frederick L. 1975 *Rain-Forest Collectors and Traders.* Monograph No. 5. Kuala Lumpur: Malaysian Branch, Royal Asiatic Society.

Dupoizat, Marie-France. 1999. "La céramique importée à Angkor: Étude préliminaire." *Arts Asiatiques* 54: 103–116.

Dupoizat, Marie-France. 2014. "Chinese ceramics imported in Si Pamutung, Padang Lawas." In History of Padang Lawas I. The Site of Si Pamutung (9th century- 13th century AD), edited by Daniel Perret and Heddy Surachman, 275-333. Paris: Cahier d'Archipel 42.

Dupoizat, Marie-France, and Naniek Harkantiningsih. 2007. *Catalogue of the Chinese Style Ceramics of Majapahit. Tentative Inventory*. Cahiers d'Archipel 36. Paris: Association Archipel.

Edwards McKinnon, Edmund. 1982. "A Brief Note on Muara Kumpeh Hilir: An Early Port Site on the Batang Hari." *SPAFA Digest* 3 (2): 37–40.

Edwards McKinnon, Edmund. 1984. "Kota Cina: Its Context and Meaning in the Trade of Southeast Asia in the Twelfth to Fourteenth Centuries," PhD diss., Cornell University.

Edwards McKinnon, Edmund. 1988. "Beyond Serandib: A Note on Lambri at the Northern Tip of Aceh." *Indonesia* 46:102–121.

Eka Asih Putrina Taim. 1992. 'Foreign Ceramics from the Site at the Sultan Mahmud Badaruddin Museum. An Analysis of the Results of the 1989–1990 Excavationsz," BA Honors Thesis, Universitas Indonesia.

Flecker, Michael. 2001. "A Ninth-Century AD Arab or Indian Shipwreck in Indonesia: First Evidence for Direct Trade with China." *World Archaeology* 32 (3): 335–354.

Fox, Robert B. 1959. "The Calatagan Excavations: Two Fifteenth Century Burial Sites in Batangas, Philippines." *Philippine Studies* 7 (3): 325–390.

Fox, Robert B. and A, Legaspi. 1977. *Excavations at Santa Ana*. Manila: National Museum of the Philippines.Fox, Edward W. 1971. *History in Geographic Perspective*. New York: Norton.

Gasco, Janine. 1992. "Documentary and Archaeological Evidence for Household Differentiation in Colonial Socumusco, New Spain." In *Text-Aided Archaeology*, edited by Barbara Little, 83–94. Boca Raton, FL: CRC Press.

Groeneveldt, Willem Pieter. 1960. *Historical Notes on Indonesia and Malaya Compiled from Chinese Sources*. Jakarta: Bhratara.

Groslier, Bernard-Philippe. 1981. "Introduction to the Ceramic Wares of Angkor." In *Khmer Ceramics: 9th–14th Century*, edited by Diana Stock, 9–19. Singapore: Southeast Asian Ceramic Society.

Guillot, Claude, Lukman Nurhakim, and Sonny Wibisono. 1994. *Banten Avant l'Islam: Étude archéologique de Banten Girang (Java-Indonésie) 932?–1526*. Monographies No. 173. Paris: Publications de l'École française d'Extrême-Orient.

Haggett, Peter. 1966. *Locational Analysis in Human Geography*. New York: St. Martin's Press.

Harrisson, Barbara. 1970. "A Classification of Archaeological Trade Ceramics from Kota Batu, Brunei." *Brunei Museum Journal* 2 (1): 114–187.

Hendrickson, Mitch. 2017. "Transportation and the Anomaly of Road Systems in Historic Mainland Southeast Asia." In *Handbook of East and Southeast Asian Archaeology*, edited by Junko Habu, Peter Lape, and John Olsen, 533–546. New York: Springer.

Heng Piphal. 2004. "Archaeological Excavation in the North Pond (Srah Andong) of Prasat Suor Prat, Japanese Government Team for Safeguarding Angkor (JSA)." In the *Annual Report on the Technical Survey of Angkor Monument 2004*, 215–233. Tokyo: Japan International Cooperation Centre.

Hirth, Friederich, and W. W. Rockhill. 1911. *Chau Ju-kua: His Work on the Chinese and Arab Trade in the Twelfth and Thirteenth Centuries*. St. Petersburg: Imperial Academy of Science.

Ho Chuimei. 1994. "Problems in the Study of Zhejiang Green Glazed Wares with Special Reference to Ko Kho Khao and Laem Pho-Payang, Southern Thailand. In *New Light on Chinese Yue and Longquan Wares: Archaeological Ceramics Found in Eastern and Southern Asia, A.D. 800–1400,* edited by Ho Chuimei, 187–212. Hong Kong: Centre of Asian Studies, The University of Hong Kong.

Hsieh Ming-liang. 2010. "The Navigational Route of the Belitung Wreck and the Late Tang Ceramic Trade." In *Shipwrecked: Tang Treasures and Monsoon Winds*, edited by Regina Krahl, John Guy, J. Keith Wilson, and Julian Raby, 137–143. Washington, DC: Arthur M. Sackler Gallery, Smithsonian Institution, National Heritage Board of Singapore, and Singapore Tourism Board.

Hsü Yün-Ts'iao. 1973. "Singapore in the Remote Past." *Journal of the Malaysian Branch of the Royal Asiatic Society* 45 (1): 1–9.

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

Jindasu, Saiklang. 2019. "From Highland to Maritime Trade: Lan Na's Highlanders and Their Jungle Products." In *Ancient Maritime Cross-Cultural Exchanges: Archaeological Research in Thailand*, edited by Amara Srisuchat, Wilfried Glessler, Tharapong Srisuchat, and Duangjai Pichitnarongchai, 286–303. Bangkok: Fine Arts Department.

Kamarudin Abul Razak. 1998. *Peninggalan Sejarah di Pesisiran Sungai Johor*. Johor Bahru: Yayasan Warisan Johor.

Kobata, Atsushi, and M. Matsuda. 1969. *Ryukyuan Relations with Korea and South Sea Countries.* Kyoto: Atsushi Kobata.

Lamb, Alastair. 1961. "Miscellaneous Papers on Early Hindu and Buddhist Settlement in Northern Malaya and Southern Thailand." *Federation Museums Journal*, n.s., vol. 6.

Liebner, Horst H. 2014. *The Siren of Cirebon. A Tenth-Century Trading Vessel Lost in the Java Sea.* PhD diss., University of Leeds.

Locsin, Cecilia, and Leandro Locsin. 1967. *Oriental Ceramics Discovered in the Philippines.* Rutland, VT: Charles E. Tuttle Co.

Manguin, Pierre-Yves. 1987. "Études Sumatranaises I. Palembang et Srivijaya: anciennes hypothèses, recherches nouvelles." *Bulletin de l'École Française d'Extrême-Orient* 76: 337–402.

Manguin, Pierre-Yves. 1992. "Excavations in South Sumatra, 1988–1990: New Evidence for Sriwijayan Sites." In *Southeast Asian Archaeology 1990: Proceedings of the Third Conference of the European Association of Southeast Asian Archaeologists,* edited by I. C. Glover, 63–73. Hull: University of Hull, Centre for Southeast Asian Studies.

Matsong, Natthapong. 2019. "Chinese Stoneware and Porcelain Found in Thailand's Archaeological Sites Reflecting Trade Routes and Local Use." In *Ancient Maritime Cross-Cultural Exchanges: Archaeological Research in Thailand*, edited by Amara Srisuchat, Wilfried Glessler, Tharapong Srisuchat, and Duangjai Pichitnarongchai, 208–229. Bangkok: Fine Arts Department.

Matussin Omar. 1981. *Archaeological Excavations in Protohistoric Brunei.* Brunei: Muzium Brunei.

Miksic, John N. 1979. *Archaeology, Trade, and Society in Northeast Sumatra.* PhD diss., Cornell University.

Miksic, John N. 1985. "Traditional Sumatran Trade." *Bulletin de l'École Française d'Extrême-Orient* 74: 423–467.

Miksic, John N. 1994. "Recently Discovered Chinese Green Glazed Wares of the Thirteenth and Fourteenth Centuries in Singapore and Riau Islands." In *New Light on Chinese Yue and Longquan Wares: Archaeological Ceramics Found in Eastern and Southern Asia, A.D. 800–-1400*, edited by Ho Chuimei, 229–250. Hong Kong: The University of Hong Kong.

Miksic, John N. 2009a. "Research on Ceramic Trade, within Southeast Asia and between Southeast Asia and China." In *Southeast Asian Ceramics: New Light on Old Pottery*, edited by John N. Miksic, 70–99. Singapore: Southeast Asian Ceramic Society.

Miksic, John N. 2009b. "Highland-Lowland Connections in Jambi, South Sumatra, and West Sumatra, 11th to 14th Centuries." In *From Distant Tales: Archaeology and Ethnohistory in the Highlands of Sumatra*, edited by Dominik Bonatz, John Miksic, J. David Neidel, and Mai Lin Tjoa-Bonatz, 75–103. Newcastle upon Tyne: Cambridge Scholars Publishing.

Miksic, John N. 2013a. S*ingapore and the Silk Road of the Sea 1300–1800.* Singapore: NUS Press/National Museum of Singapore.

Miksic, John N. 2013b. Review of *Shipwrecked: Tang Treasures and Monsoon Winds*, exhibition catalog, edited by Regina Krahl, John Guy, J. Keith Wilson, and Julian Raby, 137–143. *IIAS* (International Institute for Asian Studies) *Newsletter* 64 (Summer): 43.

Miksic, John N., and Endang Soekatno, eds. 1995. *The Legacy of Majapahit.* Singapore: National Museum.

Miksic, John N., and Geok Yian Goh. 2017. *Ancient Southeast Asia.* New York: Routledge.

Miksic, John N., and Kamei Meitoku. 2010. *Research on Ceramics Discovered at the Trowulan Site in Indonesia.* Tokyo: Senshu University.

Mills, John V. G., ed. and trans. 1970. *Ma Huan, Ying-yai Sheng-lan.* Cambridge: Hakluyt Society.

Nakagawa, Takeshi. 2000 *Report on the Conservation and Restoration Work of the Northern Library of the Bayon, Angkor Thom, Kingdom of Cambodia.* Tokyo: Japan International Cooperation Centre.

Nik Hassan Shuhaimi bin Nik Abdul Rahman. 2011. "The Archaeology of Later Prehistoric Ports and Pre-Melakan Entrepots and Evidence of Inter-Regional Trade in Malaysia." In *Ancient Harbours in Southeast Asia*, edited by John N. Miksic and Geok Yian Goh, 69–80. Bangkok: SEAMEO SPAFA.

O'Connor, Stanley J. 1991. "Critics, Connoisseurs, and Collectors in the Southeast Asian Rain Forest." *Asian Art* 4 (4): 51–67.

Tim Peneliti [Research Team]. 1992. *Laporan Penelitian Sumatra Barat Tahap II di Situs Padang Rocok, Desa Sungailalat-Siluluk, Kecamatan Perwakilan Pulaupanjang Kabupaten Sawahlunto-Sijunjung, Sumatra Barat.* Jakarta: Pusat Penelitian Arkeologi.

Peronnet, Sophie, and Sachipan Srikanlaya. 2017. "The Han Ceramics." In *Khao Sam Kaeo: An Early Port-City between the Indian Ocean and the South China Sea*, edited by Bérénice Bellina, 391–422. Memoires Archéologiques 28. Paris: École Française d'Extrême-Orient.

Perret, Daniel. 2014. "Societies of Padang Lawas (mid-ninth–end of thirteenth century CE)." in *History of Padang Lawas II. Societies of Padang Lawas (mid-9th century- 13th century CE),* edited by Daniel Perret, 283–362. Paris: Cahier d'Archipel 43.

Perret, Daniel, Heddy Surachman, Lucas P. Koestoro, and Sukawati Susetyo. 2007. "Le programme archéologique franco-indonésien sur Padang Lawas (Sumatra Nord). Réflexions préliminaires." *Archipel* 74:45–82.

Rockhill, William W. 1915. "Notes on the Relations and Trade of China with the Eastern Archipelago and the Coast of the Indian Ocean during the Fourteenth Century. Part 2." *T'oung Pao* 16 (1): 61–159, 236–271, 374–392, 435–467, 604–626.

Scott, James C. 2009 *The Art of Not Being Governed: An Anarchist History of Upland Southeast Asia.* New Haven, CT: Yale University Press.

Skowronek, Russell K. 2016. "Cinnamon, Ceramics, and Silks: Tracking the Manila Galleon Trade in the Creation of the World Economy." In *Early Navigation in the Asia-Pacific Region*, edited by Wu Chunming, 59–74. Singapore: Springer Nature.

Smith, Carole A. 1974. "Economics of Marketing Systems: Models from Economic Geography." *Annual Review of Anthropology* 3:167–201.

Solheim, Wilhelm G. II, and E. Green. 1960. "Johore Lama Excavations, 1960." *Federation Museums Journal* X, special issue.

Southeast Asian Ceramic Society (West Malaysian Chapter). 1985. *A Ceramic Legacy of Asia's Maritime Trade: Song Dynasty Guangdong Wares and Other 11th to19th Century Trade Ceramics Found on Tioman Island, Malaysia*. Kuala Lumpur: Oxford University Press.

Spinks, Charles Nelson. 1978. *The Ceramic Wares of Siam,* 3rd rev. ed. Bangkok: Siam Society.

Srisuchat, Amara. 1994. "Discovering Chinese Yue and Longquan Green Glazed Wares and Reconsidering Their Socio-Economic Roles in the Development of Ancient Communities in Thailand." In *New Light on Chinese Yue and Longquan Wares: Archaeological Ceramics Found in Eastern and Southern Asia, A.D. 800–1400,* edited by Ho Chuimei, 213–228. Hong Kong: Centre of Asian Studies, The University of Hong Kong.

Team Proyek Dieng: Jurusan Arkeologi, Fakultas Ilmu Budaya, and Universitas Gadjah Mada. 2010. *Dieng Temple Complex Excavation Report.* Translated by Goh Geok Yian and John N. Miksic. Singapore: NUS Epress. http://epress.nus.edu.sg/sitereports/dieng

Tjoa-Bonatz, Mailin. 2013. "Im goldland der Minangkabau. Auf der Suche nach dem letzten hindu-buddhistischen Königreich." *Antike Welt* 5 (13): 14–20.

Tran, K.P. 2013. *Crossing Boundaries: Learning from the Past to Build the Future.* Chiang Mai (Thailand): The Regional Center for Social Science and Sustainable Development, Chiang Mai University. Research Report No. 8.

Van Orsoy de Flines, Egbert Willem. 1941–1947. "Onderzoek naar en van Keramische Scherven in de Bodem in Noordelijk Midden-Java, 1940–'42." *Oudheidkundige Verslag*, Bijlage A: 66–84.

van Schendel, Willem. 2002. "Geographies of Knowing, Geographies of Ignorance: Jumping Scale in Southeast Asia." *Environment and Planning D: Society and Space* 20 (6): 647–668. https://doi.org/10.1068/d16s.

Wolters, Oliver W. 1967. *Early Indonesian Commerce: A Study of the Origins of Srivijaya.* Ithaca, NY: Cornell University Press.

Wolters, Oliver W. 1975. "Landfall on the Palembang Coast in Medieval Times." *Indonesia* 20: 1–57.

Wong, G. 1979. *A Comment on the Tributary Trade between China and Southeast Asia.* Transaction no. 7. Singapore: Southeast Asian Ceramic Society.

Zhang, Jian, and Martin Saxer. 2014. "Introduction: Neighbouring in the Borderworlds along China's Frontiers." In *The Art of Neighbouring: Making Relations Across China's Borders*, edited by Martin Saxer and Jian Zhang, 11–29. Amsterdam: Amsterdam University Press.

Sungei Bujang

Temasik

Indian Ocean

8   Urban Demographics along the Asian Maritime Silk Road

Archaeological Small Finds and Settlement Patterns at Premodern Port-Settlements of the Malay Region

Derek Heng

Abstract

As a series of commercial networks and routes, the Maritime Silk Road has provided a common body of material culture that has been traded across different economic zones and markets. However, for port-cities, their society and economy may be impacted by such factors as geography, politics and ethnicity, resulting in unique characteristics that may be elucidated from the variations in archaeologically recovered material cultural remains. Over the last three decades, substantial archaeological data of ceramics have been accrued from early second millennium AD settlement sites in the Malacca Straits Region. Through the use of this information, this paper seeks to identify the social status, demographic differences and cultural identity-traits both between and within contemporaneous port-cities in this region.

Keywords: Malacca Straits Region, Port-cities, premodern Southeast Asia; settlement pattern, archaeology, ceramics

Introduction

The Maritime Silk Road (MSR) that traversed Asia has been, throughout history, a unique network of commercial linkages, diasporic movements, sociocultural flows, and material consumption and production patterns. Unlike the land Silk Road across Central Asia, which saw pack caravans as the sole mode of transportation (Hansen 2012), the use of ships along the

MSR as the key mode of transport resulted in high-volume distribution of mass-produced items and products from a number of key economies, including China, Southeast Asia, the Indian subcontinent, Middle East, and East Africa (Abu-Lughod 2013; Hall, 2011; Heng 2012).

While there was clearly a wide range of products, both affordable and expensive, that were traded across the different sectors of the MSR, several groups of products began to emerge as the mainstays of this trade. These included ceramics, beads, metal ware, textiles, foodstuffs (including spices), aromatics, and fauna products. The widespread and high-volume distribution of this trade resulted in a similitude of material culture imported by societies that existed along the littoral zones of the MSR. Consequently, at the macro level, the archaeological remains and textual accounts on trade goods exchanged across the MSR have remained fairly consistent over time and space. Chinese ceramics, for example, have been mentioned in texts and found across maritime Asia from Japan and Korea to the east coast of Africa. Similarly, frankincense has been traded from North Africa across to China.

Within a region, small items recovered from archaeological contexts provide a relatively standard vocabulary and dataset through which a socio-economic realm may be articulated. For the Malay region and the Melaka Straits, this data has enabled scholars to study the nature of port-settlements as well as settlements further upstream of the littoral zone, and to understand the nature of the interactions between the societies that occupied both these spaces (Hall 2002; Perret and Surachman 2014).

However, these same items, once imported into specific regions across the maritime realm, began to take on various meanings and uses that reflected the idiosyncrasies of each region. Hence, while the items consumed may have had some degree of standardization across the MSR, the specificities of how they were utilized, from mundane functions of day-to-day life to reflections of aesthetics embodied by the societies of a region, tended to differ significantly.

At the port-settlement level, these items could possibly reflect different modes of expressing sociocultural and economic differences within a settlement's population. Importantly, how each settlement's inhabitants utilized the different imported items, and in the process reflected on the differences and relationships between the subgroups of a population, could differ from settlement to settlement.

To date, two broad approaches have been adopted by Southeast Asian scholars in their efforts to understand the demographic layout of Southeast Asia's port-settlements. The first is the use of geographical-economic redistributive models relevant to coastal Southeast Asia. One is the port-of-trade

model proposed by Karl Polanyi (1957, 1963), in which a location of exchange providing adequate shelter for vessels, the exchange of goods, and rules of accountability was established and enforced by a polity. The other is the dendritic model proposed by Bennet Bronson (1978), in which a coastal polity maintained access to the international and regional markets, while performing a distributive function in exchange for the acquisition of inland products harvested or produced by settlements located upstream of a port-settlement in a riverine system (see Kelley 1976).

The second approach utilizes characteristics of a classical port-city to identify and classify port-settlements, based on the assumption that Malay port-settlements would, in general, possess a range of similar characteristics. These characteristics provide a vocabulary in which a settlement could then be qualified. One model that has been used draws on the characteristics of port-cities recorded in the historical texts of the region. Although these texts are often posthumous to the settlements in question, the characteristics of the classical port-city are extrapolated into the past and used as working assumptions for conducting such reconstructions (Bronson and Wisseman, 1976; Manguin 2002). The result is that while an ideal model of a Malay port-settlement may be created as a framework, often the archaeological data accrued in the field does not fit the model (Manguin 1993; Wheatley 1983).

The absence of a clear urban framework has led scholars to articulate the need for flexibility in approaching the issue of urban generation and urban formation of premodern Malay port-settlements. This heterogenetic approach has allowed settlement sites to be studied in their own right, even as the assumption of similitude in terms of the arc of the urban development trajectory continues to be held (Wilson, von Grunebaum, and Harris 1954). Thus, while the port-settlements are explored as individually unique case studies, there is the assumption that with sufficient case studies, a framework would likely emerge at the macro level, thereby banding the region's cities into a larger sphere through economy, culture, or geography (Miksic 2000).

The scholarly literature on Malay port-settlements indicates that while archaeology appears to provide relatively standardized datasets to work with, the challenge has been to come up with aspects of the settlement's characteristics that may be explored. Further, while scholars have assumed that similarities in the ways in which small items have been used by societies within a region could provide standardized outcomes from which the notion of a regional sphere—based on shared urban commonalities—may be established, would micro-level case studies confirm this assumption?

Small Finds as Reflections of Demographic Patterns

Archaeological research on settlement patterns in Southeast Asia has been prolific over the last fifty years. A number of sites have been archaeologically researched in some detail, including Palembang, Muara Jambi, Barus, the settlements on the Isthmus of Kra (Khao Sam Kheo, Satingpra, and Nakhon Si Thamarat), South Kedah, Kota Cina and Singapore, to name but a few (Allen 1988; Bellina 2017; Jacq-Hergoualc'h 2002; McKinnon 1984; Miksic 1985). Given the climate and acidity of the soil in coastal Southeast Asia, there is relatively limited architectural and textual remains at these sites. Instead, small finds, including metal remains such as coinage, organic remains such as bone remains, glass remains including beads and sherds, as well as ceramics such as earthenware pottery, have been the most important and consistent finds.

This approach has enabled scholars to address several research questions, including the international linkages between these port-cities with the external world (Chi 2017; Heng 2004; Lam 1985; Leong 1973) and the relative purchasing power and economic affluence of these settlements' populations (Guillot et. al. 1998; Leong 1990; Lim 2012).

What has not been done is the utilization of archaeological data on small finds to develop micro-level analyses of the settlements in question, specifically the differences in social groups that may have been located in a settlement. To be sure, there has been some attempt to try to differentiate between areas within a settlement. However, these have been limited to one or two specific types of items that were clearly unique from the general body of ceramics. Importantly, such differentiations have been based primarily on relative purchasing power capabilities and differing aesthetic tastes. Further, there is no ability to establish any co-relation that may have existed between the different groups, since the underlying assumption is that the manifestation of differences is confined to the ability to effect consumption preferences within the social group itself. The resulting demographic model that may be reconstructed is therefore only limited to a hierarchy based on consumption capabilities, with no sense of the interactive dynamics within the group.

What may be possible through the use of a wider range of ceramics is to elucidate the interactive dynamics and co-relation between different social groups of a larger settlement population. The reconstruction of the interaction could be thus characterized by hierarchy, commonality, reciprocity, and distinctiveness. The differences and similarities between groups, and the extent to which they interacted with each other, would reflect varying degrees and distinctions of membership, all within the confines of a port-city or settlement.

Three factors come into play in such an approach. The first—relative purchasing power—assumes that different groups within a settlement may possess different abilities to acquire items that are primarily obtained through some form of economic exchange. While this acquisition may be affected through the use of some form of money (i.e., store of value and means of exchange), it could also be affected through the exchange (e.g., barter) of demanded goods that a group could produce or the rendering of services (e.g., payment-in-kind). Relative purchasing power presupposes relatively egalitarian access to these items that are in demand by the different groups in a settlement and does not presuppose any hierarchical differentiation that may be expressed through the limiting of access to these items as an expression of such hierarchical differences.

A second factor would be aesthetic tastes. This factor assumes that different groups would manifest different preferences in visual, tactile, and symbolic experiences. Critically, the assumption would be that sufficient cultural differences exist for differentiations to be made manifest within a settlement, even as the range of items made available to the different groups in a settlement would likely have been the same.

A third factor would be economic activities. This factor assumes that different groups would conduct different economic activities based on (1) uniqueness of skills, and (2) the degree of value-added skills needed for a specific activity. While the first type of skills may often be associated with cultural differences between groups, the second may be an expression of social hierarchical differences, based primarily on the ability to put an economic value to an activity.

The three factors of relative purchasing power, aesthetic preferences, and economic activities provide lenses through which groups within a settlement may be differentiated, and in the process allow for the elucidation of the nature of the social demographics of the population in question. Where these factors intersect, there is the possibility of reinforcement of such differences in terms of unconscious and conscious manifestations. These manifestations result in what would be the material cultural remains of mundane or inconsequential materials; in particular, postuse detritus, which is the focus of this study.

Concurrently, material cultural remains could provide evidence for the elucidation of groups that shared varying degrees of common identification, or closeness, within a small settlement space. Lineage groups, kinship groups, and polity groups, while all expressing notions of belonging and membership, also express differing degrees of closeness or social networks between groups. While all groups resident in a settlement could consider themselves

Figure 8.1   Venn diagram of social differentiation based on economic activities, aesthetic preferences, and purchasing power
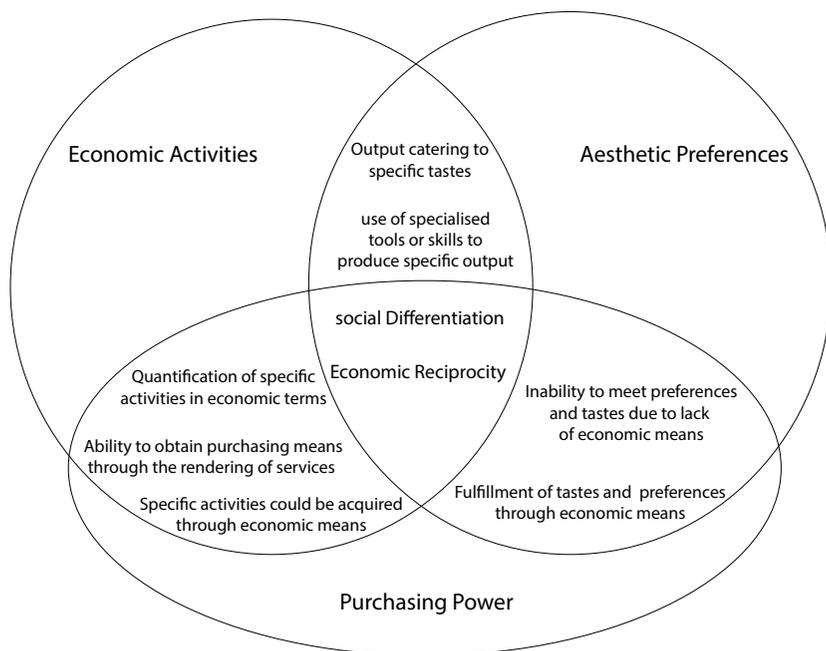
as belonging to a settlement or polity, within the settlement itself there could be specific groups that have ties that are exclusive among themselves. Similarly, specific groups could be more closely aligned vertically, or related to the central group or groups further up the social hierarchy than others.

Such shared identification between different groups may be manifest in economic reciprocity. Items that would have been more accessible to, or in the possession of, one group would have been shared with others either through generalized reciprocity (in which the benefits of receiving these items is manifest in one group through beneficial exchanges), balanced reciprocity (in which the benefits of receiving these items is equally reciprocated by the returning of commensurate service or goods), or negative reciprocity (in which the benefits of receiving these items is not commensurate to the service or goods that has been rendered for them). Where shared identification between different groups would have been nonexistent or not manifest, then certain items would not have been accessible or been taken away from a group, indicating an asymmetrical relationship between one group with the upper hand and another without the ability to exact a sufficiently equitable relationship (Sahlins 2017, 168–258). Coupled with

the aforementioned factors of relative purchasing power, aesthetic tastes, and economic activities, the liminal differences and ties between groups located within a relatively small settlement space may be elucidated

This chapter seeks to use archaeological data of excavated small finds in the settlements of the Malay region to identify demographic differences within a settlement as well as to develop a workable approach for demographic reconstruction of such settlements, particularly for settlements where there is a paucity of historical documentation.

This study will examine two case studies—Sungei Bujang and Temasik. Located in South Kedah, Peninsula Malaysia, Sungei Bujang was a settlement site active between the seventh to tenth centuries and the twelfth to early fourteenth centuries CE (Allen 1988; Jacq-Hergoualc'h 2002; Leong 1973). Located at the northern entrance of the Straits of Malacca, the port opened up to the Bay of Bengal littoral and served as a landing and launching point for vessels traversing the Bay of Bengal. Several decades of archaeological research has been done at various locations of this settlement, although almost all the sites that have been excavated are sites with ritual functions. The resulting accrual of data on small finds from these sites would allow for some level of spatial and occupational analysis. While quantitative data is not available for all the sites excavated, qualitative data in the form of types of small finds recovered is available.

The two periods of settlement history may be distinguished both in terms of the geographical location of the activity sites located along the Sungei Bujang (Bujang River estuary) as well as the material cultural remains, in particular imported Chinese ceramics. In addition, the nature of the small finds can provide us with the means to determine whether there are demographic differences between the groups inhabiting the settlement of the same period and across time.

The second case study, Temasik, is a late thirteenth century to early fifteenth century CE settlement at the mouth of the Singapore River, Singapore. Textual and archaeological evidence suggests that there were port activities at this settlement, with the possibility of the settlement playing a redistributive role in foreign products to the settlements and populations of the surrounding maritime area, including the Riau Islands and South Johor (Heng 1999, 2002). More than ten excavations have been conducted at the settlement area since 1984 (Miksic 2014), and the result is the present availability of both qualitative data on the small finds recovered through these excavations and detailed quantitative data of the small finds from several of these sites. It is at this site that the spatial reconstruction will be at its most detailed in this chapter's study.

Sungei Bujang

Sungei Bujang comprises several habitation areas spread over four kilometers of the Bujang River estuary near the mouth of the Sungei Merbok River. The seventh-century to tenth-century habitation site has been identified as upstream of Site 16, while the twelfth century to fourteenth century site has been identified as downstream of Site 16. In both periods, the habitation sites were likely located close to the coastline, before the latter moved outward due to geomorphological changes resulting from soil erosion and land extension over time. Between the tenth and eleventh centuries, the site appears to have been abandoned in favor of another river estuary further south.

The site contains a number of monumental architectural remains, primarily in the form of temple bases. Numerous archaeological excavations have been conducted in this area since the 1940s, resulting in a large body of literature on both the large architectural remains and the small finds that have been recovered (Jacq-Hergoualc'h 2002, 193–232, 294–300, 361–390, 443–488). Detailed identification of the small finds has been recorded, although quantitative data is absent.

The material cultural remains at this settlement may be classified into five profiles: (A) complex material cultural remains containing imported ceramics and glass sherds; (B) sites that contain beads, primarily manufactured from glass; (C) material cultural remains comprising imported ceramics and locally produced ceramics; (D) material cultural remains comprising only of imported ceramics; and (E) material cultural remains containing only domestic ceramics (Allen 1988, table 16). Each of these profiles may be extrapolated to represent certain consumption patterns that could in turn reflect demographic differences.

Profile A likely represents subgroups that had the purchasing power and access to acquire international products of a diverse range. This range of products includes items from the South China Sea littoral, evident from the Chinese ceramics and Chinese glass, and Indian Ocean littoral products, including South Asian rouletted ware and Middle Eastern glass.

Profile B reflects the likely presence of a specific aesthetic taste in glass material products tied closely to physical or bodily adornment, either in clothing or as jewelry. It is also possibly an indication of an affinity for material cultural tastes associated with South Asian material cultural production. Apart from two excavated sites, Profile B typically occurs with one of the other four profiles.

Profile C, being devoid of glass or beads, reflects subgroups that had the ability to consume international products, but with the range of products

Figure 8.2   Map of the Sungei Bujang settlement area
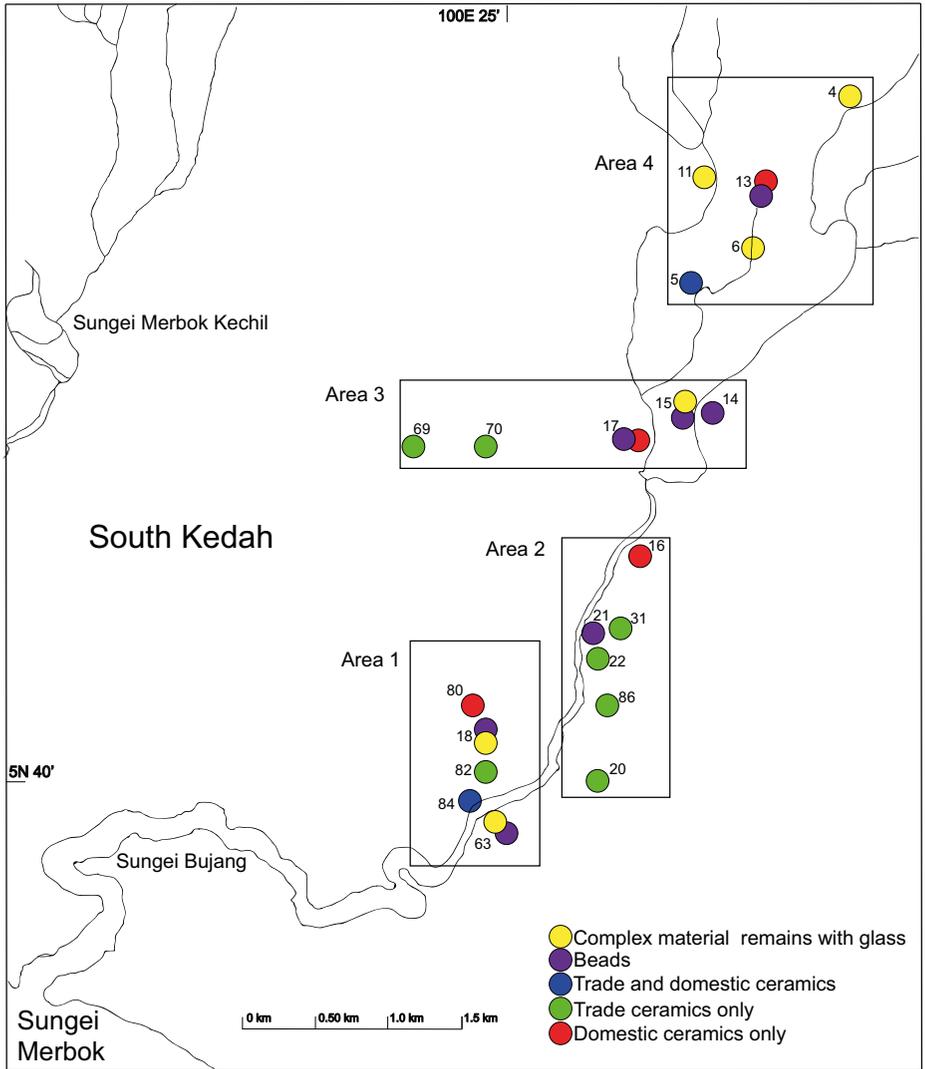
being limited to ceramics. The presence of both domestic and international ceramics suggests that these subgroups engaged in several culinary activities that could have included both the mundane and daily to the ceremonial.

Profile D, containing only imported ceramics, suggests that the subgroups located at the sites with this profile had very limited activities. The higher value and relative scarcity of imported ceramics, coupled with the absence of domestic ceramics, suggest that the activities were likely periodic in

nature and selective in terms of the usage of specific types of ceramics in the activities conducted here.

Finally, Profile E, containing only domestic ceramics, reflects subgroups that did not acquire imported material culture and likely stand in complete contrast to those from sites with Profile A.

The differentiation of subgroups based on the profiles of the material cultural remains as explicated above; it rests primarily on access and consumption or the lack thereof of international products. Some semblance of selectivity in terms of the usage of materials, such as the exclusive use of imported ceramics, may also be reflected. In both instances, demographic differentiation, social characteristic, and spatial distribution may be discerned.

First, four clusters of subsettlements may be noted—Area 1 is near the coast at the mouth of the river estuary, dated to the eleventh to thirteenth centuries CE; Area 2 is a cluster of sites immediately upstream of Area 1, up to Site 16, also dated to the eleventh to thirteenth centuries; Area 3 is a small cluster of sites immediately upstream of Area 2, dated to between the eighth and twelfth centuries; and Area 4 is a cluster of sites furthest upstream, south of Mt. Gunung Jerai, and dated to the seventh to ninth centuries.

Prior to the eleventh century, the shoreline of the Sungei Merbok lay somewhere north of Site 16 (Murphy 2017, 363). In Area 3, the distribution of Profile A material cultural remains along with the distribution of Profile B remains in close proximity in an east-west orientation suggest that in the first instance, the groups that were resident at this location was likely clustered together. Importantly, the use of glass beads was a characteristic shared by these groups; more so, in fact, than the use of a complex range of imported material culture. Visual aesthetics, as represented by the usage of beads, was likely the common cultural trait of the groups that were located in Area 3.

The converse may be noted of the groups inhabiting Area 4. The primary material cultural profile in this area's sites is Profile A. The three sites (Sites 4, 6, and 11), located fairly equidistant from each other and along the north-south course of the Sungei Bujang, suggest that the groups inhabiting Area 4 were likely more egalitarian than in Area 3. They either possessed relatively equal abilities to obtain items of international origin or a social system that allowed for the equal distribution of international items across all groups occupying this area. At the same time, with Site 13 being the only location with beads, the use of beads as a visual aesthetic preference does not appear to have been a common practice adopted by the groups located in this area but rather a unique incidence at this site.

Bringing both Areas 3 and 4 together as a single settlement area, several characteristics may be inferred of the groups occupying this enlarged

location. First, the same range of material culture appears to have been made available to the groups located in these two areas. This suggests that, at least at the macro level, the inhabitants shared common characteristics in terms of their material cultural consumption. The differences may, instead, be discerned through the different material cultural remains that were manifest in the ritual sites located in this settlement area. Aesthetically, Area 3 groups, regardless of their relative social hierarchical position, appear to have utilized beads as a visual marker. Conversely, Area 4 groups did not exhibit this trait at all. Instead, the egalitarian nature of the distribution of complex material cultural remains appears to have been the shared characteristic of the groups located in Area 4. In this regard, the basis for common identification among the groups in Area 3 and Area 4 were likely to have been distinct.

Second, the locational distribution of the sites and their respective material cultural remains were different in both areas. Those in Area 3 appear to adhere to some form of concentric pattern in an east-west orientation. The concentration of complex material culture with beads at Site 15, of only beads at Site 14, and of only domestic ceramics and beads at Site 17 suggest some hierarchical structure within the group occupying Area 3, reflected by the ability, or lack thereof, to obtain international products. Importantly, the east-west orientation of this concentric pattern suggests that the different subgroups in Area 3 were settled along the ancient coastline and likely exhibited a coastal settlement pattern of spatial distribution. Conversely, the north-south orientation of the sites in Area 4, with their evenly spaced geographical distribution along the river branches, is more akin to the upstream settlement pattern of the dendritic model of settlement distribution articulated by Bennet Bronson.

This pattern has been argued to be the result of the reliance of coastal settlers on forest products and dry rice cultivation on the arable lands upstream of the Sungei Bujang. The resulting economic exchange likely led to the interaction between the different groups inhabiting this part of South Kedah during the seventh to ninth centuries CE. What is unique about Areas 3 and 4 is that this nature of exchange appears to have manifested over a much smaller geographical extent than Bronson's model assumes.

Finally, from a temporal perspective, the datable remains of Area 3 are primarily from the eighth to twelfth centuries, whereas those of Area 4 are from the seventh to ninth centuries CE. The cultural distinction between the groups inhabiting the two areas may be due in large part to this temporal difference, with the inhabitants of Area 4 active in the upstream reaches of the Sungei Bujang and as upland inhabitants at least one century before

coastal settlement activities started downstream in Area 3. It is not clear if the coastal settlers of Area 3 were migrants from the upland groups of Area 4, although it is possible that, given the cultural differences, these migrants could have originated from elsewhere. Even as upland settlement activity ceased after the ninth century in Area 4, the coastal-type settlement activities continued into the twelfth century, even though the silting of the coastline by the ninth century had led to port activities shifting southward to the Sungei Muda and the port-settlement at present-day Kampong Sungei Mas.

The geomorphological changes to the shoreline of the Sungei Merbok resulted in another settlement emerging along the lower reaches of the Sungei Bujang during the eleventh to thirteenth centuries. Consisting of two clusters of habitation sites, this settlement comprised Area 1 and Area 2. The groups inhabiting Area 1 were located along the coastline of the Sungei Merbok from the eleventh century to thirteenth century. The location of the sites in the area also exhibited a concentric pattern in terms of material cultural remains. The groups at Sites 18 and 63 appear to have formed the core of the settlement. Both possess complex material cultural remains (Profile A), while groups sites with lesser access to imported products were located in close proximity along the coastline. The settlement was clustered primarily on the north bank of the river mouth, even though a second core group was settled on the south bank as well. The distinguishing hierarchical feature appears to have been the use of beads and glass items. Only two out of the five sites had imported glass and beads as part of their material cultural remains (Profiles 1 and 2).

However, the common cultural traits in Area 1 appear to have been tied to the access and use of imported ceramics. Four of the five sites in this area had imported ceramics as part of its material cultural remains. This in turn likely reflected the shared nature of activities and possibly aesthetic preferences related to the use of ceramic items. This shared cultural trait extended beyond Area 1 into Area 2. In Area 2, four of the five sites contained imported ceramics (Profile D). This strongly suggests that the groups inhabiting the sites in Area 2 were directly related to the groups located in Area 1, even though these sites were located one to two kilometers upstream from the sites in Area 1.

Three groups may be discerned in this settlement encompassed by Areas 1 and 2. Group 1 is represented by the complex material cultural remains that included glass items and beads and located at the mouth of the Sungei Bujang. Group 2 is represented by the presence of imported ceramics in the material cultural remains. This group is distributed throughout the habitation areas of this settlement, both upstream and downstream. Group 3 is represented by the absence of imported materials in the material cultural

remains. This group was located at the fringes of the settlement—at Site 80, on the northern extremity of the Area 1 settlement site, and at Site 16, at the uppermost reaches of the settlement area along the Sungei Bujang, from the eleventh century to thirteenth century.

This information provides us with what was likely one key manifestation of the differentiation in this settlement's population: the provision of imported material culture. The asymmetrical access to imported material culture suggests that Group 1 likely held primary access to these items. While Groups 2 and 3 had interactions with Group 1 that were likely between balanced and negative reciprocity, Group 2's interaction was likely closer toward balanced reciprocity while Group 3's was likely closer toward negative reciprocity.

Taken in this light, the eleventh century to thirteenth century settlement at Sungei Bujang may have been more akin to the "port-of-trade" model articulated by Karl Polanyi, in that access to international trade would have been an exercise of political power and that the redistribution of foreign products would have been a manifestation of the political economy exercised by the socio-political elite of the settlement. Importantly, the locus of the settlement in the eleventh century to thirteenth century, being along the coastline with the habitation sites clustered close together, suggest that any relations with the upland areas of the larger Bujang Valley were likely to have been intersettlement interactions as opposed to intrasettlement interactions. This would have been highly distinct from the earlier Sungei Bujang settlement of the seventh to ninth centuries, which manifested a dendritic model characterized by choice and egalitarian access to foreign products.

The case study of South Kedah suggests that the archaeological lexicon of port-settlements of this part of the MSR, even in the absence of detailed quantitative data, may be used to elucidate the nature of a settlement's population and the changes that may have taken place over time. What would the possible kinds of demographic reconstructions be in the presence of quantitative data? To answer that question, we will now turn to the case study of Temasik.

Temasik

The port-settlement of Temasik, located at the southern extremity of the Straits of Melaka, became an active habitation site in the late thirteenth century CE. According to historical records such as the *Nagarakertagama*

Figure 8.3   Excavated sites of the Temasik period at the Singapore Riverbank and Fort Canning Hill, Singapore

Fort Canning Hill

SMU

Fort Canning Hill
(1984 & 1988)

St. Andrew's
Cathedral (2004)

Colombo
Court (2000)

National Art
Gallery
(2009 & 2010)

Singapore
Criket Club

Singapore River

Old Parliament
House (2015)

Victoria
Concert
Hall (2011)

Parliament
House (1995)

Empress Place
(1998 & 2015)

500m
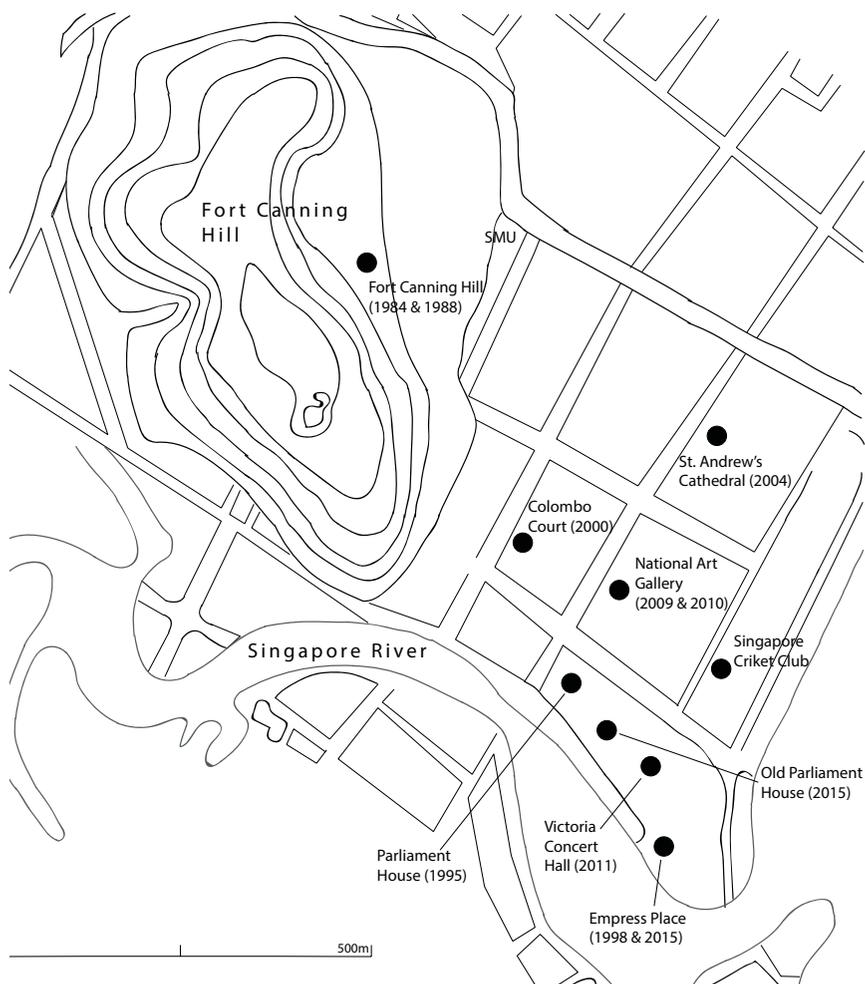
(ca. 14th century), the *Sejarah Melayu* (ca. early 17th century), and the *Daoyi zhilue* (ca. 1349) (see Brown 1970; Saktiani 2016; Su 1981), the settlement reached its peak of activity by the middle of the fourteenth century and continued to be active until the early fifteenth century. Located on the north bank of Singapore River Basin, the settlement maintained international trade while also engaging in regional exchanges with the Melaka Straits region settlements of that time.

Unlike the Sungei Bujang settlement, the habitation area of Temasik was located in a compact area. It encompassed the north bank of the Singapore

River Basin up to present-day Stamford Road, and westward to include Fort Canning Hill. This habitation area was enclosed in premodern times by an earthen rampart and fresh-water moat that ran along the course of Stamford Road in a westerly direction, encircling Fort Canning Hill on the north foot and west foot, and eventually terminating in the marshes on the banks of the Singapore River. The settlement area measures approximately seventy-two hectares, with fifty-four hectares being flat land southeast of Fort Canning Hill.

Archaeological research on Temasik has had a significantly long history. Beginning in 1984, more than ten excavations have been conducted at this settlement site (Lim 2012; Lim 2019; Miksic 1989, 2004, 47; Miksic and Lim 2004). At all the sites, ceramic sherds form the majority of the material recovered. With the exception of the Fort Canning Hill excavation (1984), coarse stoneware sherds form the largest group of ceramic remains, followed by fine stoneware ceramics, then earthenware. For the purpose of this study, the coarse and fine stoneware ceramics data from four sites—Empress Place Site (EMP), Old Parliament House Site (OPH), St. Andrew's Cathedral Site (STA), and Fort Canning Hill Site (FTC) (Heng 2012, tables B.1, B.2; Lim 2012, tables 3, 4; Miksic, 1989, table 1)—will be examined. Furthermore, the relative proportions of coarse and fine stoneware finds, expressed in percentages, have been derived based on the weight of sherds in each classification type. For fine ceramics, these percentages represent the weight of all sherds from a particular type. For coarse ceramics, the percentages represent the weight of all the rim sherds from a particular type. The total weight of the ceramics recovered and the size of the excavated area of the four sites are also provided to illustrate the relative density of finds from each site.

Table 8.1 Proportion of fine ceramics within the subassemblage of fine ceramics recovered at the archaeological sites of FTC, STA, EMP and OPH, based on the weight of sherds

	STA	FTC	EMP (Squares A–G)	OPH
Blue and white ware	5.7%	12.9%	0.4%	1.7%
White ware	15.0%	14.1%	34.2%	25.0%
Green ware	62.9%	66.9%	65.4%	73.3%
Area of excavated site	40m^2	40m^2	450m^2	unknown
Total weight of blue and white, white, and green ware sherds recovered from the excavated sites	6,528g (163.2g/ m^2)	1,6280g (407g/m^2)	116,900g (259.88g/m^2)	53,200g

Fine ceramics are those that have a clear aesthetic quality and which the item itself is the object of production. In the case of Temasik, three key types of fine ceramics have been recovered and catalogued—blue and white porcelain, white ware, and green ware. The first—blue and white porcelain—was a ceramic product initially produced by the Jingdezhen kilns at Jiangxi Province. The limited quantities produced during the thirteenth and fourteenth centuries suggest that this type of ceramic was likely high in value compared to some of the other types of ceramics made available to Southeast Asia by China.

The second type of fine ceramics—white ware—were primarily produced by a large number of kilns located in the southeast coast of China. Ceramics in this group include *shufu* and *qingbai* ceramics. White ware was produced both as high-quality ceramics and rudimentary ceramics. A more exclusive type of white ware—Dehua ceramics—was produced during the fourteenth century by the Dehua kilns (northeast Fujian Province). While white ware continued to be produced in large quantities by the southeast coastal Chinese kilns during this time, the heyday of its production, in terms of scale of manufacture, occurred earlier in the eleventh to early thirteenth centuries (Ho, 2001).

Green ware—the third type of fine ceramics—was produced both by provincial kilns located along the coast of Southeast China and at national level kilns such as the Longquan kilns in Zhejiang Province. Importantly, green ware became the bulk of the ceramics produced by the southeast Chinese coastal kilns for the export market during this time, surpassing white ware and other types of fine ceramics in terms of scale of production, and therefore accessibility and affordability. This has been attested to by the cargo of such thirteenth century and fourteenth century shipwrecks as the Java Sea wreck and the Jade Dragon wreck, respectively (Flecker 2012; Mathers and Flecker 1997).

The data from the four Temasik sites allow for several observations. First, all four sites likely had access to the full range of fine Chinese ceramics made available to the settlement. The fact that the three types of fine ceramics were present in significant proportions at all four sites suggests that the inhabitants at these sites shared, to some degree, similar aesthetic tastes, accessibility to imported goods, and general consumption patterns.

Nonetheless, a number of differentiating points are noted. The exclusivity of blue and white porcelain, as mentioned above, appears to have been borne out at Temasik, where the inhabitants of FTC consumed slightly more than twice as much of these items as did the inhabitants of the other sites on the plain area and riverbanks. This consumption pattern reflects the

exclusivity of a group of inhabitants in Temasik, evidenced by the distinction in relative purchasing power. Importantly, the ceramic forms that have been recovered at FTC, including stem cups, spoons, ladles, and a basin used as part of a magnetic compass, are not found at any of the other sites. Instead, bowls were the predominant form recovered at those sites. Exclusivity of the FTC group's consumption of blue and white porcelain was based not only on its relatively high cost but also on the limited access and usage of certain forms tied to culinary practices.

The distinction in this consumption pattern at FTC, when compared to those at STA, EMP and OPH, is all the more amplified when the average volume of fine ceramics per square meter recovered at FTC, which is approximately 2.5 times that of the STA site and 1.7 times that of the EMP site, is taken into consideration. At the same time, despite this apparent economic asymmetry, the white ware ceramics data seems to indicate that there were at least some shared commonalities between the FTC and STA. Both FTC's and STA's inhabitants maintained similar proportions of demand for white ware ceramics. This suggests that at least in terms of the usage and consumption of white ware, the STA and FTC inhabitants shared similar traits and may have constituted a larger group together, albeit occupying different levels of a socio-economic hierarchy.

For green ware, the proportions consumed at both sites were similar. This, coupled with the similarities in white ware between the two sites, suggests that at the least, both groups of inhabitants' economic reciprocity was fairly equitable. Also, both groups likely shared common identification points, even as economic differences likely existed between the two.

In contrast, the amounts of white ware maintained by the groups located at EMP and OPH were different. Despite being located in fairly close proximity along the riverbank, the OPH and EMP inhabitants were different not only from each other but also from those at STA and FTC. Additionally, in terms of green ware, for the inhabitants located along the riverbank, the extent of demand was mitigated by the competing demand for white ware. Hence, the EMP inhabitants' demand for white ware offset the demand for green ware. The reverse is evident at OPH. While it is possible that this may be reflective of differences in aesthetic tastes, the information reinforces the observation made above: OPH and EMP inhabitants were likely different from each other. The prevalence of green ware during this period, coupled with the decline of white ware, would have meant that the former was more readily accessible to Southeast Asian markets. It would therefore appear that asymmetry in the economic relations between the subgroups located along the riverbank was tilted in

the favor of those located nearer to the mouth of the river. Furthermore, at this preliminary stage of the analysis, it would appear that three groups of inhabitants may have been resident in Temasik—FTC and STA inhabitants forming one extended group and EMP and OPH inhabitants forming two discrete groups.

While fine ceramics may provide clues as to the differences in aesthetic tastes and socio-economic capabilities, coarse stoneware ceramics can provide clues on the differences between groups in the more mundane types of activities. "Coarse stoneware ceramics" is a generic term in Southeast Asian archaeology to denote ceramics that have not undergone substantial refining stages of the clay and glaze material as part of the production process (Chi 2017; Harrison 1970; Moore 1970; Qin et al. 2017). The final ceramic product tends to be rough, or coarse-bodied, containing such impurities as grit and inclusions, and glazed with a fairly crude and low-quality vitrified glaze. The recovered ceramic sherds tend to have a degraded appearance.

The challenge in the utilization data of coarse stoneware ceramics lies in differentiating the groups within the settlement, so that demographic and even ethnic differentiation may be elucidated. Ceramics, both fine and coarse, provide that basis for amplifying the different inclinations in, as opposed to different types of, activities, aesthetic tastes, consumption patterns, and processual practices. In the case of culinary practices, for example, the distinction in the use of jars would be (1) holding ingredients used at the beginning or end stages of cooking, and (2) holding ingredients to be used in value-added preparation, such as those needing rehydration before cooking.

The data from three types of coarse stoneware ceramics will be examined next—buff ceramics, small-mouth jars, and brittle ceramics. Buff ceramics were produced by the kilns in Guangdong Province, particularly in the vicinity of the Nanhai District where the port-city of Guangzhou was located. This type of ceramics, recovered in Southeast Asia, included basins, mortars, and storage jars. The potting of these ceramics is very heavy and thick, with the clay material containing relatively few inclusions and grit, resulting in the tensile strength of these ceramics being relatively high (Sinopoli et al., 2006). This type of ceramics was produced for food processing and storing foodstuffs. The tensile strength suggests that the storage jars could hold relatively high-density foodstuffs, such as fermented and pickled foods, as evidenced by the cargo of the Turiang wreck (Brown and Sjostrand 2000). Such high-density foodstuffs suggest that usage could be immediate, and thus not needing any value-added processes before the ingredients could be consumed.

Table 8.2   Proportion of small-mouth jar, brittle jar, and buff ceramic sherds within the subassemblage of coarse ceramics recovered at the archaeological sites of FTC, STA, EMP and OPH, based on the weight of rim sherds

	STA	FTC	EMP (squares A & B)	OPH
Small-mouth jars	16%	26.2%	8.6 %	17.1%
Brittle jars	10.6%	10.9%	5.8%	3.2%
Buff ceramics	71.5%	32.5%	53.7%	53.6%
Total of the three types of ceramics	98.1%	69.6%	68.1%	73.9%
Area of excavated site	40m^2	40m^2	40m^2	unknown
Total weight of coarse stoneware recovered from site	32,097.5g	1,6198g	39,217g	4,1408g
Average weight of coarse stoneware recovered per m^2 of excavated site	(802.4g/m^2)	(405g/m^2)	(980.4g/m^2)	Data not available

Small-mouth jars were primarily produced by the provincial kilns in South Fujian, particularly in the Cizao district. Thrown with a small-lip opening and a thinly potted broad waist that tapers down to a small foot that is thickly potted, these jars appear to have been produced as standardized bottles with almost exact carrying capacities. Highly vitrified, the low porosity of these bottles meant that they were likely used for the bottling of liquids such as rice wine or sauces (Wong 2016). Small-mouth jars were the largest group of coarse stoneware ceramics recovered, followed by buff ceramics.

Brittle ceramics are a type of ceramics produced by the kilns predominantly in the Fujian Province, particularly the kilns in the vicinity of the port-city of Quanzhou. The clay body contains significant amounts of inclusions and grit, and the primary form of this type of ceramics is the large storage jar, which could be as tall as sixty to seventy centimeters. Coupled with a thinly potted body, these ceramic jars could hold only low-density items, including dried foodstuffs such as spices, proteins, and vegetables. Such food ingredients typically require substantial value-added processes before they can be consumed.

These three types of coarse ceramics tell us about practices pertaining to culinary activities. With regards to small-mouth jar sherds, what is apparent is that the contents of these jars were readily available to all inhabitants of Temasik. At first glance, it would appear that the inhabitants

of FTC consumed significantly larger proportions of the small-mouth jar contents compared to the contents of brittle jars and buff ceramic jars than those of the other sites in Temasik. It is possible that the differences in the relative levels of demand for these products is linked to the relative purchasing power of the inhabitants in each of these localities. It is also possible that the big difference in the levels of demand between the EMP and OPH subgroups may be due to differences in consumption patterns of these jar contents or in regard to the jar contents, whereas the consumption pattern of OPH and STA were similar. This reflects the possibility that the jars' contents may have been tied not simply to economic accessibility but also to differences in sociocultural activities linked to the role that the jars' contents played. The consumption of the contents of small-mouth jars could be an indication that there were activities utilizing these contents that occurred at a greater intensity at FTC than at the other Temasik sites, such as feasting and ceremonial activities, but shared in common with STA and OPH inhabitants as well.

For the contents in brittle jars, it would appear that the inhabitants of the STA and FTC sites had similar consumption preferences, whereas those of the EMP and OPH inhabitants differed substantially. The former appears to have conducted substantially more value-added culinary activities than the latter, while the latter specifically appears to have not been very keen on culinary value-added activities.

The data on buff ceramic sherds provides another perspective into the relative intensity of the different food-related activities at Temasik. While buff ceramics are represented by strong-bodied storage jars, they are also represented by food preparation tools, including basins and mortars. This group of ceramics therefore represents foodstuffs with higher mass densities such as pickled or salted foods, or foods with high liquid content such as fermented foodstuffs, which could be used without value-added processes if so desired. It also represents activities related to food preparation, such as washing, soaking, mincing, grinding, and mixing. The data suggests that the intensity of usage of these ceramics and their ingredients was highest at STA and lowest at FTC, with intensity in the middle for EMP and OPH. Thus, the inhabitants of FTC did not engage in food preparation activities or the usage of partially processed high-density foods as much as the inhabitants of the plain area and riverbank sites did. Importantly, with both the STA and FTC sites being closely located and likely forming one extended social group, there may have been specialization in activities related to food preparation among the inhabitants of the two sites.

The relative proportions of the three types of sherds as articulated above could suggest that the OPH inhabitants had a preference for liquid food products that could be used immediately, whereas the STA inhabitants maintained a preference for ingredients that had to undergo culinary preparation. This implies that the allocation of resources in terms of total hours in culinary processes may have been higher among the STA and EMP groups, while much less of such resources may have been devoted by the group at OPH. The difference in consumption patterns may not only be due to differences in tastes but also in the availability of time and resources devoted to culinary activities.

Taking both the fine and coarse stoneware ceramics data into consideration, what can be said about the demographic differences between Temasik's resident populations? First, as noted above, there appears to have been at least four sites of inhabitants in Temasik—those occupying the STA and FTC sites can be considered as one extended group, while those occupying the EMP site were its own group, as were those occupying the OPH site. The STA and FTC sites represent two groups of inhabitants that were likely closely related or belonging to the same extended group. The sensorial aesthetic tastes, reflected by the proportions of white ware and green ware ceramics consumed, reflect this characteristic. Within this kinship group, however, distinctions may be noted. The difference in the proportion of blue and white porcelain ceramics consumed suggests economic asymmetry within this extended group. The low intensity of culinary activities at FTC, compared to the high intensity of such activities at STA, further reinforces this economic asymmetry, and suggests that this may also be manifest in the predominance of one group taking up such mundane activities as food preparation in service of the other. This is also coupled by the difference in habitation density between these two sites, as reflected by the density of ceramic finds per square meter. It is highly plausible that all of these are reflective of economic distinctions that ultimately have some bearing on social hierarchical differences, even though the two subgroups appear to otherwise essentially be the same.

In general, the STA-FTC ties likely did not extend to the EMP and OPH inhabitants. These differences may reflect the possibility of the EMP and OPH inhabitants being outside of a kinship group that encompassed the FTC and STA inhabitants, in which the distribution of culinary value-added activities may have been a significant part of the social and economic internal dynamics of the extended group. It may also be reflective of an emphasis on subsistence activities based more on the land for the STA group versus on the sea for the EMP and OPH groups. In turn, the overall

culture of economic production exhibited by the STA, OPH, and EMP groups may be contrasted to the culture of consumption exhibited by the FTC group.

The only exception appears to have been when activities pertaining to the use of small-mouth jars contents would take place, during which time another extended link, involving OPH inhabitants, would manifest. In this regard, EMP inhabitants were clearly a distinct group on their own.

In terms of sensorial aesthetic tastes, the OPH and EMP groups were not only distinct from each other but also from the STA-FTC extended group. This distinction may also be elucidated from the culinary point of view, where the EMP and OPH differed from each other in terms of the usage of ingredients that involved substantial value-added culinary processes.

The above discussion of the different inhabitants of Temasik, based on the ceramic data from the four sites, suggests that the body-politic of Temasik may in fact be reconstructed if sufficiently consistent archaeological data is available from a settlement site. The port-settlement likely had a core group characterized by a social hierarchy, while at the same time including other groups that were part of its population and under its rule but constituting a separate social group from the social core.

Conclusion

This chapter has sought to demonstrate that small finds recovered from coastal settlement sites in the Melaka Straits region, representative of the material cultural remains of the Maritime Silk Road trade that occurred over the course of the early second millennium CE, can be utilized across different sites as a means of helping to distinguish smaller group differentiations within a settlement's demography, tied to the location at which these groups may have inhabited. Critically, a sufficiently consistent presence of the small finds is a requisite for such differentiations to be made successfully across time and space, as the case study of Sungei Bujang has demonstrated.

When sufficiently detailed quantitative data is available, the distinguishing of groups can be extrapolated from the possible economic activities, preferences in tastes and aesthetics, and relative purchasing power exercised by the different groups within a settlement. The data can also be used to demonstrate the relative proximity between groups, based on similitude

in consumption patterns that may be reflective of shared characteristics. The result is the possibility of elucidating the different degrees of belonging within a settlement's population, as the case study of Temasik has demonstrated.

In the two case studies examined in this chapter, there does appear to have been significant differences in terms of the way in which the two port-settlements were spatially organized. In the case of Sungei Bujang, the settlement was akin to coastal settlements in Southeast Asia that had access to the immediate hinterland or upland areas. This layout likely resulted in the demographic differences that were noted through observations in the types of imported small finds associated with the sites in the settlement itself. There was a difference between groups that inhabited the coast, with direct access to imported material culture and the economic gains that came with regional and international trade, and groups that inhabited the upstream and upland areas.

In the case of Temasik, the settlement was more of an urban center with relatively little access to the hinterland or upland area. The result was a tightly knit settlement comprising different groups, each having specific functions, while interacting very closely with other groups inhabiting the urban center. The differentiations and co-relations reflected in the small finds data reflect the intense interaction as well as negotiations that would have taken place within such a confined settlement space.

This study has demonstrated that even with rudimentary data of small finds, it is possible to reconstruct liminal differences and similarities between groups within a settlement. When the data is sufficiently detailed, subgroup affinities and socio-economic hierarchies and even degrees of membership and belonging may be reconstructed. Such an approach to reconstructing the demographic pattern and spatial layout of settlements allows for the possibility of bringing together settlement pattern and demographic information recorded in historical texts, with material evidence from the sites themselves. The reconstruction of premodern settlements in the Melaka Straits region would be less dependent on theoretical models or reconstructed models derived from texts as frameworks, and more on allowing the data, both textual and archaeological, to drive the reconstruction. It is not the theoretical models that would provide the regional framework for our understanding of these port-settlements that dot the MSR but rather the similitude of material cultural remains found across regions of the Silk Road that would ultimately provide that broader regional and transregional consistency.

References

Abu-Lughod, Janet. 2013. *Before European Hegemony: The World System A.D. 1250–1350.* New York: Oxford University Press.

Allen, Jane. 1988. "Trade, Transportation, and Tributaries: Exchange, Agriculture, and Settlement Distribution in Early Historic-Period Kedah, Malaysia." PhD diss., University of Hawaii.

Bellina, Bérénice. 2017. *Khao Sam Kaeo: An Early Port-City between the Indian Ocean and the South China Sea.* Paris: École Française d'Extrême-Orient.

Bronson, Bennet. 1978. "Exchange at the Upstream and Downstream Ends: Notes toward a Functional Model of the Coastal State in Southeast Asia." In *Economic Exchange and Social Interaction in Southeast Asia: Perspectives from Prehistory, History, and Ethnography,* edited by Karl Hutterer, 39–52. Ann Arbor: Center for South and Southeast Asian Studies, University of Michigan.

Bronson, Bennet, and Jan Wisseman. 1976. "Palembang as Srivijaya: The Lateness of Early Cities in Southern Southeast Asia." *Asian Perspectives* 19: 220–239

Brown, C. C. 1970. *Sĕjarah Mĕlayu or Malay Annals.* Kuala Lumpur: Oxford University Press.

Brown, Roxanna M., and Sten Sjostrand. 2000. *Turiang: A Fourteenth-Century Shipwreck in Southeast Asian Waters.* Pasadena, CA: Pacific Asia Museum.

Chi, Alasdair. 2017. "A Framework for the Study of 'Mercury Jars' and Other Stoneware from the Temasek Period of Singapore, alongside 12th- to 14th-century Stoneware from Kota Cina, Sumatra." MA diss., University of Oxford.

Flecker, Michael. 2012. "The *Jade Dragon* Wreck: Sabah, East Malaysia." *The Mariner's Mirror* 98 (1): 9–29.

Guillot, Claude, Marie-France Dupoizat, Daniel Perret, and Heddy Surachman. 1998. *Histoire de Barus, Sumatra: le site de Lobu Tua.* Paris: Association Archipel.

Hall, Kenneth R. 2002. "Upstream and Downstream Unification in Southeast Asia's First Islamic Polity: The Changing Sense of Community in the Fifteenth Century 'Hikayat Raja-Raja Pasai' Court Chronicle." *Journal of the Economic and Social History of the Orient* 44 (2): 198–229.

Hall, Kenneth R. 2011. *A History of Early Southeast Asia: Maritime Trade and Societal Development, 100–1500.* Lanham, MD: Rowman & Littlefield.

Hansen, Valerie. 2012. *The Silk Road: A New History.* New York: Oxford University Press.

Harrison, B. 1970. "A Classification of Archaeological Trade Ceramics from Kota Batu, Brunei." *Brunei Museum Journal* 2 (1): 114–187.

Heng, Derek. 1999. "Temasik as an International and Regional Trading Port in the Thirteenth and Fourteenth Centuries: A Reconstruction Based on Recent

Archaeological Data." *Journal of the Malaysian Branch of the Royal Asiatic Society* 72 (1): 113–124.

Heng, Derek. 2002. "Reconstructing Banzu, a Fourteenth Century Port Settlement in Singapore." *Journal of the Malaysian Branch of the Royal Asiatic Society* 75 (1): 69–90.

Heng, Derek. 2004. "Economic Exchanges and Linkages between the Malay Region and the Hinterland of China's Coastal Ports during the 10th to 14th centuries." In *Early Singapore 1300s–1819, Evidence in Maps, Text and Artefacts*, edited by Cheryl-Ann Low, 73–85. Singapore: Singapore History Museum.

Heng, Derek. 2012. *Sino-Malay Trade and Diplomacy from the Tenth through the Fourteenth Century.* Singapore: Institute of Southeast Asian Studies.

Ho, Chuimei. 2001. "The Ceramic Boom in Minnan during Song and Yuan Times." *The Emporium of the World: Maritime Quanzhou, 1000–1400*, edited by Angela Schottenhammer, 237–282. Leiden: Boston.

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

Kelley, Klara Bonsack. 1976. "Dendritic Central-Place Systems and the Regional Organisation of Navajo Trading Posts." In *Regional Analysis, vol. I, Economic Systems*, edited by Carol A. Smith, 219–54. New York: Academic Press.

Lam, Peter. 1985. *A Ceramic Legacy of Asia's Maritime Trade: Song Dynasty Guangdong Wares and Other 11th to 19th Century Trade Ceramics Found on Tioman Island, Malaysia.* Southeast Asian Ceramic Society, West Malaysia Chapter Second Members' Exhibition, Muzium Seni Asia, University of Malaya, Kuala Lumpur, Petaling Jaya.

Leong, Sau Heng. 1973. "A Study of Ceramic Deposits from Pengkalan Bujang, Kedah." MA diss., University of Malaya.

Leong, Sau Heng. 1990. "Collecting Centres, Feeder Points and Entrepots in the Malay Peninsula, 10000 BC–AD 1400." In *The Southeast Asian Port and Polity Rise and Demise*, edited by J. Kathirithamby-Wells and John Villiers, 17–38. Singapore: Singapore University Press.

Lim, Chen Sian. 2019. "Preliminary Report on the Archaeological Investigations at the Victoria Concert Hall." *Nalanda-Sriwijaya Cemtre Archaeology Unit Archaeology Report Series*, no. 9.

Lim, Tze Siang. 2012. "14th Century Singapore: The Temasik Paradigm." MA diss., National University of Singapore.

Manguin, Pierre-Yves. 1993. "Palembang and Srivijaya: An Early Harbour-City Rediscovered." *Journal of the Malaysian Branch of the Royal Asiatic Society* 66 (1): 23–46.

Manguin, Pierre-Yves. 2000. "City-States and City-State Cultures in Pre-15th-Century Southeast Asia." In *A Comparative Study of Thirty City-State Cultures: An Investigation*, edited by Mogens Herman Hansen, 409–514. Copenhagen: Kongelige Danske Videnskabernes Selskab.

Manguin, Pierre-Yves. 2002. "The Amorphous Nature of Coastal Polities in Insular Southeast Asia: Restricted Centres, Extended Peripheries." *Moussons* 5: 77–99.

Mathers, William M., and Michael Flecker, eds. 1997. *Archaeological Recovery of the Java Sea Wreck*. Annapolis, MD: Pacific Sea Resources.

McKinnon, E. Edwards. 1984. "Kota Cina: Its Context and Meaning in the Trade of Southeast Asia in the Twelfth to Fourteenth Centuries (volumes I and II)." PhD diss., Cornell University.

Miksic, John N. 1985. *Archaeological Research on the Forbidden Hill of Singapore: Excavations at Fort Canning, 1984*. Singapore: National Museum.

Miksic, John N. 1989. "Beyond the Grave: Excavations North of the Kramat Iskandar Shah, 1988." *Heritage* 10: 34–56.

Miksic, John. 2000. "Heterogenetic Cities in Premodern Southeast Asia." *World Archaeology* 32: 106–120.

Miksic, John N. 2014. *Singapore and the Silk Road of the Sea, 1300–1800*. Singapore: NUS Press.

Miksic, John N., and Lim Chen Sian. 2004. "Archaeological Research on the Padang and in the St. Andrew's Cathedral Archaeological Research Project Progress Report Summary September 2003–June 2004." ARI Working Paper. Singapore: National University of Singapore.

Moore, Eine. 1970. "A Suggested Classification of Stonewares of Martabani Type." *Sarawak Museum Journal* 18: 1–78.

Murphy, Stephen A. 2017. "Revisiting the Bujang Valley: A Southeast Asian Entrepot Complex on the Maritime Trade Route." *Journal of the Royal Asiatic Society*, Series 3, 28 (2): 355–389.

Perret, Daniel, and Heddy Surachman. 2014. *History of Padang Lawas, North Sumatran: The Site of Si Pamutung* (*Mid-Ninth–Thirteenth Century CE*), vols. 1 and 2. Cahiers d'Archipel no. 42 and 43. Paris: Association Archipel.

Polanyi, Karl. 1957. "The Economy as Instituted Process." In *Trade and Market in the Early Empires: Economies in History and Theory*, edited by Karl Polanyi, Conrad M. Arensberg, and Harry W. Pearson, 243–270. New York: The Free Press.

Polanyi, Karl. 1963. "Ports of Trade in Early Societies." *Journal of Economic History* 23: 30–45.

Qin, Dashu, Chang Jung Jung, and Yu Shan. 2017. "Early Results of an Investigation into Ancient kiln Sites Producing Ceramic Storage Jars and Some Related Issues." *Bulletin de l'École française d'Extrême-Orient* 103: 359–384.

Sahlins, Marshall. 2017. *Stone Age Economics*. London: Routledge.

Saktiani, Damaika. 2016. *Kakawin nagarakertagama*. Yogjakarta: PT Buku Seru.

Sinopoli, Carla M., Stephen Duppen, Robert Brubarker, Christophe Descantes, Michael D. Glascock, Will Griffin, Hector Neff, Rasmi Shoocongdej and Robert

J. Speakman. 2006. "Characterising the Stoneware 'Dragon Jars' in the Guthe Collection: Chemical, Decorative, and Formal Patterning." *Asian Perspectives* 45 (2): 240–282.

Su, Jiqing. 1981. *Daoyi zhilue jiaozhi* 島夷誌略校釋 . Beijing: Zhonghua shuju.

Wheatley, Paul. 1983. "Nagara and Commandery: Origins of the Southeast Asian Urban Traditions." University of Chicago, Dept. of Geography, Research Papers 207–208.

Wilson, John A. G., E. von Grunebaum, and Chauncy D. Harris. 1954. "Three Comments on Orthogenetic and Heterogenetic Urban Environments." *Economic Development and Cultural Change* 3 (1): 74–78.

Wong, Sharon Wai-Yee. 2016. "A Case Report on the Function(s) of the 'Mercury Jar': Fort Canning, Singapore, in the 14th century." *Archaeological Research in Asia* 7: 10–17.

Bay of
Bengal

Indian Ocean

9   Indian Ocean Trade through Buddhist Iconographies

Osmund Bopearachchi

Abstract

The maritime trade is not limited to exchange of goods alone. In the ancient world deprived of passenger ships, cargoes were the only mode of transportation in the Indian Ocean. Not only traders, but also Buddhist monks, nuns, philosophers, artists and diplomats as well travelled together; and as a result, not only goods, but also philosophical thoughts and iconographies were exchanged. As a result, Buddhist iconographies developed in a cross-fertilized context, ingenuously incorporating the sentiments and aesthetics of their respective populations. Instead of reproducing stereotypical prototypes, they created new forms of art leaving some traces of the aspirations of the donor-traders, enabling us to understand the growth of the maritime networks.

Keywords: Buddhism, Avalokisteśvara, Vajrabodhi, Satavahana dynasty, Ikṣhvaku dynasty, Mahāyāna and Vajrayāna.

Introduction

Both maritime and inland trade brought together peoples of many cultures, languages, beliefs, and aesthetic aspirations. Traders were, to a certain extent, the mediators of these cultural interactions, as were Buddhist monks and nuns, philosophers, artists, and diplomats who traveled across merchant networks. As a result, not only goods but also philosophical thoughts, ideas, and artistic traditions were exchanged.

Buddhism, like Jainism, favored profit-based trade more than Hinduism, which actively discouraged seafaring. For example, the *Baudhāyana sūtra*, one of the *Dharmasūtras* (texts that deal with law and conduct) quite

explicitly states that "making voyages by sea" and "trading in all sorts of merchandise" are sins leading to the loss of caste (quoted in Olivelle 2000, 168).[1] With Jainism, despite the existence of many stories related to seafaring, the tradition is largely aniconic and thus lacks sufficient visual material to study the evolution of maritime connections through art historical research.

Several scholars contributing to this volume discuss the importance of archaeological evidence, in particular coins, metals (gold, silver, bronze, and iron), ceramics (pottery and amphorae), glass (wares, beads, and jewelry), and seals/sealings, among others, to understand the growth of trade activities. Since Buddhism actively encouraged trade and invited donations by rich merchants, the study of Buddhist iconography can make an important contribution to this discussion. Aside from hundreds of inscriptions detailing those contributions and Buddhist texts extolling merchants who supported Buddhist complexes, Buddhist visual culture—in the form of paintings and ex-votos—can help us evaluate the dynamics of trade and the chronological and geographical orientations of routes.

This chapter will focus on the symbiotic relationship between Buddhism and trade in ancient South and Southeast Asia. Examination of this relationship will be underscored by textual narratives as well as archaeological and art historical research across the regions. It will demonstrate how images and associated symbols can be seen as the visual manifestations of social, commercial, and religious networks, and will illuminate patterns of circulation and exchange between India and Sri Lanka in particular, and more broadly across the Indian Ocean. It will outline how, from its early history, Buddhism was closely linked with the merchant class, which came to support Buddhist monasteries and other institutions. Buddhist communities were established along trade routes linking important political and economic centers, where they provided hospitality for merchants and other travelers. This positioned Buddhist practice to spread dramatically as merchants within the Buddhist tradition expanded the geographical range of their commercial activities. The growth of the maritime mercantile

---

1   The subject-matter of the Dharmasūtras, as explained by Patrick Olivelle (2000, xxi), is that it "includes education of the young and their rites of passage; ritual procedures and religious ceremonies; marriage and marital rights and obligations; dietary restrictions and food transactions; the right professions for, and the proper interaction between, different social groups; sins and their expiations; institutions for the pursuit of holiness; the king and the administration of justice; crimes and punishments; death and ancestral rites. In short, these unique documents give us a glimpse if not into how people actually lived their lives in ancient India at least into how people, especially Brahmin males, were ideally expected to live their lives within an ordered and hierarchically arranged society."

networks, in particular, facilitated the movement of Buddhism from India to Sri Lanka and then to Southeast Asia. Within this process, Buddhism was not merely a passive recipient of the largesse of the merchant classes but actively promoted itself as "protector" of trade, as mediated through rich textual and visual narratives and the development of divine cults.

In the early Common Era, Indian merchants brought the first Buddhist images to Sri Lanka to embellish monastic sites, and these pictorial renditions became central to the development of a vibrant Buddhist artistic tradition on the island. Such inscriptions and paintings at Buddhist sites both in India and in Sri Lanka underscore the tradition's sponsorship of, and support by, the mercantile class, while the visual cultures of Southeast Asia suggest an intimate connection to the artistic traditions of India and Sri Lanka. The art historical evidence thus both indicates the relationship between cultural exchange and economic activity and helps reconstruct the directionality of such networks; it is particularly valuable when limited historical data are available.

Buddhist Narratives and Merchant Networks

The inseparable and evident link between Buddhism and merchant communities is demonstrated in Buddhist textual and visual narratives, especially in epithets for the Buddha. In a *pūrvayoga* (previous-birth story) written in Gāndhārī, it is said that the Buddha was a *Samudra Vanija* (merchant of the ocean) who collected supplies and set out on the *Mahāsamudra* (great ocean) (Lenz 2003, 150).

Most importantly, however, are the references in Buddhist literature. One such example is found in the *Nidānakathā*, by Buddhaghoṣa, composed in fifth-century CE Sri Lanka (see translation by Rhys Davids 1925). Buddhaghoṣa praises a generous gift by Anāthapiṇḍika, the wealthiest merchant in Śrāvastī during the time of the historical Buddha, as one in a long string of pious gifts made by merchants to the Buddhas of the past. In the story, Anāthapiṇḍika purchased the Jetavana Park for the Blessed One by covering it with Kārshāpaṇa coins and building a thirty-acre monastery.[2] Buddhaghoṣa narrates that long ago in the time of the Blessed Buddha Vipassin, a merchant named Punabbasu Mitta bought that same spot by laying golden bricks over it and building a monastery, this one being a

---

2   Kārshāpaṇa (silver punch-marked coins) are ancient Indian coinage dating to the fifth century BCE. They were silver pieces stamped with one to six *rūpas* (symbols) (Bopearachchi 2006, 7).

yojāna (league) in length.[3] Such gifts were also described in the time of the Buddha Sikhin, the Buddha Vessabhu, the Buddha Kakusandha, the Buddha Konagamana, and the Buddha Kassapaa, and these stories were often illustrated in Buddhist art. For example, the railing of the Bharut Stupa (India), dated to the second century BCE, has a depiction of the Anāthapiṇḍika legend with the inscription: *Jetavana Anadhapediko deti kotisamthatena keta* (Anāthapiṇḍika presents the Jetavana, having bought it for a layer of crores).[4]

Some seven centuries later in the time of Buddhaghoṣa that cost had increased considerably. Exaggerating the generosity of the wealthy Anāthapiṇḍika, Buddhaghoṣa has him lay eighteen *kotis* of gold pieces (eighteen times ten million) side by side over Jetavana Park (Rhys Davids 1925). Interestingly, there is no evidence for the existence of gold coins during the lifetime of Buddha Gautama in India, but in the fifth century CE, when Buddhaghoṣa was writing these stories, gold coins were in circulation in India and Sri Lanka (Bopearachchi 2006). Similarly, the coins depicted on Bharut reliefs (India, second century BCE) look more like Kārshāpaṇa or silver punch-marked coins of the Mauyran series dating from the time of Emperor Aśoka Maurya (third century BCE) (Gupta and Hardaker 2014). This type of coin continued in circulation in the subsequent Shunga (second–first century BCE) and Satavahana (late second century BCE–third century CE) periods. All the reliefs illustrating the story of Anāthapiṇḍika from stupas in Bharut, Sanchi, and Kanganahalli, India, date to this later period—that is, the second and first centuries BCE—which was a turning-point for maritime and inland trade in India. The conversion of Aśoka to Buddhism removed the Brahmanical taboos imposed on seafaring. During his reign, the economy progressed rapidly and the large quantity of punch-marked coins issued bear witness to this economic prosperity. The east pillar of the north *toraṇa* (gateway) of the Great Sanchi Stupa (first century BCE) has a more elaborate depiction of Anāthapiṇḍika's story (Marshall and Foucher 1940, II:plate 34). The recently discovered Kanganahalli Stupa, in Karnataka, India, has two depictions of this story attesting to the close cultural, social, religious, and commercial interchanges among the regions in the early historical period of the third century BCE to third century CE (Poonacha 2011, plate LV. A and B). One panel is a more complex rendering of the organization of the monastic complex offered to the Buddha by

---

3   A yojāna, according to some sources, is approximately nine miles while others judge it to be three (Rāmāyaṇa 1984, 289).

4   One crore denotes ten million.

Anāthapiṇḍika, with a *kuti* (cell) for *bhagavato* (the vihāra of the Lord); a residence for "Yakṣī, the mother of Piyekara"; a kuti for "Venerable Ānanda"; and one for "Venerable Rāhula." It also has a *Kosambakuṭi*, one of the four residences of the Buddha; a walking path; and a well (Poonacha 2011, Plate LV. A; see Nakanishi and von Hinüber 2014, 84–88). The popularity of the Anāthapiṇḍika story in Buddhist literature and art could well be construed as an advertisement encouraging other wealthy merchants to engage in the same kind of meritorious acts, setting the stage for the development of a symbiotic relationship that would stimulate the movement of Buddhism along networks of trade.

The Spread of Buddhism in Maritime Context

The spread of Buddhism from South Asia to Southeast Asia is closely connected with the growth of maritime and fluvial networks, whose flourishing inland and international trade centers were located in ports along the coast and navigable rivers. The distribution patterns of the early Buddhist settlements active during the last two centuries BCE and first four centuries CE show they were inland and clustered around the big rivers flowing to the Indian Ocean. Cāṇakya (Kauṭilya), the third-century BCE ancient Indian philosopher and adviser to the Mauryan Emperor Chandragupta, in Book II, Chapter XXVIII of his treatise on statecraft, the *Arthaśāstra* (Olivelle 2014), describes the superintendent of shipping, whose role was to oversee and maintain the fleet of small and large sailing vessels that supported maritime enterprises along the network of rivers and waterways. Investigations at the estuaries and along the rivers in South India and Sri Lanka have shown that in ancient times large ships were anchored off the coast in close proximity to river mouths, which facilitated the shipment of trade commodities to inland markets (Bopearachchi 1999). The estuaries of large rivers, designated as seaports by the suffixes *pattinam*, *thitta*, and *tota* in Sinhalese and Tamil, never had built dugout harbors like the ones authenticated in the Greek and Roman worlds. The location of emporia along rivers further facilitated transactions with the interior regions. Fluvial transportation at that time was less dangerous and less expensive than land routes. In northwest Pakistan and northeast Afghanistan, for example, all the Gandhāran Buddhist sites were built along the upper Indus River and its tributaries, the Kabul and Swat Rivers. Similarly, the Buddhist complexes of north India, such as Mathura, Vaishali, Sarnath, Nalanda, and Bodh Gaya, were situated either in the vicinity of the Ganges River or its tributaries, including the Yamuna and Nairanjana Rivers. Buddhist sites of the Satavahana and Ikshvakus periods,

Figure 9.1   Buddhist sites and regions in South Asia. Map by Evangeline McGlynn
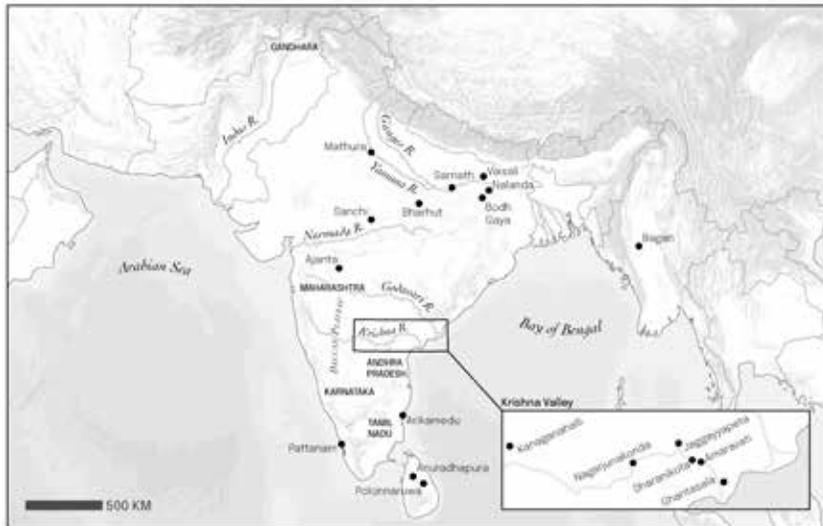
such as Amaravati, Nagarjunakonda, Ghantasala, and Jaggayyapeta in Andhra Pradesh, are located along the Krishna River.

Sri Lanka's ancient capitals and Buddhist complexes were located inland but connected to ports on the coast. Manthai, the most active port in ancient Sri Lanka, was located close to the Malvatu River, which linked the port to the inland capital of Anuradhapura. The location of the ancient capital of Polonnaruwa on the banks of the Mahavali River—which flows to the sea at Gokanna (Trincomalee)—is no coincidence. Polonnaruwa was built as a capital when maritime trade networks connecting Southeast Asia and China became active. Similarly, Tissamaharama, Sri Lanka's ancient city in the south, flourished thanks to its location on the left bank of the Kirindi River, which connected the town to the ancient port of Kirinda. In Bagan, in Myanmar (formerly Burma), nearly three thousand stupas and monasteries were built on the left bank of the Irrawaddy River. The Dvaravati, Sukhothai, and Authya complexes were established along the Chao Phraya River in Thailand. In central Java, the Progo River runs to the southeast passing near the well-known Buddhist sites of Candi Borobodur, Candi Medut, and Candi Pawon.

The prosperity and longevity of these Buddhist monastic sites depended mainly on the dynamics of maritime and fluvial trade because traders, as major donors, played vital roles in the construction and maintenance of monastic complexes and, as such, in the spread of Buddhism. The expansive

Buddhist cave complexes of the Deccan Plateau in Maharashtra, in Western India, are exceptions, because the traders who sponsored these sumptuous dwellings of the Buddhist monks followed land routes. The Western Ghats mountain range, because it is too close to the littoral, has no major rivers that flow into the Arabian Sea; instead they all flow eastward. Among these, the Godavari and Krishna Rivers each hold an important place in trade.

Buddhism as a Protector of Trade

Not only did monastic settlements profit from their relationship with trading communities, but Buddhism actively offered itself up as an essential ingredient to its success. Of particular note in this regard is the development of the cult of the Bodhisattva Avalokisteśvara, whose reputation of offering protection to traders taking the perilous land routes gained much popularity in Buddhist cave sculpture. The presence of many depictions of the so-called *Aṣṭamahābhaya* (the eight great perils) *Avalokiteśvara* in Maharashtra's cave complexes in western India clearly demonstrates that traders taking the dangerous land routes needed the Bodhisattva's protection against enraged animals, poisonous reptiles, wild beasts, evil spirits, captivity and slavery, the sword of the enemy, and devouring fire. Out of eight perils, one is dedicated to seafarers who faced danger in the turbulent ocean (Bopearachchi 2014, 165–167).

The particular choice of *jātaka* and *avadāna* stories found in paintings and reliefs of the Ajanta cave site in India, the Borobudur in Java, Bagan in Myanmar, and many other Buddhist sites reflects the aspirations of the donors who sponsored them.[5] Stories connected with the fear of sea monsters and terrestrial demons (*Yakṣas*, *Rākṣas*, and *Pretas*) echoed the major threats to mariners who ventured across the perilous ocean into dangerous foreign lands in search of wealth. This may well be the reason why in Sri Lanka, most of the mural paintings of the Kandyan period temples—which can be considered a continuation of a more ancient painting tradition and usually dated between the seventeenth and twentieth centuries—depict *jātaka* stories like the *Telapatta jātaka*, in which terrestrial demons dominated the plot (see Bandaranayake 1986, 110, 112–114, 116, 118–119; Cowell [1895] 2003 *Jātaka*, no. 96).

---

5   While jātaka tales refer to the previous births of Buddha Gautama in both human and animal form, avadāna (*apadāna* in Pali) refers to stories usually narrated by the Buddha that illustrate the workings of karma by revealing the specific acts of an individual in a previous life and the results of those actions in their present life (Salomon 2018, 229).

Figure 9.2   The Eight Great Perils

Aṣṭamahābhaya Avalokiteśvara.
Aurangabad
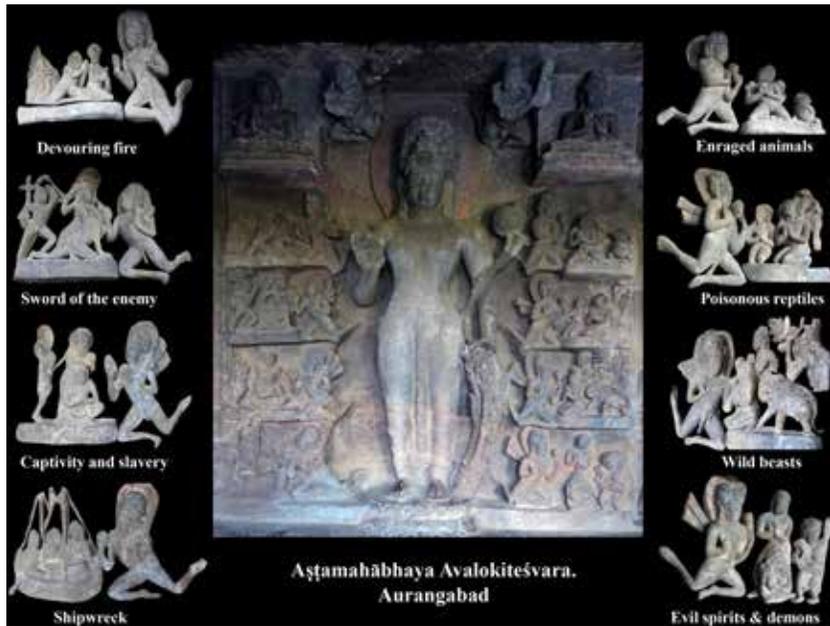
Similarly, in the *Dīpavaṃśa*, the oldest Pāli chronicle, the reason for the Buddha's visit to Sri Lanka was to uproot Yakṣas, *Bhūtas*, and Rākṣas so as to establish peace on the island and ready it for human habitation (see Oldenberg 1879, I, 13–23). It is for this same reason that Mahinda—a missionary sent by his father, the Indian Emperor Aśoka—on the second day of his arrival in Sri Lanka is reported to have preached the *Petavatthu* and the *Vimānavatthu*, two Buddhist texts dealing with the spirits of the dead (see Oldenberg 1879, XII, 83–86). Echoes of this island inhabited by sea monsters and terrestrial demons that devour shipwrecked mariners can be seen in the story of Siṃhalā, which is depicted on the right wall of Ajanta Cave no. 17 (Schlingloff 2013, 267–278).

The story of Siṃhala has several versions in Buddhist literature and is known as the *Valāhassa Jātaka* in the *Jātakamāla*, as the *Dharmalabdhajātaka* in the *Mahāvastu*, and as the *Siṃhalāvadāna* in the *Divyāvadāna*, as well as in many later versions such as ones from the Jain and Nepalese tradition. The story as narrated in the *Jātakamāla* partly takes place on the island of the Rākṣasīs, who take human form to attract a group of seafarers who have survived a shipwreck. According to the *Valāhassa Jātaka*, a virtuous merchant-leader realized at night that these beautiful women were Rākṣasīs who eat humans or cast them into a house of torment.

In the morning, he warns his men about the danger and proposes an escape. Those who were seduced by their beauty and had already become their husbands refuse, but the others agree to run away. At that moment, the Bodhisattva (identified as Avalokiteśvara in the later Mahāyāna versions), who possesses supernatural powers, appears as a flying horse, rescues the mariners, and flies them home to safety. In the *Jātakamāla*, the story ends here. In the *Mahāvastu* version, the story does not include the intervention of the flying horse. Instead, the merchant-leader, now named Dharmalabdha, continues his journey back home only to be followed by a Rākṣasī who pretends to be his wife and to have given birth to his child. The malignant spirit was able to convince the villagers of this ruse. When she appears before the king, who wants to find out who is telling the truth, he is seduced by her beauty despite Dharmalabdha's warnings. That night, she eats the king and everyone else in the palace. Dharmalabdha is anointed king because no Yakṣa or Rākṣa was able to tempt him. The story of Dharmalabdha narrated in the *Mahāvastu* was expanded once more in the *Divyāvadāna* (see Cowell and Neil, 1886). Siṃhalā, the merchant-leader who becomes the king in this version, wages a war against the Rākṣasīs of the island. His troops, mounted on horses and elephants, boarded ships heading for the island. The defeated Rākṣasīs were compelled to ask for forgiveness from King Siṃhalā. The story of course is reminiscent of the legendary arrival in Sri Lanka of Vijaya, who was also a merchant in search of new markets, with five hundred followers when the *yakkhini* Kuveni was ruling the island (see Wilhelm 1912, Chapter VII).

The story of Siṃhalā became popular among the mercantile communities that traveled across the Indian Ocean, known for its life-threatening cyclones, high monsoon winds, and severe thunderstorms. The fear of the unknown gave birth to the legends of ferocious Yakṣas, Rākṣas, and Pretas. The sculptures depicting the Aṣṭamahābhaya Avalokiteśvara evoke the dangers of land routes and the constant fear of shipwrecks. Buddhist visual narratives sponsored by trader-donors can thus be seen as appeals for the protection from the Blessed Ones to reach their homes safely and represent an often overlooked but essential part of the study of maritime trade.

Merchants in Buddhist Art

As the trade routes evolved from coastal to ocean navigation, and destinations fluctuated according to the decline or the rise of political power, the makeup of merchant communities also changed. Thanks to literary sources

and archaeological evidence, we know to a certain extent the identities of these mariners, traders, and merchants who ventured across the Indian Ocean. Some Buddhist mural paintings and sculptures enable us to guess their identity. Like today's selfies, these generous traders left their portraits in the Buddhist art sponsored by them.

At Ajanta, on the ceiling of cave no. 1, the male figure seated in the middle of a scene is holding a wine drinking cup and surrounded by his entourage. He has been identified by Monika Zin as Kuvera, the king of the north, one of the *Cāturmahārājkāikas* (four great kings of four directions) (Zin 2003, II, plate I, no. 31.12; Zin 2015, 134, Figure 9). He is shown dressed in Persian garb with a long tunic belted at the waist. Apart from his cap, the fluttering streamers emanating behind the head immediately evoke depictions of Sasanian kings in ancient Persian art. Many Sasanian reliefs depict the Supreme Being Ahura Mazda investing the ruler by handing him a beribboned diadem. For example, on the relief at Naqh-e Rajab in Iran, Ahura Mazda hands the beribboned diadem to the Sasanian king Ardašir I. The same iconography can be seen on the coins of Ardašir I and his successors, including Shapur I.[6] This cheerful Kuvera, dressed and drinking like a Persian noble, being served by Persian women in Persian attire with fluttering ribbons, can be considered a self-portrait of a rich Persian merchant.

Among the murals in cave no. 17 at Ajanta, the story of Udāyin and Gupta is interesting. Udāyin was a courtier in the capital city of Kapilavastu and a messenger of King Śuddhodana, the father of Gautama Buddha. He fell in love with Gupta, the widow of a minister's son in Shravasti. They are depicted happily in their palace, attended by many servants. One is serving them wine, is dressed as a Persian, and holds a Sasanian-type wine jar (Schlingloff 2013, 399–401). His discrete intrusion into the picture is quite remarkable. There are many other such depictions in the murals of the Ajanta Caves reflecting the trading activities of Perso-Sasanians in the fifth to seventh centuries CE. Their presence across the Indian Ocean is noted by Vajrabodhi, the Indian Buddhist monk who later became an esoteric Buddhist teacher in Tang China and who encountered thirty-five Persian vessels in Bozhili (Beruwala), Sri Lanka.[7] Among the many ethnic groups attested in the Ajanta paintings, in the depiction of the descent of the Buddha at Saṃkashya from the Trayastriṃsa, the delegation headed by the King Udayana has many

---

6   For more on this, see Bopearachchi 2018, 245–246.
7   For a detailed discussion on Vajrabodhi's travels, see Sundberg and Giebel 2011. More on his travels also appears later in this chapter.

Figures 9.3a and 9.3b   **Two sides pillar from site no. 37 of the Nāgārjunakoṇḍa. Photograph by Osmund Bopearachchi with courtesy of the Archaeological Survey of India**

such non-Indians, including perhaps Ethiopians or Egyptians (Schlingloff 2013, 486).[8]

Before the Sasanians entered Indian Ocean trade, Parthians, Scythians, and Kushans were active during the first three centuries of the Common Era. The pillar from site no. 37 at Nagarjunakonda, India, has a depiction of a Scythian, identified by his long-sleeved tunic over tight trousers belted at the waist and Phrygian cap. He is shown holding a drinking cup, the function of which can be understood by looking at the lower register where three women dance in front of two containers. Two men wearing a knee-length long-sleeved high collar tunic belted around the waist over baggy trousers (*shalwar*) with horizontal folds to the ankles, and holding long spears, resemble Parthians or Kushans. The lower register depicts a man seated on a couch served by a woman, and the containers under the couch are certainly meant to hold alcohol.[9] It is no wonder why many amphorae containing wine were found in Southern India, in particular in Pattanam (on the Periyar Delta, in Kerala), in Arikamedu, and in sites in the lower Krishṇa Valley (Tomber 2008, 40).

While the great stupas of Amaravati, Kanaganahalli, Nagarjunakonda, and many others in the Krishna valley bear witness to the political and economic supremacy of the respective ruling dynasties (Shimada 2013, Chapter 3), the proliferation of these monuments also underscores the religious motivations of the local Buddhist population for the construction of cultic sites. Resources needed for the construction and embellishment would have been provided by devout Buddhist mercantile classes who were well established in cities such as Dharanikota (Dhanyakaṭaka), the capital of the Satavahana Dynasty in the early centuries CE (Knox 1992, 10–11). Great quantities of foreign glassware, pottery of Western types, Mediterranean amphora used as wine and olive oil containers, and Roman gold coins representing bullion trade, uncovered in the distribution centers along the Krishna River indicate flourishing domestic and international trade.[10] Sri Lanka, too, was part of this international trade network in the Indian Ocean (Bopearachchi 2012, 49–51). Epigraphic, numismatic, and archaeological discoveries made in Sri Lanka and South India have added to the growing body of evidence on the close cultural, social, religious, and commercial ties between Sri Lanka and Andhra-Tamilnadu during the early historical period.

---

8   See the two male figures standing behind the king.
9   See Stone 1994, Figure 232 for a similar depiction, now in the National Museum, New Delhi.
10   For a critical analysis of these trade activities, see Champakalakshmi 1996 (109, 111, 119); Suresh 2004 (98, 156, 166, 178).

Maritime Networks and Buddhist Art

Aside from commercial interactions, the cultural and religious relations between Andhra Pradesh and Sri Lanka drew Buddhist communities closer together, so much so that a branch of the Mahavihara (Great Monastery) from Anuradhapura, Sri Lanka, was established in the Sihala Vihāra in Nagarjunakonda. According to an inscription found at the site, the monastery was inhabited by the Mahaviharavasin from Sri Lanka (Sircar and Lahiri 1959–60). Another Buddhist sect from Sri Lanka was at the Chuladhammagirvihara, also in Nagarjunakonda (Site 43; see Stone 1994, 18–19). An inscription from 1344, engraved during the reign of Bhuvenakabāhu IV at Gaḍaladeṇiya (Kandy District) in Sri Lanka, refers to some repairs carried out in the two-storied image-shrine at Dhanyakaṭaka showing long-standing cultural relationships between Andhra and Sri Lanka (Paranavitana 1943).[11]

These networks between India and Sri Lanka, established by Buddhist communities, also became vectors for artistic exchanges. For example, certain panels depicting scenes from the life of Śākyamuni, found in Sri Lanka, were brought from Andhra Pradesh by traders (Bopearachchi 2008). These imported sculptures can be divided into three large chronological groups. The first are sculptures executed in India during the second phase of the high period of Amaravati (close to the downfall of the Satavahana dynasty at the beginning of the third century CE) and consist of two objects from the Bodhighara (sacred Bodhi tree shrine), popularly known as the Kurunagala-Road-Shrine in Anuradhapura (Bopearachchi 2008, 16, Plates 1, 2; von Schroeder, 1990, 76, Figures 8D, 8E); twelve sculptures from the Bodhighara, popularly known as *Āsanaghara* of the Abhayagirivihara;[12]

---

11   The inscription reads: "His Holiness Dharmmakīrtti- sthavira, born in the family of Gaṇaväsi which has come to the island of Sri Lanka bringing the holy Mahā- bodhi (tree), (restored) a two-storied image house at Śrī Dhānyakaṭaka in Dambadiva, too [by spending] much gold and jewels" (Paranavitana 1943, 106).

12   Apart from one slab published by Paranavitana 1971 (128, Plate 15), neither the sculptures imported from Andhra nor those sculpted locally found during the excavations conducted by Charles Edmund Godakumbura in 1961 and 1962 (Godakumbura 1962, 52) drew the attention of art historians, despite being exhibited in the Anuradhapura Archaeological Museum since their discovery. What Godakumbura named as *āsanaghara* (shrine built around a stone slab symbolizing the throne of the Buddha) is in fact a Bodhighara (Kulatunga 2014, 230–243). Most of these plaques were found in an extremely damaged state, which led Paranavitana 1971 (128) to assume: "Small fragments of sculptures found at the site indicate that this shrine was profusely decorated with limestone reliefs, which had been wantonly destroyed due to sectarian intolerance." All the items were entered in the database of the Anuradhapura Archaeological Museum with their dimensions and other available data.

and a relief depicting the presentation of Prince Rāhula to the Buddha by Yaśodharā, now in the Tissamaharamarajamahavihara, Sri Lanka.[13]

The second group is made up of sculptures made in Nagarjunakonda dating to the Ikṣhvaku period (late third and early fourth centuries CE), such as the ones found in the Bodhighara at Jetavanaramavihara (Bopearachchi 2008, 17–24, plates 4–12, Plates 14–17; von Schroeder 1990, 78, Figures 9A, 9C, 9D).

The final group consists of post-Ikṣhvaku period (late fourth and fifth centuries CE) reliefs: Kaṇṭhaka bidding farewell to Prince Siddhartha from the Girihaṇḍuvihara (Bopearachchi 2008, 4, 5, 17, Plate 3; Paranavitana 1971, 129, Plate 17; von Schroeder 1990, Figures 10, 12, 19; Wijesekera 1962, 255); the *Cakravartin* (Universal Monarch) image (Bopearachchi 2017);[14] Buddhas of the past, Bodhisttvas and Buddha Gautama performing the dual Miracle at Shravasti from the Pidurangala stupa (Paranavitana 1952); and above all the relief from Kumbukwewa depicting the Buddha's Enlightenment and the seven weeks he spent in the vicinity of the Bodhimanda (Bopearachchi 2016).

Like the above-mentioned panels, the first statues of the Buddha were also imports from Andhra Pradesh. The Buddha image discovered in 2001 not far from the Sandagiri Dagaba, in Tissamaharama, has all the characteristics of the late Amaravati tradition (third century CE) (Bopearachchi 2012, 52, Panel 1). The stylistic features of these sculptures, including the diaphanous *saṃghāṭi* (monastic robe) in regular schematic folds in relief leaving the right shoulder bare, the right hand held forward in the *abhayamudrā* (gesture of no fear), and the left hand holding the uplifted hem of the robe, became the prototype for all Sri Lankan standing images of the Blessed One through to today.

13   This unpublished relief was found by the chief monk of the Tissamaharama Raja Maha Vihara in April 2013, lying on the *salapathala maluwa* (terrace) of the Mahathupa while performing the morning rituals. The reverend monk believes that it was discovered by illicit diggers looking for treasures. The plaque depicts the presentation of Prince Rāhula by his mother, Yaśodharā, who tells her son to ask for his inheritance from the Buddha at Kapilavastu. The Buddha, in the middle of the panel and much taller than the others and walking away from the city, is making the *varadamudrā* (dispensing of boons) with the right hand. He is followed by two monks holding their begging bowls. Although much damaged, one can see the silhouette of Rāhula being pushed toward the Blessed One by his mother. The city of Kapilavastu is behind the Buddha, with its city gate and two-story buildings. A horse and an elephant emerge from behind the city walls, with a mahout holding a long *aṅkuśa* (hook). The nobles of Kapilavastu watch the scene from balconies. Among them, Śuddhodana stands looking out of the window, gazing at his son, grandson, and daughter-in-law.

14   It was found in an irrigation canal in Tissamaharama; it is now at the Department of Archaeology in Sri Lanka.

Directly inspired by these Andhra examples include some from the Abhayagiri and Jetavanarama stupas depicting scenes from the life of the Buddha, such as the presentation of the newly born Bodhisattva to Śākyavardhana; Indra and Brahmā pleading with the Blessed One to reconsider his decision not to preach;[15] the exhortation of the Gods to the Bodhisattva to descend from the Tusita heaven; and the Sarvaṃdadajātaka.[16] All the early iconographies of Sri Lankan Buddhist art, including zoomorphic *nāgas* (male serpents) and *nāgiṇīs* (female serpents), anthropomorphic *Nāgarājas* (serpent kings), and the *pūrṇagaṭa* (vase of plenty) were to a large extent inspired by Indian prototypes (Paranavitana 1971; also see von Schroeder 1990, 88–89 Figure 14, and 80-81 Figures 10D, 10E).

All of the well-preserved *vāhalkaḍas*, or frontispieces —a structure constructed joining a stupa at its four cardinal directions—have multiple depictions of both zoomorphic and anthropomorphic Nāgarājas, nāgas, and nāgiṇīs. It is believed that nāgas bestow wealth and ensure fertility, and they are also considered the guardian deities of the four cardinal points. This may be why they appear on both sides of the four vāhalkaḍas (Srinivasan 2007, 381–382). The nāga cult reaches its apogee in all the four vāhalkaḍas of the Jetavanarama Dagaba. Zoomorphic nāgas and anthropomorphic Nāgarāja and nāgiṇīs are placed on either extremity of every vāhalkaḍa of the Jetavanarama Dagaba and these sculptures can be dated to the fourth century CE (von Schroeder 1990, 84–87 Figures 12B–G, 13D–H).

Sri Lankan artists, and the rich merchants who commissioned them, seem to have particularly favored depictions of the Cakravartin (Universal Monarch), who, when he raises his right hand, executes the gesture of making coins (i.e., wealth) drop from the sky.[17] The earliest known painting in Sri Lanka, from the third century CE, is the previously discussed Kuvera, one of the four great kings of four directions, and also the lord of wealth and god-king of the semidivine Yakṣa in Hindu mythology; he is usually

---

15   This *stambha* (column) is from the Abhayagiri stupa found in1924; it is now in the Colombo National Museum. Published by Wijesekera in 1962 (255, Plates 70, 71) and in von Schroeder 1990 (76–77 Figures 8B, 8C; their iconography is not correctly identified).

16   Like many art historians, I have identified this iconography as that of Sibijātaka (Bopearachchi 2008, 10), but following the arguments put forward by Zin 2016 (48–49) and based on similar types of reliefs from Andhra, it could be the Sarvaṃdadajātaka.

17   For example, see the Cakravartin figure on the eastern vāhalkaḍa of the Abhayagiri Dagaba (Bopearachchi 2017, Plate 3; Paranavitana 1959, 265, Plate Xc; Paranavitana 1971, Figure 12; von Schroeder 1990, 82–33 Figure 11B;) and on the northern vāhalkaḍa of the Jetavanarama Dagaba (Bopearachchi 2017, Plate 4l; Paranavitana 1971, Figure 4; von Schroeder 1990, 84–85 Figure 12D).

represented with a plump body.[18] Many of the earliest sculptures in Sri Lanka illustrate him associated with coins.[19]

Two statues of Śaṅkhanidhi (conch "treasure") and Padmanidhi (lotus "treasure"), modeled in the round dated to the Ishvaku period (250–300 CE), now exhibited in the Nagarjunakonda Museum, also inspired Sri Lankan art.[20] They are shown wearing a *dhoti* (Indian loin cloth) tied with a large loose knot at the hip, with one hand holding a string of coins pouring from a headdress and the other hand resting on a hip. Guard-stones with the figures of Śaṅkhanidhi and Padmanidhi are numerous in Sri Lanka and often placed at the entrance of religious monuments. Merchants may have had a special veneration for these semidivine Yakṣas, who are capable of bestowing wealth (Seneviratna 1994, 15; von Schroeder 1990, Figure 96).[21]

Among many patterns highly inspired by Andhra art are rare Roman motifs attested on the *stambhas* (columns) on either side of the eastern vāhalkaḍa of the Abhayagiri Dagaba, depicting a *kalpavṛkṣa*—tree of life—in the form of a *candelabrum*—candle tree—with a stem issuing forth from the *pūrṇagaṭa* (vase of plenty)—decorated with familiar animals such as elephants and humped bulls as well as winged cupids and griffons. The cupids, griffons, and foliage at each branch of the candelabrum imitate the undulating acanthus leaves in Greek and Roman art.[22] The two male figures have wings and curly hair like the ones quite common in Roman art, in particular on the paintings of Pompeii that can be safely assigned to the first century CE (see, e.g., Barbet 1999, 104–105, 183). A new era of relations between Rome and Sri Lanka occurred during the reign of Emperor Claudius (41–54 CE), following the accidental visit to the island by Annius Plocamus,

---

18   Apart from a brief mention by Ratnayake (1993, 84) of geese, this beautiful painting—one of the most ancient ever attested in the island—has yet to draw the attention of art historians. Originally placed on one of the vāhalkaḍas datable to the reign of King Mahāsena (ca. 277–303 CE), this painting was found buried under debris behind the eastern vāhalkaḍas of the Jetavanarama Dagaba.

19   The fallen pillar of the western vāhalkaḍa of the Kaṇṭaka Cettya, at Mihintale, in Sri Lanka, depicts Kuvera. The *śaṅkha* (divine conch) to his right could represent *Śaṅkhanidhi*, one of the nine personified *Nidhis* (treasures) of Kuvera. See Paranavitana 1959 (Plate VII (c); Paranavitana 1971 (Plate 2); von Schroeder 1990 (88–89 Figures 14E, 14F). The northern vāhalkaḍa of the Dakkhiṇa Thupa stupa in Anuradhapura, Sri Lanka, has a pillar depicting Vaiśravaṇa-Kuvera. See Paranavitana 1971 (Figure 8); von Schroeder 1990 (92–93 Figure 16D).

20   The two statues are now exhibited in the Nagarjunakonda Archaeological Museum in Andhra Pradesh.

21   As noted above, yakṣas could be evil or benevolent.

22   Conserved in situ for more than one hundred years, this relief does not seem to have been understood by those who published images of it (see, e.g., Kulatunga 2014, 143–145; Paranavitana 1959, 127; Seneviratna 1994, 150; Smither 1993, Plate XLIX; von Schroeder 1990, 82).

collector of taxes in the Red Sea. It appears that following this visit, a delegation was sent from Sri Lanka to Romanukkha (Rome) (Bopearachchi 1999, 5).

Recent research carried out by Italian archaeologists on the mummy of Grottarossa, an eight-year-old girl discovered eleven kilometers from Via Cassia in the north of Rome, testifies to the trade between Rome and Sri Lanka (Castellani 1964). The child's body was placed in a sarcophagus decorated with hunting scenes inspired by an episode of Book IV of the *Aeneid*.[23] Near the mummy was an ivory doll with articulated arms and legs, gold earrings, a gold ring adorned with a winged Victory, small red-amber vases, and small amulets. The mummy wore a fine tunic of Chinese silk and a gold necklace adorned with thirteen blue sapphires. Italian archaeologists and gemologists came to the conclusion that the sapphires came from Sri Lanka. Analysis of the decoration of the sarcophagus and of the offerings date the tomb to the second half of the second century CE. The Roman inspiration on Andhra Buddhist art has been thoroughly discussed by art historians.[24] Roman acquaintance with the island of Lanka has a history as well and the discovery of carvings of Roman inspiration is not exceptional.

It is in this context that we can explain the Roman inspiration in Sri Lankan art. We know that the sculptures of the four vāhalkaḍas of the Abhayagiri Dagaba, in Anuradhapura, are dated to the second century CE, based on a slab inscription on the south vāhalkaḍa. That enables us to firmly date the four vāhalkaḍas to the reign of King Kaniṭṭha Tissa (164–194 CE) (Wickremasinghe 1912, 252–259). The iconography of the *Kalpavṛkṣa* (tree of life), in the form of a candelabrum at the eastern vāhalkaḍa of the Abhayagiri Dagaba, has served as the prototype for many pillars of ancient dagabas, including Kaṇṭaka Cettya, Jetavanarama Dagaba, Dakkhiṇa Thupa, and Digavapa Cettya (von Schroeder 1990, Figures 14, 16 and 17). However, the original iconography for all these pillars was misinterpreted because the original Roman motifs lost their identity, leaving space for the imagination of the local sculptors.

Along with the networks that connected Sri Lanka to India and the Mediterranean, the political affiliation between Sri Lanka and Myanmar, which reached its apogee when King Vijayabāhau (1055–1110 CE), then fighting the Cholas from India, received help from the king King Anurudha (1044–1077 CE) of Myanmar. The decline of Buddhism caused by the Chola occupation of Sri Lanka prompted Vijayabāhau to invite monks from Rāmañña (country of

---

23   It is currently at the National Museum at Palazzo Massimo in Rome.
24   See Stone's (1994) book on Nagarjunakonda. She has also revisited this topic (see Stone 2016).

the Ramans) to purify the *saṅgha* (Buddhist community) of the three *nikāyas* (Buddhist orders) (Gunawardana 1979, 271–217; and especially Sirisena 1978, 16–35). As noted by R.A.L.H. Gunawardana, Pāli Buddhism was known in Upper Burma, as evidenced by the Hmawaza inscription (discovered in 1897 at Maunggun village near Hmawaza in the Prome district, Myanmar) as early as the fifth century CE.[25]

The earliest Sri Lankan contacts with Thailand, as revealed by iconographic similarities, dates to the time of the Mon Kingdom of Dvaravati, which may have existed as early as the fifth century CE. The Sri Lankan inspiration for the bronze Buddha statues found at Dvaravati have been discussed by many scholars (see, e.g., Dupont 1959, 239; Sirisena 1978, 151).[26] Charlotte Galloway (2010) explores the artistic relationships between the Pyu and Mon of Burma and the Dvaravati Mon of Thailand.

The close links between Sri Lanka and Burma certainly paved the way for iconographies based on Pāli literature. For example, the *Buddhavaṃsa*, part of the *Khuddaka Nikāya*, which in turn is part of the *Sutta Piṭaka*, was popular in Burma (see Morris 1882, 66–7). The text of the *Buddhavaṃsa* is written in Burmese characters on the walls of the Thambula Temple, in Bagan, which is dated to approximately mid-thirteenth century.[27] The Pāli literature clearly shows the cultural, political, and especially economic relations between Sri Lanka and Burma.

From the seventh century onward, merchants from China, Arabia, Persia, and South India developed networks of trade with Sri Lanka and Southeast Asia. It was with the sudden burst of trade activity between China and the Middle East in the eighth century that Sri Lanka began to play a decisive role in maritime trade across a wider expanse of the Indian Ocean. It was during the peak of this movement that the Bodhisattva Avalokiteśvara and his consort Tārā became popular as the protectors of sailors throughout Asia.

The preliminary results from the Avalokiteśvara Survey Project provide insight into the relationship between Buddhism and maritime trade in Sri Lanka and beyond.[28] By using geographic information system map-

---

25   The inscription was discovered in 1897 at Maunggun village, near Hmawaza in the Prome District, in Myanmar. It is mentioned in the 1928 the article by Duroiselle in the *Annual Reports of the Archaeological Survey of India* (cited in Gunawardana 1979, 272).

26   Note that Boisselier (1963) indicated that the Buddha images from Dvaravati are inspired more by Sri Lankan than Amaravati prototypes.

27   I am most thankful to Lillian Handlin for drawing my attention to the paintings and the text on the walls of this temple.

28   The project was launched by the University of California Berkeley and the National Centre for Scientific Research, Paris, in collaboration with the Department of Archaeology in Sri Lanka.

ping software to uncover spatial and temporal patterns of the location of Avalokiteśvara images, the survey shows that when the cult of Bodhisattva Avalokiteśvara, as the patron and protector of mariners, gained popularity in Sri Lanka from the seventh century onward, his images were erected in sanctuaries built at the mouths of rivers or bays facing the sea or inland along the navigable rivers. Three types of sculptures of Avalokiteśvara were recorded: bronze statuettes, rock-cut images, and stone statues in the round. Most of the bronze statues were locally cast but some were imported by traders and pious monks.

An inscription containing eleven lines written in South Indian Grantha script dated to the seventh or eighth century chiseled on a rock-surface at Tiriyaya, twenty-nine kilometers north of Trincomalee, refers to companies of merchants who endowed a Mahāyāna Buddhist shrine dedicated to the Bodhisattva Avalokiteśvara and his consort Tārā (Paranavitana 1943, 151–160). The exactitude of this reference was proven in 1983 when the Department of Archaeology in Sri Lanka undertook an excavation at the site. Thirty statues of Buddha, eleven of bodhisattvas, three of Tārā, a casket stupa top, and four Dhyāna Buddhas were found buried under a paving stone in the ruins of a meditation hall (Sirisoma 1983). Among them, two bronze statues of standing Avalokiteśvara of the ascetic type bearing a small effigy of Tathāgata Amitābha (one of his identifying marks) in his headdress (von Schroeder 1990, 252–253 Figures 61C, 61D). Two other bronze statues are of Avalokiteśvara seated in *rājalīlāsana* (posture of royal ease) (von Schroeder 1990, 284–285 Figures 78E–G). There are also two solid cast bronze statuettes of Tārā standing in *tribhanga* (three-part posture) and a beautiful statue of Adhibbuddha, or Vajradharma, with an elaborately worked *jatāmakuṭa* (hair dressed up as a crown) depicting the five Tathāgatas (*dhyānibuddhas*: Akṣobhya, Amitābha, Amoghasiddhi, Ratnasaṃbhava and Vairocana (von Schroeder 1990, 276–277 Figures 73F, 73G).[29] The solid cast bronze image of the Buddha seated in *vajrāsana* (thunderbolt pose) displaying the *bhūmisparśa mudrā* (earth witness gesture) of the Pāla style (von Schroeder 1990, 194 Figure 49A), and the statue of Padmapāṇi-Avalokiteśvara seated in *lalitāsana* (royal pose) displaying the *varada mudrā* (generosity gesture), appear to have been imports from north-east India.[30] The fact that Tiriyaya

---

29 According to the Sādhanamālā, this statue most probably represents Vajradharma (a form of Avalokiteśvara, whose eyes are dilated with joy); for a detailed discussion, see Bhattacharyya 1924 (142–143).

30 *Bronzes bouddhiques et hindous de l'Antique Ceylan*, no. 17, 82. Chefs-d'œuvre des musées du Sri Lanka, Musée national des Arts Asiatiques-Guimet, October 23, 1991–February 23, 1992, Paris, exhibition catalog.

is located on the right bank of the Yan Oya, one of the main openings to the sea routes of the east, suggests that it may have accumulated donations from mariners and merchants who were frequent visitors to the Buddhist shrine (Bopearachchi 2014). Among the statues imported to Sri Lanka is the bronze Khmer statue of a four-handed Lokeśvara (i.e., Avalokiteśvara) holding a lotus flower, water pot, rosary, and book found in Devundara, the famous seaport at the most southern tip of the country. This finding confirms the maritime contacts between Sri Lanka and Cambodia, as well as the importance of Avalokiteśvara across South Asia and Southeast Asia (Goloubew 1924; Vincent 2013).

The survey also discovered hitherto unknown inscriptions, images, and votive tablets denoting both Mahāyāna and Vajrayāna concepts. The most important discovery is an inscription of the Vajradhātu-maṇḍala, which underscores the presence and practice of tantric Mahāyāna, or Vajrayāna, in the Sri Lankan capital of Anuradhapura from the eighth to tenth centuries (Powell 2018, 23–26).[31] The expansion of Tantric Buddhism from India to South Asia and Southeast Asia is also linked with the expansion of maritime activities with China. The aforementioned travel of Monk Vajrabodhi, first to Sri Lanka and then to China, occurred through the growth of the trading networks to the east. The maritime route used by the Persian ships with Vajrabodhi on board was the same used by Sinhalese *bhikṣuṇī* (Buddhist nuns) on their way to southern China. From the last years of the Jin to the end of the Tang dynasties, Chinese sources recorded eleven Sinhalese embassies sent to China (Thierry 2019, 19–20).[32] Just as the Sinhalese nuns who spurred the development of female monasticism were welcomed in China, Vajrabhodi and his disciple, Amoghavajra, masters of Esoteric Buddhism in the Tang capital, enjoyed the hospitality of the Tang emperor (Sundberg and Giebel 2011).

In conclusion, seafaring traders and caravan merchants were not only undoubtedly interested in the exchange of commodities to make a profit but also were—as revealed by epigraphic and literary evidence—the earliest donors and important patrons of Buddhist establishments in South Asia and Southeast Asia. The resources needed to build massive religious monuments would have come from both royal patronage and the mercantile classes, the latter whose wealth was based on flourishing inland and international trade centers located at the ports along the coast and navigable rivers. Likewise, the

---

31 This discovery was studied at length by Kellie Powell, Department of South and Southeast Asian Studies, UC Berkeley.

32 The Jin Dynasty was 265–420 CE and the Tang Dynasty was 618–907 CE.

spread of Buddhism and Buddhist iconographies in South Asia and Southeast Asia is closely connected with the growth of the maritime networks that facilitated the movement of Buddhist merchants, traveling monks, and teachers. In this way, Buddhist iconographies developed in a cross-fertilized context, incorporating the sentiments and aesthetics of their respective traditions while simultaneously stimulating the creation of new forms of art. It is those traces that enable us to understand the development of maritime networks.

References

Bandaranayake, Senake.1986. *The Rock and Wall Paintings of Sri Lanka*. Colombo: Lake House Bookshop.

Barbet, Alix. 1999. *Les cités enfouies du Vésuve*: *Pompéi, Herculanum, Stabies et autres lieux*. Paris: Fayard.

Bhattacharyya, Benoytosh. 1924. *The Indian Buddhist Iconography, Mainly Based on the Sādhanamālā and Other Cognate Tāntric Texts of Rituals*. Oxford: Oxford University Press.

Boisselier, Jean. 1963. *La statuaire du Champa. Recherches sur les cultes et l'iconographie*. Volume LIV. Paris: Publications de l'École Française d'Extrême- Orient.

Bopearachchi, Osmund. 1999. "Sites portuaires et emporia de l'ancien Sri Lanka: nouvelles données archéologiques." *Arts Asiatiques* 54: 5–22.

Bopearachchi, Osmund. 2006 "Coins." In *Anuradhapura: The British-Sri Lankan Excavations at Anuradhapura Salgaha Watta*. Vol. 2: *The Artefacts* (British Archaeological Reports), edited by Robin Coningham, 7–26. Oxford: Archaeopress.

Bopearachchi, Osmund. 2008. "Sculptures of Amaravati Tradition in Sri Lanka." *Journal of the Asiatic Society* 1 (4): 1–26.

Bopearachchi, Osmund. 2012. "Andhra-Tamilnadu and Sri Lanka: Early Buddhist Sculptures of Sri Lanka." In *New Dimensions of Tamil Epigraphy*, edited by Appasamy Murugaiyan, 49–68. Chennai: Cre-A.

Bopearachchi, Osmund. 2014. "Sri Lanka and the Maritime Trade. Bodhisattva Avalokiteśvara as the Protector of Mariners." In *Asian Encounters Exploring Connected Histories*, edited by Upinder Singh and Parul Pandya Dhar, 161–187. New Delhi: Oxford University Press.

Bopearachchi, Osmund. 2016. *Seven Weeks after the Buddha's Enlightenment*: *Contradictions in Text, Confusions in Art.* New Delhi: Manohar Publishers.

Bopearachchi, Osmund. 2017. "Unique plaque depicting a universal monarch from Tissamaharama." *The Island*, January 10. https://buddhistartnews.wordpress.com/2017/03/01/17442/.

Bopearachchi, Osmund. 2018. "Pectoral Depicting Buddhas and Bodhisattvas from Greater Gandhāra." *Ancient West and East* 17: 231–252.

Castellani, Osvaldo. 1964. "La momie de Grottarossa (Rome)." *Revue archéologique du Centre de la France* 3 (2): 138–142.

Champakalakshmi, Radha. 1996. *Trade, Ideology and Urbanization. South India 300 BC to AD 1300*. New Delhi: Oxford University Press.

Cowell, E. B., and R. A. Neil, eds. 1886. *The Divyāvadāna, a Collection of Early Buddhist Legends*. Cambridge: Cambridge University Press.

Cowell, E. W., ed. (1895) 2003. *The Jātaka or Stories of the Buddha's Former Births, Translated from the Pāli by Various Hands.* Cambridge: Cambridge University Press. Reprint, New Delhi: Asian Educational Services.

Dupont, Pierre. 1959. *L'Archéologie Mône de Dvāravatī.* Paris: Ecole francaise d'Extreme-Orient.

Galloway, Charlotte. 2010. "Ways of Seeing a Pyu, Mon and Dvāravatī Artistic Continuum." *Bulletin of the Indo-Pacific Prehistory Association* 30: 70–78.

Geiger, Wilhelm, trans. 1912. *The Mahāvaṃsa or, the Great Chronicle of Ceylon*. London: Pali Text Society.

Godakumbura, Charles Edmund. 1962. *Archaeological Survey of Ceylon, Annual Report*. Colombo.

Goloubew, Victor. 1924. "Mélanges sur le Cambodge ancien, II. Une idole khmère de Lokeçvara au Musée de Colombo." *BEFEO* 24, nos. 3–4: 510–551.

Gunawardana, R.A.L.H. 1979. *Robe and Plough. Monasticism and Economic Interest in early Medieval Sri Lanka*. Tucson: University of Arizona Press.

Gupta, P. Lal, and T. R. Hardaker. 2014. *Punchmarked Coinage of the Indian Subcontinent*, rev. ed. Magadha-Mauryan Series. New Delhi: IIRNS Publications.

Knox, Robert. 1992. *Amaravati: Buddhist Sculptures from the Great Stūpa*. London: British Museum Press.

Kulatunga, T. G. 2014. *Purana Abhyagiri Vihāraya*. Colombo: Central Cultural Fund.

Jones, J. J., trans. (1949) 2007. *The Mahāvastu,* vol. 1. Lancaster: Pali Text Society. Reprint.

Lenz, Timothy. 2003. *A New Version of Gandhārī Ddarmapada and a Collection of Previous-Birth Stories. British Library Kharoṣṭhī Fragments16+25*. Seattle: University of Washington Press.

Lienhard, Siegfried. 1993. "Avalokiteśvara in the Wick of the Night-lamp." *Indo-Iranian Journal* 36 (2): 93–104.

Marshall, John, and Alfred Foucher. 1940. *The Monuments of Sanchi*. Vol. 2: *The Art of Sanchi*. Calcutta: The Government of India Press.

Morris, Richard, ed. 1882. *The Buddhavaṃsa.* London: Pali Text Society.

Nakanishi, Maiko, and Oskar von Hinüber. 2014. *Kanaganahalli Inscriptions.* Tokyo: International Research Institute for Advanced Buddhology.

Oldenberg, Hermann, ed. and trans. 1879. *Dīpavaṃsa*: *The Dîpavaṃsa; An Ancient Buddhist Historical Record*. London: Williams and Norgate.

Olivelle, Patrick. trans. 2000. *Dharmasūtras: The Law Codes of Āpastamba, Gautama, Baudhāyana and Vasiṣṭha*. Oxford: Oxford University Press.

Olivelle, Patrick. trans. 2014. *King, Governance, and Law in Ancient India: Kauṭilya's Arthaśāstra—A New Annotated Translation*. New Delhi: Oxford University Press.

Paranavitana, Senarath. 1943. *Epigraphia Zeylanica*, vol. IV. London: Oxford University Press.

Paranavitana, Senarath. 1951. "Pidurangala." In *Archaeological Survey of Ceylon, Annual Report 1951*. Colombo.

Paranavitana, Senarath. 1959. "Civilisation of the Early Period: Religion and Art." In *History of Ceylon*, vol. 1, edited by H. C. Ray, 241–268. Colombo: Ceylon University Press.

Paranavitana, Senarath. 1971. *Art of the Ancient Sinhalese.* Colombo: A Visidunu Publication.

Poonacha, K. P. 2011. *Excavations at Kanaganahalli* (*Sannati, Dist. Gulbarga, Karnataka*). New Delhi: Archaeological Survey of India.

Powell, Kellie. 2018. "Rituals and Ruins: Recovering the History of Vajrayāna Buddhism in Sri Lanka." Master's thesis, South and South-East Asian Studies, University of California, Berkeley. https://www.academia.edu/37130229/Rituals_and_Ruins_Recovering_the_History_of_Vajray_Buddhism_in_Sri_Lanka

Rāmāyaṇa of Vālmīki. 1984. *An Epic of Ancient India*, vol. I: Bālakāṇḍa. Introduction and Translation by Robert P. Goldman. Princeton, NJ: Princeton University Press.

Ratnayake, Hema. 1993. "Jetavana Stupa and Monastery Complex." In *The Cultural Triangle of Sri Lanka*, 64–85. Paris: UNESCO Publishing.

Rhys Davids, T. W., trans. 1925. *Buddhist Birth Stories* (*Jataka Tales*)*. The Commentarial Introductions Entitled Nidanā-Kathā. The Story of the Lineage*, new and rev. ed. by Mrs. Rhys Davids. London: George Routledge and Sons Ltd.

Salomon, Richard. 2018. *The Buddhist Literature of Ancient Gandhāra. An Introduction with Selected Translations*. Classics of Indian Buddhism. Somerville, MA: Wisdom Publications.

Seneviratna, Anuradha. 1994. *Ancient Anuradhapura*. Colombo: Archaeological Survey Department.

Shimada, Akira. 2013. *Early Buddhist Architecture in Context: The Great Stūpa at Amarāvatī (ca. 300 BCE-300 CE).* Brill's Indological Library, Vol. 43. Leiden: Brill.

Schlingloff, Dieter. 2013. *Ajanta: Handbook of the Paintings, Narrative Wall-Paintings*. New Delhi: Aryan Books International.

Sircar, Dineshchandra, and Lahiri, A.N. 1959–1960. "Footprint Slab Inscription from Nagarjunakonda." *Epigraphia Indica* 33:247–250.

Sirisena, W. M. 1978. *Sri Lanka and South-East Asia: Political, Religious and Cultural Relations from A.D. c.1000 to c.1500.* Leiden: E. J. Brill.

Sirisoma, M.H. 1983. *The Vaṭadāge at Tiriyaya*, Colombo: Department of Archaeology.

Smither, G. James. 1993. *Architectural Remains, Anuradhapura, Sri Lanka,* rev. ed. Edited by Chandra Wickramagamage. Polgasovita: Academy of Sri Lankan Culture.

Stone, Elizabeth Rosen. 1994. *The Buddhist Art of Nagarjunakonda.* Delhi: Motilal BanarsidassPublishers Pvt. Ltd.

Stone, Elizabeth Rosen. 2016. "Reflections of Roman Art in Southern India." In *Amaravati: The Art of an Early Buddhist Monument in* Context, edited by Akira Shimada and Michael Willis, 59–69. London: The British Museum.

Sundberg, Jeffrey, and Rolf W. Giebel. 2012. "The Life of the Tang Court Monk Vajrabodhi as Chronicled by Lü Xiang 呂向: South Indian and Śrī Laṅkān Antecedents to the Arrival of the Buddhist Vajrayāna in 8th Century Java and China." *Pacific World: Journal of the Institute of Buddhist Studies*, 3rd series, 12: 25–118.

Suresh, Sethuraman. 2004. *Symbols of Trade: Roman and Pseudo-Roman Objects in India*. Delhi: Manohar.

Thierry, François. 2019. *Le Royaume du Lion. Ceylan connu des Chinois des origines à la fin des Song.* Turnhout: Brepols.

Tomber, Roberta. 2008. *Indo-Roman Trade: From Pots to Pepper.* London: Gerald Duckworth.

Vincent, Brice. 2013. "Nouvelle étude du Lokeśvara khmer du Musée national de Colombo (Sri Lanka)." *Arts Asiatiques* 68: 26–38.

von Shroeder, Ulrich. 1990. *Buddhist Sculptures of Sri Lanka*. Hong Kong: Visual Dharma Publications Ltd.

Wickremasinghe, Don Martino De Silva. 1912. *Epigraphia Zeylanica*, vol. 1. London: Oxford University Press.

Wijesekera, Nandadeva. 1962. *Early Sinhalese Sculpture*. Colombo: M. D. Gunasena.

Zin, Monika. 2003. *Devotionale und ornamentale Malereien.* Vol. 1, *Interpretation.* Wiesbaden: Harrassowitz Verlag.

Zin, Monika. 2015. "Pictures of Paradise for Good Luck and Prosperity: Depictions of Themes Irrelevant for Enlightenment in the Older Buddhist Tradition (with Special Reference to the Paintings of Ajanta)." In *Mani-Sushma: Archaeology and Heritage (Dr. B. R. Mani Festschrift),* edited by Vinya Kumar and Brijesh Rwat, 125–147. Delhi: B. R. Publishing Cooperation.

Zin, Monika. 2016. "Buddhist Narratives and Amaravati." In *Amaravati: The Art of an Early Buddhist Monument in Context*, edited by Akira Shimada and Michael Willis, 59–69. London: The British Museum.

Contributors

Franck Billé is a cultural anthropologist based at the University of California, Berkeley, where he is program director for the Tang Center for Silk Road Studies. He is the author of *Sinophobia* (Hawaii, 2015), coauthor of *On the Edge* (Harvard, 2021), editor of *Voluminous States* (Duke, 2020), and coeditor of *Yellow Perils* (Hawaii, 2019) and *Frontier Encounters* (Open Book, 2012). He is currently finalizing his latest book, *Somatic States: On Cartography, Geobodies, Bodily Integrity* (Duke University Press). More information about his current research is available on his website: www.franckbille.com.

Osmund Bopearachchi is Emeritus Director of Research of the French National Center for Scientific Research (C.N.R.S.-E.N.S. Paris), former Adjunct Professor of Central and South Asian Art, Archaeology, and Numismatics, University of California, Berkeley and former Visiting Professor and Member of the Doctoral School of the Paris-Sorbonne University. Professor Osmund Bopearachchi is a numismatist, art historian, and archaeologist. He is the author of 14 books, 5 exhibition catalogues; 2 book translations; editor of 6 volumes; author of 145 research articles and 9 prefaces; and 14 book reviews in reputed international journals and 2 databases.

Shadreck Chirikure is an archaeological scientist who specializes in materials analysis in archaeology. He holds the Edward Hall Professorship of Archaeological Science in the Research Laboratory for Archaeology and the History of Art, School of Archaeology, Oxford. He is also British Academy Global Professor in the same institution. Previously, he was professor of Archaeology at the University of Cape Town where he directed the Archaeological Materials Laboratory. He is the author of *Metals in Past Societies* (Springer).

Ariane de Saxcé is Research Associate for South and South-East Asia at the German Archaeological Institute, Commission for Non-European Cultures (KAAK), Bonn. She received her PhD from the University of Paris-Sorbonne in 2015, with a thesis entitled "Trade, Interactions, Networks: Maritime Exchanges in the 'Erythraean Sea' between the 3rd c. BCE and the 7th c. CE," with a scholarship from the National Institute of Art History (Paris) and the Getty Research Institute (Los Angeles). For her Post-Doctoral research at the École Pratique des Hautes Études (Paris), she worked on religious and cultural interactions of Sri Lanka at the early medieval period. Now

in the KAAK, she is excavating on the West coast of Sri Lanka and on the Jaffna peninsula.

Derek Heng is Professor of History at Northern Arizona University. He specializes in the pre-modern trans-regional history of Maritime Southeast Asia and the South China Sea, utilizing textual and archaeological data to study the interactions between Southeast Asia and China, and their impact on the state formation process in coastal Southeast Asia. He is the author of *Sino-Malay Trade and Diplomacy in the Tenth Through the Fourteenth Century* (Athens: Ohio University Press, 2009), and has published several articles and essays in the *Journal of Southeast Asian Studies*, *Journal of Sung-Yuan Studies* and *International History Review*. He also writes on the history and historiography of Singapore's past, and is the co-author of *Seven Hundred Years: A History of Singapore* (Singapore: National Library Board, 2019).

Jun Kimura is a maritime archaeologist and an associate professor at Tokai University. His doctorate degree is from Flinders University, Australia. Dr. Kimura is also a member of the ICOMOS-International Committee on the Underwater Cultural Heritage. His research focus is the archaeological study of shipbuilding in East Asian and Southeast Asian regions. Dr. Kimura is an expert in underwater survey and excavation with a number of fieldwork experiences at wreck sites. His scholarly publications include "Naval Battlefield Archaeology of the Lost Kublai Khan Fleets" and *Archaeology of East Asian Shipbuilding Tradition*.

James W. Lankton is currently a Senior Research Associate at UCL Institute of Archaeology in London and has been a Visiting Scholar at the Tang Center for Silk Road Studies, UC Berkeley. For the past twenty years James has focused on the interpretation of chemical analyses of early glass found both East and West, with recent projects on glass from South and Southeast Asia and Korea in the late 1st c. BCE to the 6th c. CE, and Egypt and the Mediterranean basin from the Late Bronze Age.

Sanjyot Mehendale is Chair of the P.Y. and Kinmay W. Tang Center for Silk Road Studies and Vice Chair of the Center for Buddhist Studies at UC Berkeley. Her main research focuses on the Kushan period, in particular on trade and cultural exchange and the relationship between Kushan kingship and Buddhist institutions. A recipient of a National Endowment for the Humanities Fellowship, she has developed, in collaboration with the

Electronic Cultural Atlas Initiative, a digital archive of the Begram ivory and bone carvings, which were once housed in the National Museum in Kabul, Afghanistan (www.ecai.org/begramweb=). The author of several articles on Silk Roads art and archaeology, she is the co-editor of *Central Asia and the Caucasus: Transnationalism and Diaspora* (Routledge, 2005).

John Miksic is emeritus professor in the Southeast Asian Studies Department of the National University of Singapore and senior research fellow at the School of Humanities, Nanyang Technological University. His book *Singapore and the Silk Road of the Sea* won the inaugural award for best book on Singapore history in 2018. His specialties include historical archaeology of Southeast Asia, urbanization, trade, ancient Buddhism, and ceramics.

Hyunhee Park (Ph.D. Yale University) is a Professor of history at the City University of New York, John Jay College and the CUNY Graduate Center. She specializes in the history of cross-cultural contacts in East Asia and the Islamic World, in Sino-Islamic contacts in particular, in the Mongol Empire, and global history, focusing on information/knowledge transfers, including transfers of geographical knowledge, foodways, and distillation technologies. She authored *Mapping the Chinese and Islamic Worlds: Cross-Cultural Exchange in Pre-Modern Asia* (2012), *Soju: A Global History* (2021), and 30 articles for academic journals and edited volumes.

Eivind Heldaas Seland is Professor of ancient history and premodern global history at the University of Bergen, Norway. Among his latest books are *Ships of the Desert, Ships of the Sea. Palmyra in the World Trade of the first three centuries CE* (2016), and *A Global History of the Ancient World. Africa, Asia and Europe before Islam* (2021).

Index

Locators in italic refer to figures.

Asian Borderlands

The Maritime Silk Road foregrounds the numerous networks that have been woven across oceanic geographies, tying world regions together often far more extensively than land-based routes. On the strength of the new data which has emerged in the last two decades in the form of archaeological findings, as well as new techniques such as GIS modeling, the authors collectively demonstrate the existence of a very early global maritime trade. From architecture to cuisine, and language to clothing, evidence points to early connections both within Asia and between Asia and other continents—well before European explorations of the Global South. The human stories presented here offer insights into both the extent and limits of this global exchange, showing how goods and people traveled vast distances, how they were embedded in regional networks, and how local cultures were shaped as a result.

Franck Billé is a cultural anthropologist based at the University of California, Berkeley, where he is program director for the P.Y. and Kinmay W. Tang Center for Silk Road Studies.
Sanjyot Mehendale is Chair of the P.Y. and Kinmay W. Tang Center for Silk Road Studies and Vice Chair of the Center for Buddhist Studies at UC Berkeley.
James W. Lankton is a Senior Research Associate at UCL Institute of Archaeology in London.

AUP.nl