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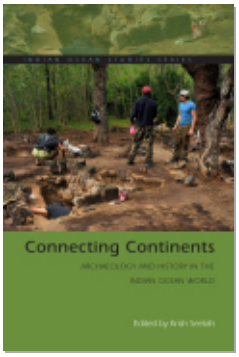

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INDIAN OCEAN STUDIES SERIES

Connecting Continents

ARCHAEOLOGY AND HISTORY IN THE INDIAN OCEAN WORLD

Edited by Krish Seetah

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Connecting Continents

Archaeology and History in the Indian Ocean World

EDITED BY

Krish Seetah

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ONE

Interdisciplinary Ripples across the Indian Ocean

KRISH SEETAH AND RICHARD B. ALLEN

THE INDIAN OCEAN, LARGELY ignored by historians and social scientists until the 1980s,[1] has become the focus of increasing interest to academics from disciplines as varied as anthropology, political science, and sociology. These scholars have been attracted by the social and cultural diversity of an oceanic world that encompasses southern and eastern Africa, the Red Sea, the Persian Gulf, the Indian subcontinent, the Malay Peninsula, the Indonesian archipelago, and Australia (map 1.1). Evidence of this scholarly interest includes the organization of a growing number of international conferences on this oceanic world since 1979.[2] The launching of journals dedicated to Indian Ocean studies in 1982, 1993, and, most recently, 2015;[3] the establishment of an Indian Ocean World Centre at McGill University in Montréal in 2004; and vigorous discussion among historians about how the Indian Ocean world should be conceptualized further attest to this expanding scholarly interest.[4] Of greater practical significance is the publication of ever-increasing

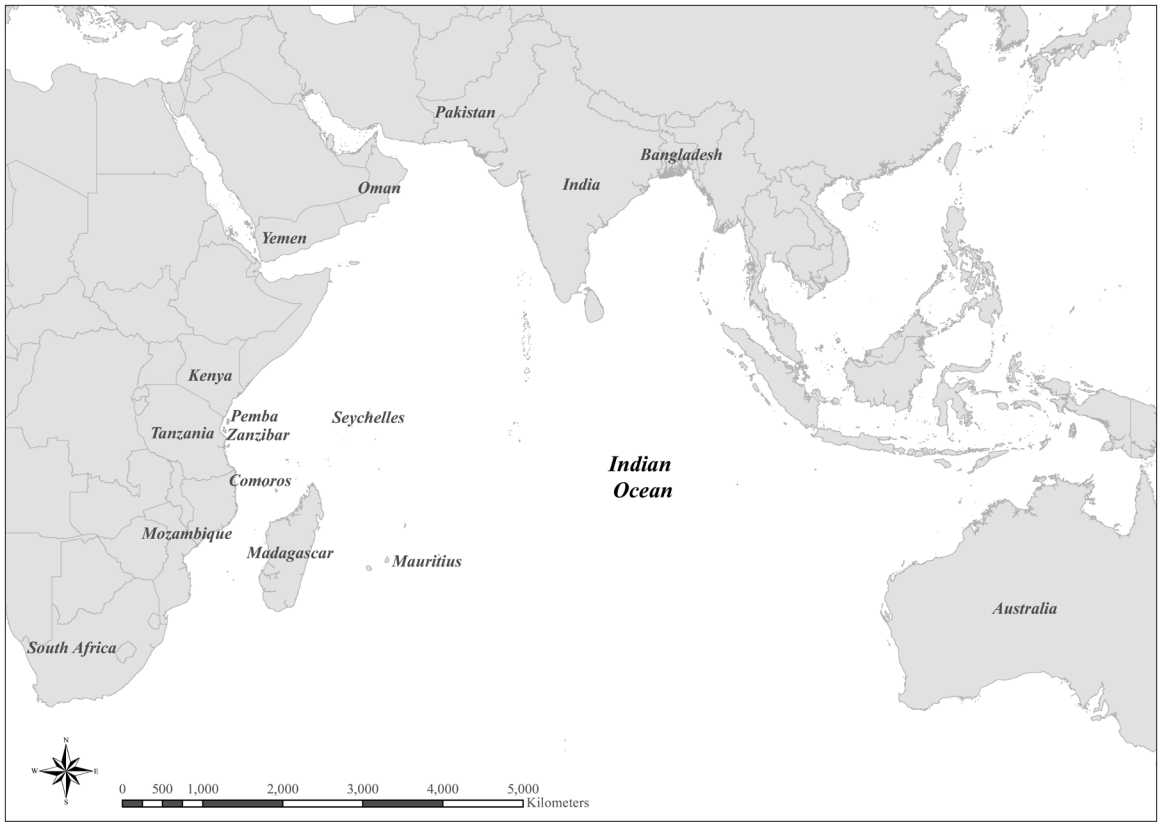
numbers of articles, monographs, and edited collections that explore social, economic, cultural, and political life in this oceanic basin and seek to situate the Indian Ocean in the broader context of world history.[5]

Frequently missing from this burgeoning discourse, however, are contributions by archaeologists, and historical archaeologists in particular,[6] as well as conscious attempts to study this region's past from an interdisciplinary perspective. A recent special edition of the journal *Slavery and Abolition* demonstrates that some historians are increasingly aware of the potential insights that the study of material culture in archaeological contexts can provide,[7] an awareness matched by a growing appreciation among some archaeologists of the value of "text-aided" archaeology.[8] Despite such developments, concerted efforts to cultivate interdisciplinary approaches to individual research projects and, ultimately, to academic disciplines remain tangential at best.

This book seeks to begin the process of creating a more explicitly interdisciplinary approach to Indian Ocean studies by drawing on the expertise of the archaeologists, historians, artists, and anthropologists who participated in the workshop Connecting Continents: Case Studies from the Indian Ocean World held at Stanford University in March 2014. In addition to encouraging scholars to adopt interdisciplinary approaches to studying this region's peoples, cultures, and history, the workshop sought to establish a research agenda for a part of the world that is just beginning to be a subject of serious historical archaeological interest. In so doing, the workshop's participants set out to transcend the kind of disciplinary and subdisciplinary particularism that all too often plagues research agendas and programs, especially in parts of the world that have hitherto attracted limited scholarly interest.[9]

CONCEPTUALIZING CONNECTIONS

Such an undertaking requires an awareness of the problems that can easily complicate attempts, especially interdisciplinary ones, to reconstruct and analyze the complexities of the human experience in the Indian Ocean in greater detail. Historians of slavery, for example, have long appreciated the evidentiary and conceptual difficulties that hamper attempts to reconstruct slave trading in this oceanic basin. These problems include a paucity of archival sources, the pervasive Atlantic-centrism in modern slavery and African diaspora studies, and



MAP 1.1. The Indian Ocean, with locations discussed in the volume.

a penchant for geographical, chronological, and topical compartmentalization that often inhibits attempts to study human interaction from a comparative or panregional perspective.[10] Archaeologists working in the Indian Ocean face similar problems, the most salient of which is the extent to which Atlantic-inspired models influence research in the Mare Indicum.[11] While archaeologists working in the Indian Ocean obviously need to be aware of such conceptual frameworks, we must remember that the Indian Ocean and Atlantic worlds differed from one another in significant ways. Such differences are readily apparent whenever historians discuss the various free and forced labor trades and systems that have been major features of life in both of these oceanic worlds.[12] Archaeologists need to be equally aware of such differences as they seek to understand the nature, dynamics, and impact of population movements within and between vast and diverse geographic regions.

A particularly serious problem facing Indian Ocean archaeologists is the general lack of research on this part of the globe. Except for the Swahili Coast and South Africa, few sites in the Indian Ocean basin have been subject to the kind of careful excavation and analysis that can shed substantive new light on social, economic, and cultural connections within and across this region.[13] A dearth of artifacts, artifact catalogues, and other basic forms of data has, in turn, precluded development of the kinds of typologies upon which archaeological analysis of material culture often rests. Other problems include nonexistent or poorly calibrated dating profiles for the region as a whole, particularly for historical but also for prehistorical periods, and minimal mapping of the crossregional movement of goods.[14]

Reconstructing the social, economic, cultural, and political connections that have existed for hundreds of years between the disparate regions and peoples of this oceanic basin invariably entails addressing multiple conceptual issues, perhaps foremost of which is, What do archaeologists understand by the notion of an Indian Ocean "world"? There can be little doubt that many historians readily subscribe to the notion, first popularized by Fernand Braudel's classic work on the Mediterranean in the age of Philip II,[15] that oceanic basins can be viewed as integrated "worlds" whose constituent parts are linked together in various ways, be they ecological, cultural, economic, or political. This concept's popularity reflects the belief that because such worlds are distinct zones of biological, cultural, and economic interaction and integration,

they allow large-scale historical processes to be seen in sharper relief.[16] However, as recent discussions among historians about the nature of the Atlantic "world" attest, defining oceanic worlds largely in geographical terms can also impede a deeper understanding of the ways in which different regions have interacted with one another through time.[17] Recent studies of the Dutch East India Company's multinational labor force, the politics and ideology of the early British East India Company state, the geography of color lines in Madras and New York, identity and authority in eighteenth-century British frontier areas, British transoceanic humanitarian and moral reform programs, and European slave trading in the Indian Ocean indicate that these concerns are equally relevant to the Indian Ocean.[18] Archaeologists should also be concerned about this concept's limitations, especially since one of their discipline's major strengths lies in its emphasis on studying interaction through time and across space.

Other problems reflect the differences between what historians and archaeologists do and how they do it (i.e., the scale of research, types of data collected, and questions asked and addressed). Historical research is usually heavily dependent on written documents, although other sources, such as oral tradition, may also help in reconstructing the past. The extent to which historians are able to practice their craft invariably depends on not just the quantity, but also the quality, of the sources at their disposal. On occasion, the richness of the archival record allows the life histories of obscure individuals to be reconstructed in considerable detail.[19] In other instances, however, even the most astute reading of the archival record does not allow us to reconstruct various aspects of the human experience at the macro-regional, much less local, level.

HISTORICAL ARCHAEOLOGY IN THE INDIAN OCEAN

The utility of the term "historical archaeology" in Indian Ocean studies was a subject of considerable discussion during the Stanford workshop. This is a topic that, beginning with the important work of Kent Lightfoot, has been much debated in archaeology, particularly when juxtaposed with prehistory, and continues to be a subject of discussion.[20] For the wider Indian Ocean, archaeological research has tended to focus on evolutionary archaeology or prehistoric civilizations. Limited opportunities for historical archaeology in this oceanic basin can easily

be traced to inadequate funding for archaeological research, a problem compounded by the region's vastness and the complexity of patterns of interaction within it. Such an explanation is ultimately not particularly convincing, however, especially when we remember that an equally vast, diverse, and complex Atlantic world has long been a subject of extensive historical archaeological research. Such an explanation becomes even less satisfactory in light of what we now know about the Indian Ocean's importance in global history and the history of globalization.

The development of historical archaeology as a discipline has strong connections to the Atlantic. In the United Kingdom and European Union, archaeologists have adopted chronological markers, such as "postmedieval," and thematic framing, such as industrial archaeology. A useful point of departure is Charles Orser's description of the subject as "text aided archaeology that uses a combination of archaeology and historical methods, sources, and perspectives to study the recent past."[21] However, for the Indian Ocean, as with many parts of Europe, Africa, and China, we must wrestle with the much deeper antiquity of the written word and the implications this has for defining historical archaeology in these settings.

As the workshop's participants appreciated, the issue of periodization is central to defining what may or may not constitute "historical" archaeology in the Indian Ocean. The limited and often problematic nature of the textual sources at our disposal and the absence of the kind of commonly agreed upon chronological markers found in the Atlantic world make it difficult to apply Orser's definition to the Indian Ocean world. As the archaeological record demonstrates, there is deeper diachronic continuity between cultures throughout much of the Indian Ocean world than is found in the Atlantic.[22] The question often facing the historical archaeologist working in the Indian Ocean is not just, *When* does archaeology become historical, but also, *Where* does it do so? Even in cases such as Mauritius, where the point in time at which archaeology becomes historical is seemingly straightforward (i.e., when Europeans colonized this previously uninhabited island), the question of when Mauritian history begins can be problematic. That the island was subject to two periods of Dutch settlement and subsequent abandonment (1638–58 and 1664–1710) before being permanently colonized by the French in 1721 raises the question of which of these dates marks the "real" beginning of the Mauritian historical experience and, hence,

of Mauritian historical archaeology. The point in time at which historical archaeology begins, or should begin, in other parts of this oceanic world is even more difficult to ascertain. Doing so requires us to confront a number of ethical as well as methodological questions: Is it appropriate to apply periodization schemes grounded in European history to reconstructing the past of peoples who were established in locales long before Europeans arrived on the scene?[23] Is such a practice consistent with the growing recognition of the need for and importance of community-oriented archaeology and concerns about how archaeological practice is undertaken in local settings?[24] The difficulties of addressing such questions are underscored by research that demonstrates that "European" involvement with parts of the northwestern Indian Ocean long predated the event commonly used as a major, if not *the* major, historical marker in Indian Ocean history: Vasco da Gama's arrival at Calicut in 1498 and the subsequent establishment of the Portuguese Estado da Índia between 1500 and 1515.[25]

These problems could, of course, be addressed by simply rejecting the idea that we should define historical archaeology in the Indian Ocean in terms of *periodization* (i.e., specific dates or series of dates), and relying instead on chronological models that emphasize *periodicity* (i.e., the regular recurrence of patterns of trade, movements of peoples and ideas, etc.). Doing so would emphasize the relative relationship between broader patterns of change in material culture, rather than dates. Similar questions and issues have concerned historians and archaeologists exploring various aspects of Africa's past.[26]

To emphasize periodicity over periodization invariably raises questions about what Orser argues is historical archaeology's "special ability to address issues with which we continue to wrestle today: multiculturalism, changing gender roles, internationalism, racism, class development and maintenance, and mass consumption and consumerism."[27] His point that there is, or should be, a singular connection between the modern world and historical archaeology is particularly well taken when we discuss historical archaeology in the Indian Ocean. It highlights the need to move beyond stale debates about nomenclature and develop new skills and approaches to investigate complex cultural phenomena in this oceanic basin.[28]

To avoid the conceptual and other problems that can easily arise from relying on Eurocentric terms such as "postmedieval," "colonial,"

"later-historic," or "industrial,"[29] we choose to appropriate the term "modern world" from Charles Orser's work.[30] To define Indian Ocean historical archaeology in such an admittedly imprecise way can, of course, be unsettling, if not problematic. Doing so, however, allows us to avoid many of the pitfalls that can result from viewing multifaceted developments through the prism of simplistic or deterministic chronological frameworks.[31] This term also provides the conceptual context that encourages a fuller understanding of the complex patterns of human interaction through time that are hallmarks of Indian Ocean history.

HISTORY AND ARCHAEOLOGY

A major goal of the Stanford workshop was to explore the ways in which we can develop collaborative approaches between archaeology and history to reconstruct and better understand the complex and nuanced patterns of human interaction within, and ultimately beyond, the Indian Ocean's confines. Doing so will undoubtedly require archaeologists and historians to put aside stereotypical images of what the other does or does not do.[32] While the role that historical sources can play in defining the parameters of archaeological research are well known and understood, the extent to which archaeology can help to shape historical research agendas or deepen historians' understanding of social, cultural, and economic developments has received much less attention, especially in the Indian Ocean.[33] The question before us, then, is to consider specific contributions that archaeological research can bring to this interdisciplinary dialogue. The following topics, while far from exhaustive, are particularly relevant to discussions about integrating archaeology and history in the Indian Ocean world.

Contextualizing Complex Contact: Later-Historic Diasporas

One of the Indian Ocean's distinguishing features is the movement of substantial populations of African, Arab, Indian, Southeast Asian, and East Asian origin within and beyond this basin, especially since the seventeenth century.[34] These migrations, often driven by the constant demand for "free" and "unfree" labor in various parts of this oceanic world, led to the creation of plural societies distinguished not only by their demographic complexity, but also by their cultural diversity and hybridity. The story of the later-historic Indian Ocean is, in essence,

inseparable from that of the diasporas that scattered hundreds of thousands of slaves, convicts, indentured laborers, merchants, and other free immigrants throughout this oceanic world. Their presence not only altered the demographic structure of local populations in relatively short periods of time, but also transformed local and/or regional social, economic, cultural, religious, and political life in ways that continue to resonate in our own day and age.

Archaeology is particularly well suited to probe the dynamics and consequences of these migrations.[35] More specifically, archaeology holds out the promise of being able to reveal detailed information about diasporic populations' origins, characteristics, health, and so on, that rarely, if ever, surfaces in the archival record. While there is a general paucity of genetic research detailing the characteristics of populations for this region, genetic research on Siddis (the descendants of East African slaves), sailors, and other migrants who reached India over the centuries[36] illustrates that DNA and other molecular studies promise to do far more than merely corroborate the archival record.[37] Although we still need to be aware of their limitations, genetic data bring a degree of scientific robustness, accuracy, and objectivity to the study of population movement that written sources can never provide. Studies using mitochondrial DNA, for example, have already demonstrated their ability to dramatically enhance our understanding of how regional populations interacted with one another, while Y-chromosome datasets have revealed differences between male and female migration patterns. These methods, particularly when combined with isotopic research, yield multiple lines of evidence about where people originated, information that can, in turn, be integrated with ecological and social data to better understand why people participated in these diasporas. The potential of next-generation sequencing (NGS)—genomic-level study—promises to enhance our ability to correlate population movements with other important variables, such as disease.[38]

As both historical and archaeological research have demonstrated, islands such as Mauritius, Réunion, Rodrigues, and the Seychelles can serve as important microcosms for understanding wider regional developments.[39] The islands' small size, together with the absence of human populations before the seventeenth century in the case of Mauritius and Réunion and the eighteenth century in the case of Rodrigues and the Seychelles, affords archaeologists an opportunity to control for spatial,

chronological, environmental, and biological variables. Doing so is central to developing a fuller understanding of the context and dynamics of colonization and demographic change over time in islands that were important nodes in wider economic and political networks. Such studies can only benefit both archaeologists as well as historians.

The Material Record of Sociocultural Life

Reconstructing a people's culture invariably depends on a willingness to come to terms with the diversity of human interaction, when that interaction occurred, and the various factors that can serve as catalysts for sociocultural change. There can be little doubt that later-historic archaeological studies in the Indian Ocean need to explore the nature and dynamics of sociocultural life in this region far more vigorously than has hitherto been the case. The need for such undertakings is illustrated by research on Middle Eastern and Indian merchants who established themselves throughout the Indian Ocean basin. Recent studies have revealed that the socioeconomic and cultural life of these communities was far more complex and nuanced than previously believed.[40] Archival sources often shed little, if any, light on important aspects of people's sociocultural life, unlike the material record, which has the capacity to provide greater information about and insight into social and cultural practices and to situate these practices in both time and space.

The need for such information and contextualization reflects the fact that while facets of sociocultural life are often jealously guarded and maintained, they can also undergo significant transformations through time, especially in diasporic contexts. One of the most important of these is religion. The Indian Ocean is home to large populations that adhere to major world religions—Buddhism, Christianity, Hinduism, and Islam—and we need to develop a much better archaeohistorical understanding of the role that these faiths played in people's lives, including the development of syncretic belief systems. In the case of Hinduism, for example, beliefs and practices found in India were transformed during the nineteenth century as hundreds of thousands of indentured Indians migrated across the Indian Ocean to colonies such as Mauritius, Natal, Kenya, Malaya, and Réunion. This act obliged these men and women to reinterpret key aspects of their faith and religious identity as they sought to negotiate how they could still be Hindu while contravening one of their religion's main doctrines: to never cross the

Kali Pani, or "Black Water." The Indian Ocean world is accordingly not only the birthplace of Hinduism, but also the setting in which new ideas and beliefs developed about what it means to be Hindu.[41]

If the Indian Ocean is a region characterized by the negotiation of new forms of established religious beliefs, practices, and identities, it is also an area that has witnessed significant syncretism between Christian and African belief systems. Unlike in the Atlantic world,[42] religious syncretism remains an understudied phenomenon in the Indian Ocean. The practice known as Longanis in Mauritius offers a tantalizing example of such activity in this region, all the more so because it incorporates Asian as well as European components in the new ways in which traditional African rites are practiced in this part of the world.[43] This example of how some modern Mauritians conceptualize death and spirituality holds out the promise of correlating the results of ethnological fieldwork with materials that can be recovered from the archaeohistorical record. [44]

Important work on disease and migration by scholars such as John Aberth and J. R. McNeill,[45] together with what we know about slave, convict, and indentured labor mortality rates in the Indian Ocean,[46] points to the need for both archaeologists and historians to pay greater attention to the sociodemographic dimensions and impact of disease in this part of the globe. David Arnold's assessment of this oceanic world as a "disease basin,"[47] coupled with research on Africa, Australia, India, and Mauritius,[48] highlights the ways in which epidemic disease could influence, if not transform, social, economic, and political life both locally and regionally. The large-scale mapping of disease and related vectors currently being undertaken by the EUROSTAT project illustrates the ways in which scientifically driven approaches can inform both archaeohistorical and historical studies of slavery and disease.[49] The value of such a project is underscored by the fact that historians frequently have trouble discerning the exact nature of a disease that is described in textual sources only as a "fever" or "plague,"[50] a difficulty that can limit our understanding of the politics of health and disease in general (e.g., the establishment and operation of quarantine stations), and governmental responses to outbreaks of epidemic disease in particular. Archaeological research also holds out the promise of providing evidence of and insight into the physiological impact of disease on individual men, women, and children, and clues about how and to what extent

disease influenced people's lives. The archaeohistorical record also has the potential to shed substantial light on other important health-related topics, such as nutrition, including determining the accuracy of archival and other reports about daily rations, diets, eating patterns, and so on, and the ways nutrition influenced the lives of specific populations such as women and children.[51]

Ecological Implications of Colonialism

Disease is an important segue to ecology and environment. The need to explore ecological and environmental issues is underscored by assessments of the insights that can result from integrating social and environmental history,[52] and the contributions of historians and archaeologists who appreciate that socioeconomic life in the colonial plantation world cannot be properly understood without considering environmental issues.[53] The connections between climate, changes to landscapes as a result of anthropogenic activity, and the spread of disease are topics that readily lend themselves to future collaborative research. This is especially important for the Indian Ocean's smaller islands, since such research can be directly relevant to modern populations in an age of significant human-driven climate change. Research from Kenya on the ecological consequences of precolonial and colonial activity on local landscapes is representative of the kinds of insights such research can reveal.[54] More specifically, the Kenyan study demonstrates that the ecological ramifications of human activity, such as the introduction of livestock, often have far-reaching implications. Cattle not only increase nitrogen in lagoon systems through surface runoff, but also create paths into forested areas during foraging. This in turn allows other invasive species to penetrate more deeply and rapidly into otherwise inaccessible habitat.[55]

Other ecologically related topics that invite careful archaeohistorical consideration include the relationship between environment and technology. While maritime technology has been a major component in discussions about how and why people were able to cross vast oceanic expanses to new lands,[56] comparatively little attention has been devoted to environmental variables, such as wind patterns, currents, and climatic change, that can have a marked impact on patterns of human migration, settlement, and cultural interaction. While the importance of the monsoons and the Indian Ocean Dipole (IOD)[57] have long been acknowledged, recent work highlights the need to pay attention to

climatic events farther afield, such as El Niño, which has been shown to influence weather patterns in the Indian Ocean. While specific crops in Indian Ocean prehistory have been a subject of significant interest,[58] we know much less about the ecological, economic, and social impact of such crops in later periods or the introduction of new crops on particular areas.[59] Once again, such information can be of direct and immediate relevance to modern populations attempting to come to terms with transformative agricultural processes.[60]

Material Flow and Exchanges

No discussion of archaeology's place in Indian Ocean studies can be complete without briefly mentioning the discipline's greatest potential contribution to cross-disciplinary research: the study of material culture, including establishing objects' provenance and appropriate typologies for these objects. As archaeologists appreciate, understanding the ways in which material objects relate to one another through space and time, or how and why such objects acquire sociocultural meaning as well as economic value is central to establishing the context within which the nature and dynamics of change can be discerned.[61]

The study of material culture in the Indian Ocean needs to reflect several facts: the region's inherent complexity; that "streams of things" have multiple levels of sociocultural and ecological meaning; and that such streams have often been responsible for significant demographic change. Approaching the region's material cultures in this manner can allow us to better appreciate that a wider range of actors and not just sociocultural elites can be, and often are, instrumental in cultural transformations.[62] The same can be said about the nature and dynamics of trade. While commodities such as ivory, opium, rice, and spices have all been important objects of exchange between various regions of the Indian Ocean and between the Indian Ocean and the wider world,[63] they did not have the global transformative impact that sugar had.[64] Sugar's evolution from luxury good to an article of everyday consumption has, for example, had a resounding effect on people's lives that continues to the present day, particularly as we become increasingly aware of sugar's effect on our health. Recent archaeological research is revealing the physiological repercussions of our love affair with sugar in compelling detail.[65] Such studies underscore the need for archaeologists to pay greater attention, as historians have done, to the multifaceted ways in which sugar and labor were connected.[66]

FACILITATING INTERDISCIPLINARY RESEARCH IN THE INDIAN OCEAN

These comments and observations leave a basic question unanswered: How can we facilitate collaborative research between archaeologists and historians that will permit a fuller understanding of interaction between the disparate regions and diverse peoples of this vast oceanic basin? Addressing this question successfully will require scholars to avoid the propensity to draw boundaries, and instead emphasize interconnections between people, things, and places not only within this oceanic world, but also between this world and other parts of the globe such as the Atlantic and Pacific.[67] For archaeologists, doing so means, as Atholl Anderson cogently observed during the Stanford workshop, examining "the archaeologies of the Indian Ocean *and* the world."

Central to any such endeavor is the need to reconceptualize how we approach this oceanic world. Both archaeologists and historians would do well, for example, to view the Indian Ocean not as a bounded geographical entity, but as "an ocean of sea- and landscapes" that connect bodies of water and the peoples who live on them as well as far-flung landmasses. Such a conceptual framework highlights the need for members of both disciplines to actively search out a multiplicity of source materials—artifactual, molecular, and textual—and make perceptive use of the information that these materials may reveal.

As those trained in multiple disciplines know only too well, to talk about engaging in interdisciplinary study is one thing; to actually do so is something else. How, then, can we facilitate the kind of fruitful conversation between archaeologists and historians that a fuller understanding of the Indian Ocean requires? For historians, archaeology provides an opportunity to expand beyond the interests that usually dominate historical research and scholarship. Even a cursory review of Indian Ocean historiography reveals an emphasis on studying slavery, labor diasporas, commerce and trade, and religion, especially Islam. Archaeologists, on the other hand, often focus on reconstructing social relationships, exploring the dynamics of cultural plurality, and assessing the impact of environment on human activity. In so doing, they often make extensive use of geographic/geospatial information systems (GIS) that can easily incorporate historical data, thereby providing historians with a way to study material culture in well-defined spatial contexts.

While GIS has been used extensively to study terrestrial features such as prehistoric and historic settlements and urban areas,[68] its greatest potential may lie in its capacity to change how we look at and think about the sea. As Jeffrey Bolster has observed, what remains untouched in Atlantic world research is the *ocean* itself.[69]

If archaeology has the capacity to expose history to new perspectives and tools for recovering and reconstructing the past, we would be remiss not to note that historians also have much to offer archaeologists beyond supplying them with textual information that can be crucial to framing the contours of archaeological research.[70] In essence, good history can compel the archaeologist to look beyond the immediacy of the excavation trench and research lab to consider various ways in which the physical evidence at our disposal can best be understood and interpreted.

At a more practical level, how can we facilitate collaboration between archaeologists and historians working on the Indian Ocean to encourage the kind of conceptual and methodological cross-fertilization that underpinned the Stanford workshop? One obvious way is for historians to draw consciously on archaeological research as they formulate research projects and interpret the results of their archival research. Another is to write historians into archaeological project grants in the same way that other specialists are, including integrating their expertise from a project's outset. There is compelling precedent for doing so. The Resilience in East African Landscapes (REAL) and Ecology of Crusading projects are cases in point.[71] Integrating historians into the Mauritian Archaeology and Cultural Heritage (MACH) project has also paid substantial dividends, not only in terms of identifying and locating new sites associated with slavery and indentured labor, but also in understanding the socioeconomic transitions that occurred on the island in the wake of slave emancipation in 1835.[72]

EVER-INCREASING CIRCLES: INTERDISCIPLINARY RIPPLES ACROSS THE INDIAN OCEAN

The following chapters consider how interdisciplinary research can deepen our understanding of the ways in which the disparate peoples of the vast and diverse Indian Ocean world have been and continue to be connected with each other. It should be noted that the authors'

propensity to focus on the western Indian Ocean reflects the fact that much of the research currently being conducted on the Indian Ocean world focuses on its western rather than eastern reaches, an imbalance that we hope archaeologists, historians, and other scholars will set out to correct with all due dispatch.

The first five chapters consider theoretical and methodological approaches to the interdisciplinary study of Indian Ocean history. Atholl Anderson, Aaron Camens, Geoffrey Clark, and Simon Haberle begin this process by examining the complex settlement patterns that are a hallmark of Indian Ocean prehistory from a panoceanic and comparative perspective that sets the stage for a better understanding of European activity and colonization in the Indian Ocean after 1500, including the ways in which connections between the region's island systems can be evaluated. This introduction to prehistoric human migration in the Mare Indicum is followed by Mark Horton, Alison Crowther, and Nicole Boivin's chapter on the development of Swahili culture along the East African coast, which investigates the ways in which integrating different kinds of archaeological evidence can provide more nuanced insights into processes of cultural development and protoglobalization.

The chapters by Edward A. Alpers and Richard B. Allen provide insights into what interdisciplinary approaches to Indian Ocean history can look like from a historian's point of view. Alpers focuses on several case studies, ranging from the early settlement of Madagascar to the development of cultural identity in small colonial enclaves such as the Mascarenes, to explore important questions about the dynamics and consequences of human migration in the Indian Ocean world. Allen considers the ways in which history and historical archaeology can work in tandem to enhance our understanding of how and why hundreds of thousands of free and forced laborers migrated throughout this oceanic world, especially during the eighteenth and nineteenth centuries, and the socioeconomic ramifications of these migrations.

The role that indigenous brokers, actors, and populations and not just Europeans played in shaping the contours of Indian Ocean history is the subject of Paul Lane's contribution. More specifically, Lane examines the complex transformations that were set in motion by the arrival of the Portuguese along the East African coast during the sixteenth century, changes that, while completely new and different in some ways, nevertheless need to be viewed in light of long-standing interactions

between these East African coastal populations and the wider Indian Ocean world.

Alistair Paterson's chapter is the first of five case studies that focus on specific parts of the Indian Ocean world. Patterson's account of the impact that pearling and the exploitation of pearl shell along the Western Australian coast had on the aboriginal and indentured laborers who worked in these extractive industries provides an important historical archaeological counterpoint to studies of pearling elsewhere in the Indian Ocean. Diana Heise and Martin Mhando in turn provide a novel perspective on the relationship between anthropology and history in their discussion about the production of two films that focus on the creation and cultural meaning of material objects in modern Mauritius and Zanzibar.

The last three chapters draw on research undertaken as part of the MACH project. In the first of these case studies, Saša Čaval examines the ways in which archaeology can assist in better understanding the origins, nature, and dynamics of the syncretic Mauritian religio-cultural belief system known as Longanis. Diego Calaon and Corinne Forest explore the role that historical heritage has played and continues to play in the construction of modern Mauritian identity. In the final chapter, Krish Seetah considers how historical, archaeological, genetic, and climate proxy research can influence contemporary concerns about and responses to climate change and epidemic diseases, and the ways in which islands such as Mauritius can serve as exemplars for understanding comparable developments elsewhere in the Indian Ocean world.

NOTES

1. Early exceptions include J. Auber, *Histoire de l'océan Indien* (Tananarive: Société Lilloise d'Imprimerie de Tananarive, 1955); Auguste Toussaint, *Histoire de l'océan Indien* (Paris: Presses Universitaires de France, 1961), translated into English by June Guicharnaud as *History of the Indian Ocean* (Chicago: University of Chicago Press, 1966); and Toussaint, *L'océan Indien au XVIIIe siècle* (Paris: Flammarion, 1974).

2. Beginning with those held in Perth, Australia, in 1979 and 1984, and more recently in 2012; Zanzibar in 2008; The Hague, Netherlands, in 2010; Ghent, Belgium, in 2012; and the Sealinks conference, Oxford, England, in 2013.

3. *Études Océan Indien* (France), *Journal of Indian Ocean Studies* (India), and *Journal of Indian Ocean World Studies* (Canada), respectively.

4. For example: R. J. Barendse, "Trade and State in the Arabian Seas: A Survey from the Fifteenth to the Eighteenth Century," *Journal of World History* 11, no. 2 (2000): 173–225; Markus Vink, "From Port-City to World-System: Spatial Constructs of Dutch Indian Ocean Studies, 1500–1800," *Itinerario* 28, no. 2 (2004): 45–116; Philippe Beaujard, "The Indian Ocean in Eurasian and African World-Systems before the Sixteenth Century," *Journal of World History* 16, no. 4 (2005): 411–65; Markus Vink, "Indian Ocean Studies and the 'New Thalassology,'" *Journal of Global History* 2, no. 1 (2007): 41–62; Edward Simpson and Kai Kresse, "Cosmopolitanism Contested: Anthropology and History in the Western Indian Ocean," in *Struggling with History: Islam and Cosmopolitanism in the Western Indian Ocean*, ed. Edward Simpson and Kai Kresse (New York: Columbia University Press, 2008), 1–41; Gwyn Campbell, "Islam in Indian Ocean Africa Prior to the Scramble: A New Historical Paradigm," in Simpson and Kresse, *Struggling with History*, 43–92; and Jeremy Prestholdt, "Locating the Indian Ocean: Notes on the Postcolonial Reconstruction of Space," *Journal of Eastern African Studies* 9, no. 3 (2015): 440–67.

5. Recent scholarship includes: Gwyn Campbell, ed., *The Structure of Slavery in Indian Ocean Africa and Asia* (London: Frank Cass, 2004); Milo Kearney, *The Indian Ocean in World History* (New York: Routledge, 2004); Sugata Bose, *A Hundred Horizons: The Indian Ocean in the Age of Global Empire* (Cambridge, MA: Harvard University Press, 2006); Engseng Ho, *The Graves of Tarim: Genealogy and Mobility across the Indian Ocean* (Berkeley: University of California Press, 2006); Himanshu Prabha Ray and Edward A. Alpers, eds., *Cross Currents and Community Networks: The History of the Indian Ocean World* (New Delhi: Oxford University Press, 2007); Kenneth R. Hall, ed., *Secondary Cities and Urban Networking in the Indian Ocean Realm, c. 1400–1800* (Lanham, MD: Lexington Press, 2008); John C. Hawley, ed., *India in Africa, Africa in India: Indian Ocean Cosmopolitanism* (Bloomington: Indiana University Press, 2008); Simpson and Kresse, *Struggling with History*; Philippe Beaujard, *Les mondes de l'océan Indien*, 2 vols. (Paris: Armand Colin, 2012); Gwyn Campbell and Alessandro Stanziani, eds., *Bonded Labour and Debt in the Indian Ocean World* (London: Pickering and Chatto, 2013); Robert Harms, Bernard K. Freamon, and David W. Blight, eds., *Indian Ocean Slavery in the Age of Abolition* (New Haven: Yale University Press, 2013); Edward A. Alpers, *The Indian Ocean in World History* (Oxford: Oxford University Press, 2014); Abdul Sheriff and Engseng Ho, eds., *The Indian Ocean: Oceanic Connections and the Creation of New Societies* (London: Hurst and Co., 2014); and Richard B. Allen, *European Slave Trading in the Indian Ocean, 1500–1850* (Athens: Ohio University Press, 2014).

6. Most of the articles appearing in the *Journal of Indian Ocean Archaeology*, which began publication in 2003, focus on South Asia (India and Sri Lanka) rather than the wider Indian Ocean world.

7. Christer Petley and Stephan Lenik, eds., "Material Cultures of Slavery and Abolition in the British Caribbean," special issue, *Slavery and Abolition* 35, no. 3 (2014). For a broader discussion on the "material turn" in history and material cultural–based history, see Harvey Green, "Cultural History and the Material(s) Turn," *Cultural History* 1, no. 1 (2012): 61–82.

8. This term was used as early as 1957, in James S. Kirkman, "Historical Archaeology in Kenya 1948–1956," *Antiquaries Journal* 37 (1957): 16–29. Early recognition of both the dearth and potential of historical archaeology in African contexts was noted by Merrick Posnansky and Christopher R. DeCorse, "Historical Archaeology in Sub-Saharan Africa: A Review," *Historical Archaeology* 20, no. 1 (1986): 1–13. See also Charles E. Orser Jr. and Brian M. Fagan, *Historical Archaeology* (New York: Prentice Hall, 1995); and Charles E. Orser Jr., *A Historical Archaeology of the Modern World* (New York: Plenum Press, 1996). For more recent discussions of this topic, see Martin Hall and Stephen W. Silliman, eds., *Historical Archaeology* (Malden, MA: Blackwell Publishing, 2006); and Dan Hicks and Mary C. Beaudry, eds., *The Cambridge Companion to Historical Archaeology* (Cambridge: Cambridge University Press, 2006).

9. On the preoccupation with the particular in nineteenth-century indentured labor diaspora studies, for example, see Richard B. Allen, "Re-conceptualizing the 'New System of Slavery,'" *Man in India* 92, no. 2 (2012): 225–45.

10. For example: Hubert Gerbeau, "The Slave Trade in the Indian Ocean: Problems Facing the Historian and Research to be Undertaken," in *The African Slave Trade from the Fifteenth to the Nineteenth Century*, General History of Africa: Studies and Documents 2 (Paris: UNESCO, 1979), 184–207; Edward A. Alpers, "The African Diaspora in the Northwestern Indian Ocean: Reconsideration of an Old Problem, New Directions for Research," *Comparative Studies of South Asia, Africa and the Middle East* 17, no. 2 (1997): 62–81; Markus Vink, "'The World's Oldest Trade.' Dutch Slavery and Slave Trade in the Indian Ocean in the Seventeenth Century," *Journal of World History* 14, no. 2 (2003): 131–77; Joseph E. Harris, "Expanding the Scope of African Diaspora Studies: The Middle East and India, a Research Agenda," *Radical History Review* 87 (2003): 157–68; Gwyn Campbell, "Introduction: Slavery and Other Forms of Unfree Labor in the Indian Ocean World," in Campbell, *Structure of Slavery*, vii–xxxii; Paul Tiyambe Zeleza, "African Diasporas: Toward a Global History," *African Studies Review* 53, no. 1 (2010): 1–19; and Richard B. Allen, "Slaves, Convicts, Abolitionism and the Global Origins of the Post-emancipation Indentured Labor System," *Slavery and Abolition* 35, no. 2 (2014): 328–48.

11. For example: D. C. Crader, "Slave Diet at Monticello," *American Antiquity* 55, no. 4 (1990): 690–717; Charles E. Orser Jr., "Beneath the Material Surface of Things: Commodities, Artifacts, and Slave Plantations," *Historical Archaeology* 26, no. 3 (1992): 94–104; Patricia Samford, "The Archaeology of African-American Slavery and Material Culture," *William and Mary Quarterly* 53, no. 1 (1996): 87–111; and Douglas V. Armstrong, "Degrees of Freedom in the Caribbean: Archaeological Explorations of Transitions from Slavery," *Antiquity* 84, no. 323 (2004): 146–60.

12. For example, R. Allen, *European Slave Trading*.

13. For the Swahili Coast, see: Innocent Pikirayi and Gilbert Pwiti, "States, Traders, and Colonists: Historical Archaeology in Zimbabwe," *Historical Archaeology* 33, no. 2 (1999): 73–89; Chapurukha Kusimba, "Archaeology of Slavery in East Africa," *African Archaeological Review* 21, no. 2 (2004): 59–88; Sarah Croucher, "Clove Plantations on Nineteenth-Century Zanzibar: Possibilities for Gender Archaeology in Africa," *Journal of Social Archaeology* 7, no. 3(2007): 302–24; Thomas Biginagwa, "Excavations of the 19th Century Caravan Trade Halts in North-Eastern Tanzania: A Preliminary Report," *Nyame Akuma* 72 (2009): 52–60; Stephanie Wynne-Jones, "Remembering and Reworking the Swahili Diwanate: The Role of Objects and Places at Vumba Kuu," *International Journal of African Historical Studies* 43, no. 3 (2010): 407–27; Lydia Wilson Marshall, "Spatiality and the Interpretation of Identity Formation: Fugitive Slave Community Creation in Nineteenth-Century Kenya," *African Archaeological Review* 29 (2012): 355–81; and Paul J. Lane, "The Archaeological Potential for Reconstructing the History of Labor Relations in East Africa, c. 1500–1900," *History in Africa* 41 (2014): 277–306. For South Africa, see Carmel Schrire, ed., *Historical Archaeology in South Africa: Material Culture of the Dutch East India Company at the Cape* (Walnut Creek, CA: Left Coast Press, 2014). For recent assessments of East African archaeology, see: Paul J. Lane, "New Directions for Historical Archeology in Eastern Africa?," *Journal of African History* 57, no. 2 (2016): 173–81; and Peter R. Schmidt, "Historical Archaeology in East Africa: Past Practice and Future Directions," *Journal of African History* 52, no. 2 (2016): 183–94.

14. Nicole Boivin et al., "East Africa and Madagascar in the Indian Ocean World," *Journal of World Prehistory* 26 (2013): 213–81.

15. Fernand Braudel, *The Mediterranean and the Mediterranean World in the Age of Philip II*, 2 vols. (New York: Harper and Row, 1972–73). For a classic application of the Braudelian model to the Indian Ocean, see K. N. Chaudhuri, *Trade and Civilisation in the Indian Ocean: An Economic History from the Rise of Islam to 1750* (Cambridge: Cambridge University Press, 1985).

16. Jerry H. Bentley, "Sea and Ocean Basin as Frameworks of Historical Analysis," *Geographical Review* 89, no. 2 (1999): 215–24. On the

need to view the western Indian Ocean as a unified region, see Erik Gilbert, "Coastal East Africa and the Western Indian Ocean: Long-Distance Trade, Empire, Migration, and Regional Unity, 1750–1970," *History Teacher* 36, no. 1 (2002): 7–34.

17. On conceptualizing the Atlantic world, see Alison Games, "Atlantic History: Definitions, Challenges, and Opportunities," *American Historical Review* 111, no. 1 (2006): 741–57. For discussions of this concept's limitations, see *William and Mary Quarterly*, 3rd ser., 63, no. 4 (2006), especially the papers by Alison Games, "Beyond the Atlantic: English Globetrotters and Transoceanic Connections," 675–92; Philip J. Stern, "British Asia and British Atlantic: Comparisons and Connections," 693–712; and Peter A. Coclanis, "Atlantic World or Atlantic/World?," 725–42. More recent discussions include Peter Coclanis, "Beyond Atlantic History," in *Atlantic History: A Critical Appraisal*, ed. Jack P. Greene and Philip D. Morgan (Oxford: Oxford University Press, 2009), 337–56. On the limitations of an oceanic basins approach to Southeast Asian history, see Jennifer L. Gaynor, "Ages of Sail, Ocean Basins, and Southeast Asia," *Journal of World History* 24, no. 2 (2013): 309–33.

18. Jan Lucassen, "A Multinational and its Labor Force: The Dutch East India Company, 1595–1795," *International Labor and Working-Class History* 66 (2004): 12–39; Philip J. Stern, "Politics and Ideology in the Early East India Company-State: The Case of St. Helena, 1673–1709," *Journal of Imperial and Commonwealth History* 35, no. 1 (2007): 1–23; Carl H. Nightingale, "Before Race Mattered: Geographies of the Color Line in Early Colonial Madras and New York," *American Historical Review* 113, no. 1 (2008): 48–71; Kathleen Wilson, "Rethinking the Colonial State: Family, Gender, and Governmentality in Eighteenth-Century British Frontiers," *American Historical Review* 116, no. 5 (2011): 1294–322; Zoë Laidlaw, '"Justice to India – Prosperity to England – Freedom to the Slave!' Humanitarian and Moral Reform Campaigns on India, Aborigines and American Slavery," *Journal of the Royal Asiatic Society*, 3rd ser., 22, no. 2 (2012): 299–324; and R. Allen, *European Slave Trading*.

19. See Clare Anderson, ed., "The Indian Ocean," special issue, *Journal of Social History* 45, no. 2 (2011) on biography in the Indian Ocean. See also C. Anderson, *Subaltern Lives: Biographies of Colonialism in the Indian Ocean World, 1790–1920* (Cambridge: Cambridge University Press, 2012).

20. Kent G. Lightfoot, "Culture Contact Studies: Redefining the Relationship between Prehistoric and Historical Archaeology," *American Antiquity* 60, no. 2 (1995): 199–217; and Peter R. Schmidt and Stephen A. Morowski, eds., *The Death of Prehistory* (Oxford: Oxford University Press, 2013).

21. Charles E. Orser Jr., "Historical Archaeology," in *The Oxford Companion to Archaeology*, ed. Brian M. Fagan (New York: Oxford University Press, 1996), 279; Paul Courtney, "The Current State and Future Prospects of Theory in European Post-medieval Archaeology," in *International Handbook of Historical Archaeology*, ed. Teresita Majewski and David Gaimster (New York: Springer, 2009), 169–91; and Patrick E. Martin, "Industrial Archaeology," in Majewski and Gaimster, *International Handbook*, 285–99.

22. For an example illustrating regional as well as chronological connections, see Mark Horton, "Artisans, Communities and Commodities," *Ars Orientalis* 34 (2004): 62–80. Exceptions include areas such as Western Australia and a small number of islands, such as the Mascarenes.

23. Andrew Reid and Paul J. Lane, "African Historical Archaeologies: An Introductory Consideration of Scope and Potential," in *African Historical Archaeologies*, ed. Andrew Reid and Paul J. Lane (New York: Kluwer Academic / Plenum Publishers, 2004), 1–33. See also Paul Lane, this volume.

24. See also the issues raised by Graham Connah, "Historical Archaeology in Africa: An Appropriate Concept," *African Archaeological Review* 24 (2007): 35–40.

25. Elvind H. Seland, "Archaeology of Trade in the Western Indian Ocean, 300 BC–AD 700," *Journal of Archaeological Research* 22 (2014): 367–402; and David Abulafia, *The Great Sea: A Human History of the Mediterranean* (London: Allen Lane, 2011), 155. See also Paul Lane, this volume.

26. See: Jan Vansina, "Historians, Are Archaeologists Your Siblings?" *History in Africa* 22 (1995): 369–408, and the response by Peter Robertshaw, "Sibling Rivalry? The Intersection of Archeology and History," *History in Africa* 27 (2000): 261–86; Peter R. Schmidt and Jonathan R. Walz, "Silences and Mentions in History Making," *Historical Archaeology* 41, no. 4 (2007): 129–46; Connah, "Historical Archaeology in Africa," 36; Ann B. Stahl, "The Archaeology of African History," *International Journal of African Historical Studies* 42, no. 2 (2009): 241–55; and Kathryn M. de Luna, Jeffrey B. Fleisher, and Susan Keech McIntoch, "Thinking across the African Past: Interdisciplinarity and Early History," *African Archaeological Review* 29 (2012): 75–94.

27. Orser, "Historical Archaeology," 279.

28. For an insightful methodological approach to engaging with oral traditions and archaeological materials, for example, refer to Peter R. Schmidt, *Historical Archaeology: A Structural Approach in an African Culture* (Westport, CT: Greenwood Press, 1978). Similarly, for an account of regional interaction–based varied datasets, see Boivin et al., "East Africa and Madagascar," 213–81. For recent debate on future directions in

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historical archaeology in African contexts, see *Journal of African History* 57, no. 2 (2016), especially: Lane, "New Directions for Historical Archaeology"; Schmidt, "Historical Archaeology in East Africa"; and Andrew Reid, "Constructing History in Uganda," 195–207.

29. Schmidt and Walz, "Silences and Mentions," 129; and Henrick Harnow et al., eds., *Across the North Sea: Later Historical Archaeology in Britain and Denmark, c. 1500–2000 AD* (Copenhagen: University Press of Southern Denmark, 2012).

30. Charles E. Orser Jr., *A Primer for Modern-World Archaeology* (New York: Eliot Werner Publications, 2014).

31. For example, Jeffrey Fleisher and Adria LaViolette, "The Early Swahili Trade Village of Tumba, Pemba Island, Tanzania, AD 600–950," *Antiquity* 87 (2013): 1151–68.

32. For a perceptive discussion of such problems, see Alan Mayne, "On the Edge of History: Reflections on Historical Archaeology," *American Historical Review* 113, no. 1 (2008): 93–118.

33. For historical views on the use of material evidence, see: Mayne, "On the Edge of History"; and Stephan Lenik and Christer Petley, "Introduction: The Material Cultures of Slavery and Abolition in the British Caribbean," *Slavery and Abolition* 35, no. 3 (2014): 389–98. For an archaeological perspective, see Barbara J. Little, "Family Resemblances: A Brief Overview of History, Anthropology, and Historical Archaeology in the United States," in Majewski and Gaimster, *International Handbook of Historical Archaeology*, 363–83.

34. See, for example: David Northrup, *Indentured Labor in the Age of Imperialism, 1834–1922* (Cambridge: Cambridge University Press, 1995); Clare Anderson, "Sepoys, Servants and Settlers: Convict Transportation in the Indian Ocean, 1787–1945," in *Cultures of Confinement: A History of the Prison in Africa, Asia and Latin America*, ed. Frank Dikötter and Ian Brown (Ithaca, NY: Cornell University Press, 2007), 185–220; and R. Allen, *European Slave Trading*. See also Krish Seetah, "Contextualizing Complex Contact: Mauritius, a Microcosm of Global Diaspora," *Cambridge Archaeological Journal* 26, no. 2 (2016): 265–83.

35. For an assessment of the role that historical archaeology can play in understanding the African diaspora, for example, see Charles E. Orser Jr., "The Archaeology of the African Diaspora," *Annual Review of Anthropology* 27 (1998): 63–82.

36. See, for example: Janet J. Ewald, "Crossers of the Sea: Slaves, Freedmen, and Other Migrants in the Northwestern Indian Ocean, c. 1750–1914," *American Historical Review* 105, no. 1 (2000): 69–91; Ababu Minda Yimene, "Dynamics of Ethnic Identity among the Siddis of Hyderabad," *African and Asian Studies* 6, no. 3 (2007): 321–45; Rahul C. Oka and

Chapurukha M. Kusimba, "Siddi as Mercenary or as African Success Story on the West Coast of Africa," in Hawley, *India in Africa*, 203–29; Pashington Obeng, "Religion and Empire: Belief and Identity among African Indians of Karnataka, South India," in Hawley, *India in Africa*, 231–51; John McLeod, "Marriage and Identity among the Sidis of Janjira and Sachin," in Hawley, *India in Africa*, 253–71; Shihan de Silva Jayasuriya, *African Identity in Asia: Cultural Effects of Forced Migration* (Princeton, NJ: Markus Wiener, 2009); and Faaeza Jasdanwalla, "African Settlers on the West Coast of Africa: The Sidi Elite of Janjira," *African and Asian Studies* 10, no. 1 (2011): 41–58.

37. Gutala Venkata Ramana et al., "Y-Chromosome SNP Haplotypes Suggest Evidence of Gene Flow among Caste, Tribe, and the Migrant Siddi Populations of Andhra Pradesh, South India," *European Journal of Human Genetics* 9 (2001): 695–700; Mansi Gauniyal, S. M. S. Chahal, and Gautam K. Kshatriya, "Genetic Affinities of the Siddis of South India: An Emigrant Population of East Africa," *Human Biology* 80, no. 3 (2008): 251–70; Mansi Gauniyal, Aastha Aggarwal, and Gautam Kshatriya, "Genomic Structure of the Immigrant Siddis of East Africa to Southern India: A Study of 20 Autosomal DNA Markers," *Biochemical Genetics* 49, no. 7–8 (2011): 427–42; and Anish M. Shah et al., "Indian Siddis: African Descendants with India Admixture," *American Journal of Human Genetics* 89, no. 1 (2011): 154–61.

38. See Elizabeth Matisoo-Smith and K. Ann Horsburgh, "Population Origins and Dispersal," in *DNA for Archaeologists* (Walnut Creek, CA: Left Coast Press, 2012), 109–39. For an Indian Ocean regional case study focused on Mauritius and neighboring islands, see Rosa Fregel et al., "Multiple Ethnic Origins of Mitochondrial DNA Lineages for the Population of Mauritius," *PLoS One* 9, no. 3 (2014): e93294. For a comparative isotope study, see Hannes Schroeder et al., "Trans-Atlantic Slavery: Isotopic Evidence of Forced Migration to Barbados," *American Journal of Physical Anthropology* 139 (2009): 547–57.

39. For an assessment of the archaeological value of Africa's islands, see Peter Mitchell, "Towards a Comparative Archaeology of Africa's Islands," *Journal of African Archaeology* 2, no. 2 (2004): 229–50. On the importance of islands in Indian Ocean historiography and history, see Roxani Margariti, "An Ocean of Islands: Islands, Insularity, and Historiography of the Indian Ocean," in Peter N. Miller, ed., *The Sea: Thalassography and Historiography* (Ann Arbor: University of Michigan Press, 2013), 198–229.

40. For example: Ho, *Graves of Tarim*; Hawley, *India in Africa*; Simpson and Kresse, *Struggling with History*; Sebouh David Aslanian, *From the Indian Ocean to the Mediterranean: The Global Trade Networks of Armenian Merchants from New Julfa* (Berkeley: University of California Press,

2014); Pedro Machado, *Ocean of Trade: South Asian Merchants, Africa and the Indian Ocean, c. 1750–1850* (Cambridge: Cambridge University Press, 2014); and Sheriff and Ho, *Oceanic Connections*.

41. For example, Suzanne Chazan-Gillig and Pavitrananda Ramhota, *L'Hindouisme mauricien dans la mondialisation: Cultes populaires indiens et religion savante* (Paris: Karthala, 2009).

42. Recent examples of such research include: Linda M. Heywood, ed., *Central Africans and Cultural Transformations in the American Diaspora* (Cambridge: Cambridge University Press, 2002); James H. Sweet, *Recreating Africa: Culture, Kinship, and Religion in the African-Portuguese World, 1441–1770* (Chapel Hill: University of North Carolina Press, 2003); Kenneth M. Bilby and Jerome S. Handler, "Obeah: Healing and Protection in West Indian Slave Life," *Journal of Caribbean History* 38, no. 2 (2004): 153–183; Ina J. Fandrich, "Yorùbá Influences on Haitian Vodou and New Orleans Voodoo," *Journal of Black Studies* 37, no. 5 (2007): 775–91; Todd R. Ochoa, *Society of the Dead: Quita Manaquita and Palo Praise in Cuba* (Berkeley: University of California Press, 2010); and Steven Engler, "Umbanda and Africa," *Nova Religio: The Journal of Alternative and Emergent Religions* 15, no. 4 (2012): 13–35.

43. Krish Seetah, "Objects Past, Objects Present: Materials, Resistance and Memory from the Le Morne Old Cemetery, Mauritius," *Journal of Social Archaeology*, 15, no. 2 (2015): 233–53.

44. Danielle Palmyre, *Culture créole et foi chrétienne* (Brussels: Lumen Vitae, 2007); Maya de Salle-Essoo, "Le profane et le sacré dans les tradipratiques à l'île Maurice" (PhD diss., Université de La Réunion, 2011); and Chip Colwell-Chanthaphonh and Maya de Salle-Essoo, "Saints and Evil and the Wayside Shrines of Mauritius," *Journal of Material Culture* 19, no. 3 (2014): 253–77.

45. John Aberth, *The First Horseman: Disease in Human History* (Upper Saddle River, NJ: Prentice Hall, 2007), esp. 47–75; and J. R. McNeill, *Mosquito Empires: Ecology and War in the Greater Caribbean, 1620–1914* (Cambridge: Cambridge University Press, 2010). See also Christienna D. Fryar, "The Moral Politics of Cholera in Postemancipation Jamaica," *Slavery and Abolition* 34, no. 4 (2013): 598–618.

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47. David Arnold, "The Indian Ocean as a Disease Basin," *Journal of South Asian Studies* 14, no. 2 (1991): 1–21.

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54. Dominik Fleitmann et al., "East African Soil Erosion Recorded in a 300-Year-Old Coral Colony from Kenya," *Geophysical Research Letters* 34 (2007), https://doi.org/10.1029/2006GL028525.

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65. John Yudkin, *Pure, White and Deadly: The Problem of Sugar* (London: Davis-Poynter, 1972); Christina Adler et al., "Sequencing Ancient Calcified Dental Plaque Shows Changes in Oral Microbiota with Dietary Shifts of the Neolithic and Industrial Revolutions," *Nature Genetics* 45 (2013):

450–55; and Christina Warinner et al., "Pathogens and Host Immunity in the Ancient Human Oral Cavity," *Nature Genetics* 46 (2014): 336–44.

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67. On the need to do so in indentured labor studies, for example, see R. Allen, "Slaves, Convicts, Abolitionism." On the problems of drawing boundaries between Southeast Asia and East Asia, see Andrew J. Abalahin, "'Sino-Pacifica': Conceptualizing Greater Southeast Asia as a Sub-arena of "World History," *Journal of World History* 22, no. 4 (2011): 659–91.

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69. W. Jeffery Bolster, "Putting the Ocean in Atlantic History: Maritime Communities and Marine Ecology in the Northwest Atlantic, 1500–1800," *American Historical Review* 113, no. 1 (2008): 19–47.

70. Matthew Johnson, *An Archaeology of Capitalism* (Cambridge, MA: Blackwell Publishers, 1996), 40.

71. On the REAL project, see n. 60, this chapter. Historians were an essential component of research on archaeo-environmental contextualization in the Ecology of Crusading project on the northern crusades, see Aleksander Pluskowski, Adrian Boas, and Chris Gerrard, "The Ecology of Crusading: Investigating the Environmental Impact of Holy War and Colonisation at the Frontiers of Medieval Europe," *Medieval Archaeology* 55, no. 1 (2013): 192–225, https://doi.org/10.1179/174581711X13103897378564.

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TWO

Investigating Premodern Colonization of the Indian Ocean

The Remote Islands Enigma

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ISLAND COLONIZATION WORLDWIDE BEGAN in the Indian Ocean when groups of *Homo erectus* from Java reached Flores, and probably Timor, nearly a million years ago. The first substantial sea crossing by *Homo sapiens* was to Australia some fifty to sixty thousand years ago, and long-distance offshore sailing began about 2000 BCE in the northern Indian Ocean, earlier than in the Pacific or Atlantic.[1] The Indian Ocean has some claim, then, to being "by far the oldest of the seas of history."[2] But therein lies an enigma: By the early second millennium CE, nearly all of the habitable islands in the Atlantic and Pacific Oceans had been colonized by indigenous seafarers, yet discovery and settlement of many Indian Ocean islands does not seem to have occurred until after the arrival of European shipping, beginning around 1500 CE.[3] An interocean

comparison illustrates the difference. The habitable Indian Ocean is a fifth the size of the habitable Pacific, but the occurrence of islands is comparable: about eight and ten per 1,000,000 square kilometers (km^2) of ocean, respectively. However, while only 2.5 percent of islands in the habitable Pacific were unoccupied by 1500 CE, the comparable figure was 28 percent in the Indian Ocean.[4]

The particular issue here is why Indian Ocean precedence in maritime technology and offshore experience was not translated into premodern colonization of many of its islands. However, this question has more general implications for understanding linkages between island colonization patterns and histories of oceanic seafaring. Differences in the extent or timing of island colonization suggest variance among impulsions and competencies in seafaring and migration activity. As these tend to be affected most by voyaging distance, it is usually among the remote islands, those more than 250 km offshore,[5] that remoteness and isolation define the former limits of oceanic colonization, which is indeed the case here.[6]

Among the remote islands of the Indian Ocean, the Maldives were inhabited by 100 BCE, and the Comores and Madagascar by at least 900 CE, but what of the Chagos Islands, Seychelles, Mascarenes, the Cocos-Keeling group, Christmas Island, and other isolated islands, such as Cargados Carajos and Tromelin (near the Mascarenes), or Bassas da India and Europa (Mozambique Channel)? European discoverers of uninhabited, remote islands deduced that an absence of people and a profusion of vulnerable birds and reptiles meant that no one had discovered the lands previously, as John Jourdain wrote of the Seychelles in 1609: "You cannot discerne that ever any people had bene there before us."[7] The commonsense merit of such reasoning has been supported often enough by an absence of contrary evidence arising during subsequent settlement of the remote islands, but the proposition does not allow for the possibility that some premodern island colonizations might have failed long before European discovery, leaving no obvious traces. As that has happened elsewhere, the application of archaeological and similar methods to defining former colonization episodes becomes necessary.

Archaeological research in the Indian Ocean islands has focused, quite reasonably, on islands where premodern occupation has long been evident, notably near-shore islands, such as Sri Lanka, Zanzibar, Pemba, and Mafia, and to a small extent Socotra and the Laccadive,

Andaman, and Nicobar groups.[8] Apart from the Maldives, Comores, and Madagascar, the remote islands attracted little historical interest until recently, perhaps because their creolized populations did not fit prevailing African or South Asian historical interests.[9] An evidential basis upon which to establish the spatiotemporal pattern of remote island colonization in the Indian Ocean has remained incomplete and the remote islands, at least, continue to exemplify assertions that Indian Ocean "seafaring and maritime activity has been almost disregarded"[10] and that the "Indian Ocean remains much less known than its Atlantic and Pacific counterparts."[11] Several intriguing questions remain unanswered. Why are Southeast Asian connections manifested in East Africa, including Madagascar and the Comores, but not in islands along potential routeways of migration? How were the Seychelles apparently missed, if there were first millennium BCE direct passages between East Africa and India, not to mention later?[12] Why were the Chagos Islands uncolonized before the eighteenth century despite their relative proximity to the long-settled Maldives? These and other such questions about remote islands in the maritime history of the Indian Ocean prompted Crossing the Green Sea, a project of archaeological and paleoenvironmental fieldwork in 2009–11.

Crossing the Green Sea operated primarily in the Cocos-Keeling Islands, Diego Garcia (Chagos Islands), the inner Seychelles Islands, and southwest Madagascar. The results of earlier archaeological fieldwork on Christmas Island, analysis of archaeological material in the Maldives, collection of tissue samples from commensal and domestic animals in Diego Garcia for investigation of genetic relationships, and research on Indo-Pacific indigenous seafaring technologies and practices were also involved.[13] This multidisciplinary approach from the perspectives of archaeology and natural history complements the "new thalassology" developing in Indian Ocean historiography.[14] With sea-centered approaches organized around sea and ocean basins,[15] the two-thousand-year-old beginnings of an Afro-Asian "world system,"[16] aspects of "deep structure," such as the monsoons, and cultural "commonalities" in sailing technology and trade languages,[17] the new thalassology rejects a view of oceans and seascapes as broadly isotropic in their dimensions and neutral in character to human intervention, seeing them rather as volatile and varied in time and space and thereby influential agents in histories of "the creation, destruction and re-creation of

communities as a result of the movement, across and around the [Indian Ocean] basin, of people, commodities, cultural practices and ideas."[18]

Our approach to oceanic research is explicitly comparative, taking the view that interoceanic analysis adds to an understanding of the history of each.[19] That is especially so for the Indian and Pacific oceans, where the remote islands were colonized at least in part by people of the same Southeast Asian source, Austronesian language family, and canoe-based maritime technology who, in addition, had comparable subsistence economies and experienced similar patterns of late Holocene climatic variability through the connections of El Niño–Southern Oscillation (ENSO) and IOD to the same Indo-Pacific warm pool (IPWP).[20] The extent of similarity thus prompted us in 2009 to propose three preliminary hypotheses from our Pacific experience to account for the Indian Ocean enigma of comparatively lengthy seafaring experience but an unusually low rate of remote island colonization.

The first was that the high frequency of colonization absence might be more apparent than real. Archaeological fieldwork in the remote islands had focused largely on Madagascar and to a lesser extent the Comores and Maldives. Was it possible that fieldwork in other remote islands, employing a range of techniques, could discover evidence of premodern colonization that had not survived up to 1500 CE? As investigation in the Pacific has uncovered twenty-eight remote islands that were uninhabited at European arrival but concealed archaeological remains of prehistoric colonizations, the proposition seemed plausible.

A second hypothesis was that the physiography of remote Indian Ocean islands might have predisposed many of them to rejection by potential colonists. Leaving aside Madagascar, remote Indian Ocean islands average only one-third the size of remote Pacific islands (excluding New Zealand), and relatively more of the former are low coral islands that have limited resources and are prone to natural disasters. Still, the high islands of the Seychelles and Mascarenes, with their diverse and abundant resources, were eminently habitable. Moreover, as habitability depends also upon external interaction, the remote Indian Ocean islands had a general advantage of lying only 700 km distant from continental shores, on average, versus 3,300 km for remote Pacific islands.

Thirdly, we thought that the remote islands enigma might reflect one conspicuous difference in the circumstances of seafaring between the oceans: Long-distance sailing for trade was relatively uncommon

in the Pacific, reflecting the similarity of commodities between many islands and the virtual absence of contact with Asian commerce, although there were several oceanic networks in which ritual, social, and commodity exchanges were formally enacted.[21] Long-distance seafaring in the Pacific was primarily about migration. Overpopulation, resource pressure, and endemic interlineage competition are causes, specified in oral tradition, that often resulted in maritime exile, with duress imposing few limitations upon time, distance, or the privations that might be accepted in searching for new land.[22] In the Indian Ocean, conversely, seafaring is understood as primarily about mercantile marine networks developed by Mesopotamian, Harappan, Roman, Arab, Dravidian, Southeast Asian, and Chinese seafarers, to mention only some of the continental interests involved. The trade networks extending around the northern Indian Ocean from East Africa to the Straits of Melaka created some multicultural communities in coastal ports and towns, notably in Swahili East Africa.[23] The Pacific, then, was an ocean for colonization in which some trade followed, while the Indian was an ocean for trade in which some migration followed,[24] and the difference between them had profound consequences for habitation of remote islands.

In this chapter, we review evidence of initial colonization in the remote Indian Ocean islands, focusing on Madagascar, then consider aspects of paleobiology and seafaring in the matter of transoceanic migration, and conclude with some thoughts on what the deep history of the remote islands suggests about the premodern construction of the Indian Ocean.

INITIAL COLONIZATION OF REMOTE INDIAN OCEAN ISLANDS

This review moves counterclockwise from the Mascarenes, ending with a more detailed discussion of Madagascar, which is, by consensus, the key to understanding how, when, and to what extent the remote islands were colonized before the modern era and involved in the greater Indian Ocean interaction sphere.

The Mascarenes comprise Réunion, Mauritius, and Rodrigues Islands, first recorded by the Portugese in 1510, 1516, and 1528, respectively. All are large high islands that had abundant and varied fauna and flora at European arrival. The first explorations were by the Dutch from

1598 to 1612 and neither indigenous inhabitants nor any signs of them were reported. Rats, mice, and other small terrestrial mammals were absent and, of course, the birds, flightless or not, were famously tame.[25] However, pre-European extinctions of reptiles on Mauritius indicate an earlier arrival of rats,[26] and radiocarbon dates of 590 ± 27 before present (BP) years (calibrated to 1369–1413 CE) were obtained from both a black rat *Rattus* aff. *rattus* mandible collected from the Mare aux Songes, and from a rat-predated extinct terrestrial snail, *Tropidophora carinata*.[27] This evidence suggests at least one landing on Mauritius. However, that landing is not recorded in pollen analysis, showing that the natural vegetation experienced no anthropogenic perturbation, at least in the uplands, until after the beginning of permanent settlement in 1638,[28] and an archaeological project has encountered no sign of premodern habitation.[29] It can be assumed, for the moment at least, that there was no attempt at colonization.

The Cocos-Keeling Islands, all atolls, were seen by William Keeling in 1609, visited from about 1750, and first inhabited in 1825.[30] Sedimentary coring and survey by GPR (ground-penetrating radar) on North Keeling Island in 2010 located no signs of premodern cultural stratigraphy or remains.[31] Christmas Island, a substantial high island, heavily wooded, lies 340 km south of Java and was first recorded in 1643. William Dampier landed in 1688, but neither his visit nor any subsequent observations suggested human colonization until settlement began in 1888.[32] Our excavations in 2002, in cave and sinkhole sites and on the beach ridge at Flying Fish Cove, found no cultural material older than the nineteenth century. We recovered remains of the native shrew (*Crocidura attenuat*a) and rats (*Rattus macleari*, *R. nativitatis*), and radiocarbon dates on native rat bone were up to 2,200 years old. It is assumed that these long-established terrestrial mammals reached the island by natural rafting from Indonesia. Conversely, recent research on bones of *Rattus rattus* that we recovered from the same sites has shown them to be of an Indian lineage and dated to the fourteenth century.[33] These rat bones are more plausibly evidence of human contact than natural rafting.

In the Maldives, a Buddhist culture of Sri Lankan origin existed from about the fourth century CE and Islamic settlement from the twelfth century, both investigated archaeologically.[34] There is mention of the Maldives by Ptolemy (c. 130 CE) and Roman coinage dating

to 90 BCE, while Hindi traditions suggest initial occupation around 500 BCE. Many historical accounts emphasize the collection of cowries (*Cypraea moneta*) used widely as currency in the ancient Indian Ocean and Middle East.[35] Cowry currency was in existence by 700 BCE in China, although whether it included cowries from the Maldives is unknown.[36] In any event, there is reason to think that occupation of the Maldives began more than two thousand years ago. There are slight hints of a Southeast Asian influence in the sequence, but very little to pin it down temporally or by source.[37]

There is a 500 km gap from the Maldives to the Chagos islands (5–7 degrees south), discovered by Portugese seafarers between 1500 and 1550.[38] The Chagos group has the highest rainfall of remote islands in the Indian Ocean and it supported dense forest, huge colonies of nesting seabirds, and abundant sea and lagoon fisheries. Diego Garcia was used as a leper colony in the 1780s and colonized permanently from 1793 by Mauritian-French plantation owners and an African–South Asian Creole population that came to be known as Ilois. The island is 25 km long and an almost continuous atoll in which the land is 0.5–2.2 km wide and readily habitable by oceanic colonists. Archaeological research on historical ceramics, abundantly distributed around former plantation sites on Diego Garcia, shows that they are mostly of British manufacture (the French having ceded control in 1810), but also of Chinese manufacture in the mid-nineteenth century.[39] Nothing of possible premodern source has been reported. Our archaeological coring and test pits throughout the island located no evidence of premodern remains, such as worked shell or bone, stone, or metal artifacts. Charcoal and marine shell are extremely scarce below the modern soil. What we found was collected and radiocarbon-dated: of thirteen dates, all eight on charcoal samples plus one on marine shell were effectively modern. Two calibrated dates on shell from East Point test pits gave age ranges at two sigma of 900–1100 CE, and two others, 350–1200 BCE. There was no stratigraphy in the excavated coral sand and nothing to suggest that any of the shell was culturally deposited.[40]

A core through wetland near the modern military base disclosed a 1,300-year-long sequence of pollen, charcoal, and isotopic data. This shows that the first occurrence of fire, coincident with greater abundance of herbaceous plants and ferns and an opening up of the forest, is evident by 1210–80 CE. Local disturbance continues until 1400–45 CE,

when forest again becomes dominant and undisturbed until 1650–1810 CE. Given that high rainfall effectively precluded natural fires on Diego Garcia, the most likely explanation for the premodern period of fire and vegetation change is that there was either a colonization lasting a century or so, which is unlikely given the general absence of premodern archaeological remains, or multiple visits to the island. Until there has been further research on the area around the wetland, it is not possible to say anything more, except that as paleoecological coring did not disclose any other such record on Diego Garcia, a serially used campsite seems more likely than continuous occupation.

The Seychelles Islands include granitic high islands and numerous coral islands, both atolls and raised coral islands, such as Aldabra. The Seychelles may have been the "Zarin" islands noted in Arabic records dating 1460–1530,[41] but they were probably uninhabited when Vasco da Gama sailed by in 1502, and certainly so when settlement began in 1770.[42] Common speculation about pre-European discovery[43] has not yielded anything except tantalizing remarks about remains of a stone construction on Frigate Island and, on Curieuse Island, possible "forts and supposed…boat channels."[44] Some interest has centered on graves at Anse Lascar on Silhouette Island, which are reputedly ancient Arab burials, but the grave sites, marked out on the ground surface with stone and originally with vases set up as well, were probably from the late nineteenth century when Indian workers ("Lascars") were brought to Silhouette to work in the coconut plantations. A sample of human bone from one grave was radiocarbon-dated to 1650–1950 CE (OxA-3885). Rock markings on Therese Island, which have also encouraged ideas of Arabic or pirate occupation, are of natural formation.[45]

Our archaeological and paleoecological coring, plus test pits in caves and rockshelters, extended across three of the four main granite islands in the inner Seychelles: Mahé, Praslin, and La Digue. We found and excavated one coastal shell midden on La Digue. It contained some glass, European pottery, and pig bone with shell and charcoal down to 60 centimeters (cm) depth. A radiocarbon sample from the base of the midden assayed at 1520–1800 CE. No material remains indicative of premodern occupation were found in any cave or rockshelter sites, with one possible exception. Test excavations in the largest coastal rockshelter on Praslin found several small pieces of charcoal in a compact brown grit, possibly a former soil horizon, at 40–65 cm depth. These dated to

85–235 CE, but without any cultural remains in association they are just as likely to have been charcoal blown into the shelter from natural forest fires, as the Seychelles are located in a relatively dry region of the Indian Ocean. That conclusion is supported in the pollen diagrams from our wetland coring. At Petit Police, on the southern tip of Mahé Island, there is a continuous charcoal trace from the base of the core, dated from five thousand years ago up to the present (the current ground surface at the time of core extraction). However, charcoal abundance begins to rise strongly only at about 1500 CE, with grass and coconut pollen indicating more open coastal vegetation after about 1635 CE. These various data suggest that there was no human habitation in the high islands of the Seychelles until the modern era. More fieldwork is needed to test that conclusion, and whether it is relevant to distant coral islands in the Seychelles, such as Aldabra.

The initial colonization period in the Comores Islands, the Dembeni phase, began in the period 750–850 CE, as indicated by imported glazed ceramics from the Persian Gulf and East Asia.[46] These probably came via East Africa where they also occur. Locally made ceramics have incised ladder motifs, typical of East Africa, in the westerly islands, but shell-dentate impressions in the easterly islands. The latter might suggest a connection with Madagascar[47] and possibly with Southeast Asian traditions, although not necessarily directly. The greater frequency of shell-impressed pottery in the islands than on mainland East Africa, which has been held to imply initial migration to the former,[48] might reflect only greater access to alternative ceramic choices in the latter. The Dembeni phase people cultivated rice in particular, and also millet, legumes, coconut, and bamboo. They husbanded goats and had some cattle and pigs.[49] The relative frequency of exotic goods in Dembeni sites indicates fairly frequent access to coastal East Africa or Madagascar.

Madagascar

Investigations in Madagascan archaeology and historical linguistics[50] indicate that human occupation extended back to about the mid-first millennium CE. Rockshelter sites of local foraging and open sites with evidence of swiddening date to the sixth to eighth centuries CE on the northeast coast and have evidence of iron working, shell-impressed pottery, and the manufacture of vessels from chlorite schist. Some radiocarbon date ranges in these sites extend back to the third century CE

but there are uncertainties in their interpretation.[51] By the tenth century, substantial settlements existed on the northeast coast, including the town of Mahilaka. It had locally made and imported ceramics that are very similar to those in the Comores, metal working, rice, goats, cattle, and imported glass beads. It probably exported rock crystal, chlorite schist vessels, natural products, and possibly slaves.[52] In southern Madagascar, the earliest ceramics are of locally made Andaro style dating to about 900 CE and Triangular Incised Ware (TIW), common on the southern Swahili Coast 600–1000 CE.[53]

The consensus formed on these data, that Madagascan archaeological remains extended back to the mid- or late first millennium CE, was challenged recently by evidence purporting to show that a rockshelter in northernmost Madagascar, which had been thought to date to the fourth to sixth century CE and was regarded as the oldest habitation site in Madagascar, had actually been occupied by at least 2000 BCE.[54] This site, Lakaton'i Anja, and another in the north, Ambohiposa, are the first in Madagascar to disclose an industry of small flaked chert tools. In Lakaton'i Anja, flakes of coarse chert are found in all levels, but some of fine chert occur only near the base of the site. Ceramics in the upper layers date to the eleventh to fourteenth centuries CE and the lower layers were radiocarbon-dated on charcoal to the tenth to thirteenth centuries CE. However, optically simulated luminescence (OSL) dating of sediment deposition showed that the lowest layers were deposited 4,400 years ago, the middle layers 2,700 years ago, and the upper layers about 900 years ago. These dates were adopted as the site chronology.

The preference accorded OSL over radiocarbon dating in this case is, we think, mistaken. OSL uses samples from manifestly intact stratigraphy to date the natural sequence of sedimentation. It only dates cultural material within layers if those have not been disturbed. At Lakaton'i Anja, they had been disturbed by bioturbation, the result of large-diameter termite burrows extending from the upper to the lower layers. Movement of material through the burrows has inverted some radiocarbon dates on charcoal relative to their expected order of greater age with depth, and very likely it also allowed chert flakes from upper and middle layers to be redeposited in lower layers.[55] It is much more probable, then, that the age of cultural material throughout Lakaton'i Anja is in the range of the seventh to thirteenth centuries CE, as it is in the cognate site at Ambohiposa. On that assumption, the earliest

archaeology in Madagascar does not date earlier than the mid-first millennium CE. Furthermore, given that almost none of the charcoal samples used in radiocarbon dating in Madagascar have been identified to taxa, the extent of the "old wood" problem is unknown and the dates overall are quite probably one hundred to three hundred years too old.[56]

This has not mattered as much as it might because other data have been interpreted as evidence that human occupation and anthropogenic biological change in Madagascar had begun much earlier than suggested by the archaeological chronologies. From evidence of forest firing and vegetation change, and from radiocarbon-dated bones of extinct animals bearing damage interpreted as cutmarks from butchery, the presence of people in Madagascar has been proposed as beginning 1,500–2,000 years ago,[57] 2,000–2,500 years ago,[58] or more than 4,000 years ago.[59] The substantial literature on this matter cannot be considered adequately here, and in any case there is an undeniable possibility that a landmass the size of Madagascar might have been the setting for unconnected colonizations at different times and from unrelated sources. The scope of research is still too narrow to rule that out. Nevertheless, the region from which most of the data and the main hypotheses arguing for human habitation much earlier than the mid–first millennium CE come is southwest Madagascar, and our research there is coming to a more conservative conclusion about the age of initial colonization.

We cored lakes and swamps to obtain paleoenvironmental sequences and excavated in three sites—Ambolisatra, Itampolo, and Taolambiby—containing remains that have been central to hypotheses about initial human contact with Madagascan megafauna (these being giant species of lemur and tortoise, the huge elephant birds, large species of tenrec and the carnivorous *Fossa*, dwarf hippopotamus, and the Nile crocodile). Although sometimes described as archaeological sites,[60] it is only at Taolambiby that there is relatively slight evidence of human occupation in the upper level of the site. Rather, these are primarily subfossil sites (i.e., places where the bones of animals that died naturally have been accumulated comparatively recently, in these instances in former lakes or ponds). All three sites, however, have produced megafaunal bones radiocarbon-dated to two thousand years ago or older that show purported butchery damage. We reexamined collections of Madagascan megafaunal bone in the University of Madagascar's Museum of Art

and Archaeology (Antananarivo), the Oxford University Museum of Natural History, and the National Museum of Natural History (Paris), in order to determine the nature and rates of potential cultural damage on megafaunal bone.

Some specimens collected more than one hundred years ago from the three sites exhibit scratches, scores, or puncture marks that have been interpreted as butchery damage. Our reexamination, including by electron microscopy, indicates that all of the scratches and scores are more plausibly attributed to taphonomic conditions, notably trampling of bones in gritty sediments.[61] This was the case at Taolambiby in particular: bones in lacustrine sediments replete with coarse-grained quartzite rock and sand eroding from lake-edge scarps were trampled prehistorically by the dominant species, hippopotamus, and have been trampled since by cattle crossing the site to an adjacent waterhole. Crocodiles and other carnivores produced puncture marks and breakage, and some breakage and other damage has clearly occurred since the bones were collected.

The argument that megafaunal processing occurred at all rests more plausibly on perilously few cases[62] of megafaunal bones that have undoubted cutmarks: slices, gashes, and chop marks that appear to have been made by metal tools. We agree with this assessment of the cause, but not with the implications of age that have been drawn from it. Our new data provide significant evidence. Excavations in the three sites produced a total of 2,756 bones or bone pieces, of both extant and extinct taxa, the largest such collection from Madagascar (the main extinct taxa in order are hippopotamus, crocodile, giant tortoise, giant lemurs; the former two probably overrepresented by their habitual attachment to water). We found no cutmarks on newly recovered bones from Itampolo or Ambolisatra, and at the latter our excavations showed that the bones were in association (i.e., in the position of a natural death assemblage). There is thus a question about whether the megafaunal bone damage was perimortem, as has been assumed.[63] Examination of bone from Taolambiby showed that on the extant taxa, mostly of the sifaka lemur, *Propithecus verreauxi*, undoubted cutmarks occurred at a rate of 16.5 percent of the estimated minimum number of individuals (MNI). For the extinct megafauna, the cutmark rate for the total MNI is only 0.06 percent, or one specimen. During our excavations at Taolambiby we noticed that occasional inadvertent damage by field-workers

using the sharp, crescentic-edged Madagascan spades to clean trench faces produced planar cuts on subfossil bone shafts and clean slices across epiphyses if the bone was still bedded tightly in damp, dense silt. This damage is identical to that on examples of cut-marked megafaunal bones in museum collections, suggesting that perhaps it also occurred during the collection process.

Consequently, while we agree that there is evidence of cultural modification on a very small number of bones from extinct megafauna in museum collections, it is impossible to show that it was perimortem or to rule out modern damage.[64] The radiocarbon age of bones alone is, thus, an unreliable guide to the age of the cultural damage they might have sustained. Reliable dates are restricted to bones recovered in controlled excavations, where the existence or absence of prior damage can be verified. At Taolambiby, there is only one clear cutmark of apparent ancient origin on a megafaunal bone from a newly excavated sedimentary context. It is a hippopotamus bone radiocarbon-dated to 690–880 CE. By our criteria, this is the oldest acceptable cutmarked megafaunal bone from Madagascar.[65]

Irrespective of conclusions about the age of the damaged bones, it is important to understand that there is remarkably little material evidence of killing, butchery, or consumption of Madagascan megafauna. Substantial bone breakage, bone burning, and association of bone with butchery tools, charcoal, middens, and other signs of human occupation, which are the common attributes of megafaunal processing in Eurasia, the Americas, and New Zealand, have not been found in Madagascar. Flaked stone tools are scarce, probably because iron tools were available by the first millennium BCE in Southeast Asia and East Africa, potential source regions of Madagascan colonists, but the absence of butchery sites and the scarcity of other cultural evidence of interaction with megafauna is odd considering the abundance of megafaunal bone and elephant bird eggshell preserved in the sediments of southwest Madagascar. This raises questions about extinction, when and how in particular.

In regard to the chronology of extinction, the most detailed data set is from our research at Taolambiby, where a curve of charcoal abundance can be matched against radiocarbon dates on bone. The charcoal shows several spikes between 500 BCE and 950 CE and a rapid and continuing increase in abundance from 1100 CE onward. The 950 CE

charcoal spike corresponds with eighteen of nineteen radiocarbon dates from our excavations, including the youngest ages for all the megafauna that produced radiocarbon dates: hippopotamus, crocodile, and two giant lemurs (*Pachylemur*, *Archaeolemur*).[66] We interpret these data as indicating that Taolambiby ceased to accumulate megafauna at about 1000 CE as the human population became more abundant, and probably permanently resident, in the vicinity. Among the last megafauna were the bones of small, extant fauna showing clear cutmarks. At Itampolo and Ambolisatra, our radiocarbon dates on megafaunal bone also terminate at 800–1000 CE, indicating that this was approximately the extinction period in southwest Madagascar for the megafaunal mammals.

Recent palynological evidence of vegetation change also suggests that undoubted anthropogenic impacts may have been later than argued previously. Forest burning up to two thousand years ago is largely confined to the arid southwest region, where natural firing would be expected in any case, with wetter regions showing later rises in charcoal abundance around 1000–1200 CE. A recent summary of the current Madagascan data points to substantial vegetation transitions and forest burning as occurring 800–1200 CE.[67] Initial analyses of our sedimentary cores are showing similar results.

Whether megafaunal disappearance at about this time was the product of "imperceptible overkill" reflecting the vulnerability of generally conservative life histories among megafaunal taxa during a period of rapid human population growth,[68] or due to the relentlessly deleterious effects of pronounced climatic dessication in Madagascar generally from 750 to 1200 CE,[69] or to some other cause or combination of causes, there is little doubt but that the period around the end of the first millennium CE was the most critical.[70] Some taxa continued in existence for several hundred years later in some places, probably including elephant birds in southwest Madagascar (radiocarbon dates on their eggshell extend up to about 1400 CE, even later),[71] and crocodiles could always migrate naturally from the Comores or East Africa.

Our current view is that Madagascan colonization probably began around the eighth century CE, as in the Comores and very probably through them, and that it involved rapid dispersal of coastal settlement at low population density, especially along the west coast, which resulted in, or coincided with, the circumstances that caused substantial megafaunal loss by around the end of the millennium.

Hypotheses about initial colonization of the remote East African islands have proposed either migration from mainland East Africa in the first or second millennium BCE, especially to southwest Madagascar, or late first millennium BCE transoceanic voyaging from Southeast Asia.[72] As we have argued, migrations so early are not supported as strongly in the archaeozoological and paleoecological data of Madagascar as once seemed to be the case. Additional considerations in this matter are the implications of paleobiological data,[73] and of what is known about seafaring capabilities.

Paleoecological and Archaeozoological Data

Food plants transferred around or across the Indian Ocean from Southeast Asia to East Africa suggest that hybrid bananas were introduced to Africa by about 500 BCE,[74] but as hybridization could have occurred in Southeast Asia or South Asia where there were wild bananas from at least the early Holocene, the question of source remains open.[75] Evidence of genetic similarity between Southeast Asian and African banana cultivars still leaves the "mode of dispersal from Asia to Africa… uncertain; terrestrial and maritime routes have been proposed."[76] Yams and taro, probably cultivated in Madagascar from early in the second millennium CE at least, are of Southeast Asian origin, but when and how they arrived is unknown archaeologically.[77] Rice and coconut were present by the late first millennium CE in coastal East Africa, the Comores, and Madagascar.

Archaeozoological data suggest, although questionably, that the domestic pig, a possible Southeast Asian import, occurred in the sixth to tenth centuries CE in Zanzibar and the Comores, but not until the thirteenth century in Madagascar. Madagascan dogs have genetic ancestry which is almost entirely African, with minor and probably later Southeast Asian infusion.[78] The domestic chicken, found in the Comores and Madagascar by the ninth century CE, is descended from Southeast Asian junglefowls, but by 3,500 years ago it was widely spread from the west Pacific across Asia to North Africa. Haplogroups A and D occur in Madagascar, the former being the most widespread of all haplogroups globally and the latter having a South Asian origin but occurring prehistorically through Southeast Asia and the Pacific islands.[79]

In Madagascar, chickens arrived as part of a group of African or South Asian domestic species, including cattle and goats, which had existed already for several centuries in coastal East Africa. The black rat reached northeast Africa from South Asia more than 2,000 years ago, and seems to have spread, possibly along with chickens, into East Africa by about the eighth century CE and to Madagascar soon afterward. Genetic data suggest that Madagascan black rats have origins in South Asia and came specifically from Arabian Peninsula populations. Independent colonization seems to have occurred at about the same time in Madagascar and the Comores, with some back migration from the former to the latter.[80] Mice also seem to have arrived from the Arabian Peninsula.[81] Recent evidence indicates that black rats reached Mauritius and Christmas Island a century or two before European discovery. Neither Southeast Asian rats with immense oceanic dispersal ranges in prehistory, such as *Rattus exulans* and *R. tanezumi*, nor the west Pacific *R. praetor*, seem to have reached African coasts or islands.

Paleobiological Data

Human genetic data for Madagascar show approximately equal origins in African and Southeast Asian populations, but also some South Asian ancestry,[82] while Comorian genetics disclose a predominantly African origin, with 17 percent and 11 percent of Middle Eastern and Southeast Asian contributions respectively.[83] The strongly mixed African–Southeast Asian genetic signature among both males and females throughout Madagascar indicates either that the initial immigrant population was already heterogeneous in origin, or that substantial heterogeneity arose very soon after the beginning of initial colonization. The first proposition rules out initial colonization by direct voyaging from Southeast Asia and the second implies either contemporaneous African colonization of Madagascar or that an African population was already in residence. The issue is accentuated by evidence that Malagasy mtDNA has a "Malagasy motif" that is not recorded in Indonesia, despite it being a variant of the Polynesian motif. If its absence there is confirmed in further research, then it must have originated early in the formation of the Malagasy population or within a group outside Southeast Asia prior to its colonization of Madagascar. Genetic modeling found that the mtDNA component arose from a small cohort of female colonists, perhaps thirty in all, with a very high proportion of Southeast

Asian ancestry.[84] Evidence from Y-chromosome and autosomal single nucleotide polymorphisms (SNPs) show, however, that Malagasy have a dominant African origin in both coastal and highland populations.[85] It is possible that there were groups of Southeast Asians settled along the main trading routes of the northern Indian Ocean, as suggested in Sri Lanka, but probably not in the Maldives, where evidence of more direct transoceanic movement could be expected. There, genetic analysis shows a strong correlation with South Asian populations and almost none with Southeast Asia, indicating that "the proposed Indian Ocean seafaring route through the Maldives did not include migration to these islands."[86]

Overall, these paleobiological data, which by no means exhaust the range now available, do record a significant contribution of Southeast and South Asian taxa to East Africa during the approximate period from 2,500 to 1,000 years ago, plus some evidence of African material and taxa being transferred to South and Southeast Asia.[87] However, the evidence seldom points clearly to particular routes or modes of transfer. There is nothing in these data, for example, that *requires* transfer by sea, except across the Mozambique Channel (and of black rats to Mauritius and Christmas Island), even if it is very likely that much of the material was, in fact, carried by sea. Most particularly, there is nothing in these data to require direct oceanic passages between Southeast Asia and Africa.

Seafaring Technology and Capability

Systematic offshore seafaring in the Indian Ocean began about 2000 BCE with passages from the Red Sea and Persian Gulf to and from South Asia, and it expanded from about 1500 BCE to include sailing across the Bay of Bengal to and from Southeast Asia. Extended mobility between Southeast Asia, South Asia, and East Africa seems to have included the first remote islands, the Maldives, in the late first millennium BCE. From then on, ships of western Indian Ocean types sailing under squaresail frequented the East African coast until squaresail was widely replaced by the lateen sail, probably between the tenth and fifteenth centuries CE in this region.[88] Whether there were direct transoceanic passages between East Africa and Southeast Asia by the late first millennium CE is open to question. Ned Alpers, in this volume, suggests that both littoral and transoceanic voyaging might have occurred between them at various

moments in time. On current data that is undeniable, but as the issue is important for the history of the remote islands, it is one worth pursuing further here, if only to suggest which propositions seem more plausible in the light of current evidence.

Southeast Asian shipbuilding was relatively advanced by the first millennium CE, as shown by archaeological remains of ships up to 20 meters (m) in length, and by contemporary Chinese references to larger ships from Southeast Asia.[89] Those had been made by a distinctive Southeast Asian combination of edge-joined (by sewing initially and later by ties with an increasing use of treenails) and lashed-lug planks over inserted frames. The hulls may have been fitted with leeboards or outriggers, as in the famous engraving from Borobudur (although that seems to depict a raft).[90] The ships were probably rigged with the canted squaresails known in Indonesia from at least the ninth century CE. But whether these early Southeast Asian vessels were ever sailed directly to East Africa is unknown.[91] There are no East African shipwrecks of the period from which their presence or otherwise might be ascertained, and "ship graffiti" on the Swahili Coast are too late to be useful in this particular matter.[92] It is worth emphasizing, however, that if transoceanic shipping occurred, it cannot have done so often, given the absence of premodern cultural remains on central Indian Ocean islands such as Diego Garcia.

The alternative is that transoceanic mobility involved the outrigger canoe, the characteristic vessel of local communities on each side of the ocean.[93] It may not have operated far offshore on the African side, considering that Swahili maritime competence flourished only in the late first millennium CE,[94] and also because the double outrigger, which seems to have been used in East Africa before a recent transition to single outriggers, implies inshore sailing, as open-sea conditions strongly favor the single outrigger.[95] Southeast Asians, however, had much longer canoe-voyaging experience. This certainly included the use of outrigger technology, but it is not clear that this was an early Austronesian innovation, as it is so often described. In Austronesian linguistics, it is uncertain that **katiR* = outrigger canoe belongs to Proto-Malayo-Polynesian (PMP),[96] especially as specific terms for outrigger technology are later Proto-Oceanic (POc) innovations from the west Pacific rather than Southeast Asia.[97] Island Southeast Asian rock-art includes pictures of boats that, in the main, probably belong to an "Austronesian painting

tradition."[98] None of the rock-art boats has been radiocarbon-dated directly and some are probably recent. Others, though, are stylistically similar to boats shown on Dong Son drums, dating 1000–0 BCE. Against the expectation that at least some of these boats would depict outrigger canoes, none does so.[99] Conjecture about early Holocene outriggers in China is unconvincing, and the earliest, indirect, archaeological evidence of outriggers is from Sri Lanka, about 300 BCE, much earlier than the first depiction of outriggers in ninth century CE Java.[100] There is similar uncertainty over sailing rigs. PMP **layaR* = sail is early, but terms that refer to spars or rigging are later (e.g., POc **jila* = spar, boom, or yard, while Proto–Eastern Oceanic **pana* = mast or boom, probably dates to the first millennium CE).[101]

These data suggest that Austronesian sailing technology may have developed rather slowly and perhaps differently between the Indian and Pacific oceans despite common origins. It is then problematic to envisage Pacific innovations such as the Oceanic spritsail as the rig that enabled long-distance sailing by Southeast Asians to Madagascar and East Africa.[102] Historical evidence shows no Oceanic spritsail in the western Indian Ocean, but rather outrigger canoes propelled by the double spritsail (a rectangular sail held up by angled sprits, or spars, to each of its upper corners in such a way that the rig could be shaped fore-and-aft).[103]

The early Indo-Pacific history of the double-sprit rig is, like so much else, also obscure. It might have come from the common spritsail that existed in the Mediterranean from the late first millennium BCE,[104] and was possibly carried into the Indian Ocean more than two thousand years ago along with the Mediterranean squaresail. But there was a more rudimentary form of double spritsail found historically from the Bay of Bengal to the Pacific Ocean as far east as New Zealand. It consisted of a high, narrow, quadrangular sail attached along its length either side to sprits that were each held erect by a forestay and brace or sheet and running forestay. This form of double spritsail may have originated in China and been carried into Southeast Asia by Austronesian dispersal.[105] Its existence begs the question of whether East African double spritsails were early adaptations of Mediterranean spritsails or convergent designs that derived from the Austronesian form.

The significance of this necessarily technical discussion is that while the East African historical type had some windward ability, the Austronesian form did not.[106] It would have been extremely difficult for

outrigger canoes under Austronesian double spritsails to make successful transoceanic passages from Southeast Asia to East Africa. Computer simulation shows that the passage is effectively impossible by downwind sailing in either direction. Even sailing with a modest windward ability, such as that conferred by the western Indian Ocean spritsail, the simulations show that few routes were feasible, the best being from northern Sumatra to Madagascar in January through February with passage times of ten to thirteen weeks, which are very long periods for delivering a colonization group of sufficient size to have a reasonable chance of population longevity.[107] These simulations, moreover, were conducted using modern marine meteorological data. Recent work in the South Pacific shows that those data can be very misleading for understanding sailing conditions a millennium or more ago.[108] Until sailing conditions around the late first to early second millennium CE have been established similarly for the Indian Ocean, the possibilities for transoceanic voyaging to East Africa will remain almost entirely conjectural, while the existence of littoral routes is a matter of historical consensus.

SEAFARING AND COLONIZATION IN A DIVIDED OCEAN

The Indian Ocean enigma considered here is that, despite a longer and richer history of premodern maritime mobility than in the other oceans, relatively fewer of its remote islands were inhabited before 1500 CE. This seemed especially odd in light of the frequently advanced proposition that Southeast Asian seafarers made direct transoceanic passages between Indonesia and East Africa, in some versions beginning in the last millennium BCE. It is purported that people, cultigens, commensals, and artifacts were carried in each direction between Indonesia and Madagascar, independently of movement along established trade routes, terrestrial and coastal, around the northern perimeter of the Indian Ocean. Our fieldwork on the central oceanic islands, together with earlier conclusions, uncovered little material evidence of a premodern human presence that might support this hypothesis. In addition, to the extent that the hypothesis has relied upon arguments of early colonization in Madagascar for its assertion of early transoceanic seafaring, we also find it unconvincing. The proposition that there is clear evidence of butchery marks on bones of extinct megafauna radiocarbon-dated up to 2000 BCE in Madagascar is eminently debatable. Focusing on

megafaunal subfossil sites of the southwest region, we examined both the historical bone collections from which propositions of early butchering had been advanced and our own newly excavated material. We concluded that there is no reliable evidence of megafaunal butchery prior to the mid-first millennium CE and that most of the extinct species survived up to about 800–1000 CE, some later than that. Recent paleoenvironmental studies, including ours, also date initial anthropogenic changes in vegetation to about the same period.

Whether evidence of connections between Madagascar and Indonesia implies direct transoceanic voyaging also remains open to debate. Madagascan and Comores human populations certainly have Southeast Asian genetic origins to a significant extent, and these are supported by linguistic and customary attributes, as well as some elements of material culture, but nothing about these features compels the conclusion that migrants sailed directly across the ocean. Some introduced plants and animals in the remote East African islands likewise have Southeast Asian origins, but they may have come through South Asia or continental East Africa before transfer to the remote islands. Our research on remote islands in the central Indian Ocean that are often suggested as waypoints in transoceanic voyaging found little evidence of premodern contact. Furthermore, the rather sparse evidence of seafaring does not suggest transoceanic passages to East Africa in Southeast Asian ships or in outrigger canoes. The latter may have been simply a domestic boat-building tradition carried by Southeast Asian migrants who had traveled in existing perioceanic shipping, and the double spritsail used on western Indian Ocean outrigger canoes has potential origins in both Southeast Asia and East Africa. The limited evidence of premodern contact in the Chagos, Mauritius, and Christmas Island is also relatively late, fourteenth and fifteenth century—too late to be relevant to transoceanic colonizing movements by Austronesians. Nevertheless, it is the earliest manifestation of voyaging into the heart of the Indian Ocean, and as such, it might represent explorations, possibly by Arabic shipping, under a newly arrived lateen sail.[109]

We agree with a recent assessment that "pre-first millennium AD Austronesian migrations to eastern Africa and Madagascar remain entirely hypothetical and are not currently supported by solid evidence,"[110] but we also think that propositions of frequent trading or raiding directly from Southeast Asia to East Africa, or of a "dispersal corridor"

directly from Southeast Asia to the remote East African islands[111] remain rather far from demonstration. As one scholar points out, neither the Barito Dayaks who formed the nucleus of the Malagasy Southeast Asian population nor the Malagasy ever had the seafaring technology required to cross the Indian Ocean. However, the Malays did: they provided most of the Malagasy seafaring terminology and were active participants in late first millennium CE trading networks that extended around the northern coasts of the Indian Ocean to East Africa.[112]

In the current state of knowledge, at least half of the genetic composition of Malagasy people is African, and pigs, dogs, chickens, rats, and mice had mainland African or far western Indian Ocean residence prior to movement to Madagascar. These data suggest that, the significant contribution of Southeast Asian genetic and cultural elements notwithstanding, the formation of the Madagascan colonizing population, both human and commensal, took place in East Africa and departed from there. The alternative is that migration from mainland Africa was temporally coincident with transoceanic voyaging from Southeast Asia, but on the ground of parsimony we prefer the former hypothesis. We envisage mid- to late first millennium CE Southeast Asian migration to mainland East Africa along well-established voyaging routes around the northern perimeter of the ocean, probably in Southeast or South Asian commercial vessels that brought functioning groups of Malay and Indonesian migrants to East Africa, and thereby into the nascent Swahili population. Subsequent movement to Madagascar and the Comores was perhaps by Swahili groups in which Southeast Asians held socially dominant positions.[113]

Migration, we have suggested, followed trade in the Indian Ocean, and up until the sixteenth century, the trade that connected the Indian Ocean also divided it, a point made since antiquity. By the second century CE, geographers such as Ptolemy saw the Indian Ocean (Indikon pelagos) as two seas. A largely northern region in which sea travel and trade were well established was the Erythraean Sea (probably meaning red or glittering), sometimes the Mare Indicum, which stretched from the Red Sea eastward to India, Sri Lanka, and the Gulf of Bengal. In the first century CE guide *Periplus Maris Erythraei*, it also extended southward along coastal East Africa to the Tanzanian islands. The remaining ocean, unknown to classical geography, was a largely southern vastness called the Mare Prasodum, a name often glossed as "Green Sea" after

Latin *prasinus*, meaning "green," but which more correctly referred to *prason* (weed or kelp). Perhaps the inference of a "Seaweedy Sea" was that sailing was impeded there and the Mare Prasodum was thus to be avoided.[114] The ancient perception of a divided ocean had a continuing historical validity,[115] which is also evident in the premodern history of island colonization.

Throughout the Indian Ocean north of the equator, and extending to seven degrees south down the coasts of East Africa and Indonesia, all the islands were colonized more than 2,500 years ago, in some cases much earlier than that. South of the equator, most islands were uncolonized until the modern era, and the few exceptions, we argue, not until within the last 1,300 years: Comores and Madagascar. Some of the reasons for this are readily apparent. Early seafaring developed from Red Sea and Persian Gulf beginnings in the northern Indian Ocean where monsoonal conditions, understood in a maritime context by at least 2,000 years ago, allowed predictably seasonal return voyaging before the wind, in boisterous summer westerlies and steadier, winter easterlies across the Arabian Sea and Bay of Bengal. Further south, the monsoon winds were mainly from southwest and northeast and they were largely confined to within about 500 km of the East African coast as far south as the Mozambique Channel. Consequently, while the Comores and northern Madagascar were within the monsoon region, all the other habitable islands south of the equator remained largely within the southeastern tradewind zone.[116] Virtually the entire premodern colonization of Indian Ocean islands can be perceived, then, as a phenomenon of the monsoons and of the peculiarities of seafaring networks and boat technology that developed within them. Equally, it might be said that the modern colonization of the other remote islands was a phenomenon of the tradewinds and the voyaging technology developed in them, initially in the Atlantic.[117]

Turning back to our original hypotheses to account for the remote islands enigma in the Indian Ocean, it is apparent that the first can be discarded, at least provisionally. In Crossing the Green Seas, we tested the previously established colonization record and found that it was robust. A premodern landfall was recorded in Diego Garcia and similar contact can be inferred in Mauritius and Christmas Island but remains of colonization, or of any habitation at all, are lacking. The second hypothesis has some substance. Which remote islands were inhabited

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before the sixteenth century depended essentially, we propose, upon whether they were located within the monsoon wind system. As that was distributed to the north tropics and the western side of the ocean, at least according to modern observations, it included only remote islands that were relatively close to continental shores. The monsoonal wind directions switched into the northwest about 500 km off the East African coast, a direction dangerous for seafarers who did not want to sail far into the unknown with little prospect of working back against the wind. The third hypothesis is particularly important. The northern perimeter of the Indian Ocean had been a major routeway for migration and, presumably, down-the-line exchange between small-scale communities since the Pleistocene migrations of *Homo sapiens*. By at least the third millennium BCE, marine mercantilism featuring extended offshore seafaring had arisen with the advent of the sail and in the context of developing complex polities, notably in the Persian Gulf and the Indus Valley. Imperatives of trade and regular seasonal variation of sailing conditions, acting in mutual coercion, had probably produced a system of monsoonal cabotage several millennia before the time of Hippalus, the legendary first-century-BCE Greek navigator to whom some classical writers attributed the discovery of the southwest monsoon.[118] The quite precise constraints of maritime technology and commercial practice that made this system successful from mid-Holocene antiquity up to modern times precluded much exploratory voyaging, and any island colonization, beyond its limits. It is in the light of a long-term requisition of seafaring for trade, with its deployment shaped by the agency of the monsoonal winds, that we can understand the premodern remoteness of so many islands in the Indian Ocean.

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NOTES

1. A. Anderson, "The Origins and Development of Seafaring: Towards a Global Approach," in *The Global Origins and Development of Seafaring*, ed. A. Anderson, J. H. Barrett, and K. V. Boyle (Cambridge: McDonald Institute for Archaeological Research, 2010), 3–16.

2. M. Pearson, *The Indian Ocean* (London: Routledge, 2003), 3.

3. 1500 CE is taken here as the beginning of the modern era in the Indian Ocean.

4. By "habitable ocean," we mean the tropical and temperate regions. The number of habitable islands in each ocean depends on the criteria used and the scale of resolution at which islands are counted. The data used here are from a conservative file on the UN system-wide earthwatch site, http://islands.unep.ch.

5. We define "remote islands" as those that required a single passage distance of at least 250 km. It is not an entirely arbitrary distance. Coasting vessels in the Indian Ocean two thousand years ago were making about 50–60 nautical miles (roughly 100 km) per 24 hours, partly because they often lay ahull during darkness, so 250 km represented at least two nights at sea and generally sailing out of sight of land; thus, probably a planned voyage well offshore. The geological distinction between "continental" and "oceanic" islands is useful but from a seafaring perspective it is distance and sailing conditions relative to technological capability, rather than geological origin, that determine the degree of remoteness.

6. Remoteness and isolation of islands are different qualities, as discussed by A. Anderson, "Distance Looks Our Way: Remoteness and Isolation in Early East and South Polynesia," in *The Reñaca Papers: VI International Conference on Easter Island and the Pacific*, ed. C. M. Stevenson et al. (Los Osos, CA: Easter Island Foundation, 2005), 1–12.

7. W. Foster, ed., *The Journal of John Jourdain, 1608–1617, Describing His Experiences in Arabia, India, and the Malay Archipelago* (Cambridge: The Hakluyt Society, 1905), 50. The Mauritian dodo is the best-known case from which such deductions were made, but others carry the same implication (e.g., the source of the startlingly feminine coco de mer, collected on beaches in the Maldives and highly valued in medieval Europe, was unknown until its sensational discovery growing abundantly on Praslin Island by the Marion DuFresne expedition in 1768).

8. Mitchell, "Comparative Archaeology"; and F. A. Chami, "The Ancient Western Indian Ocean World Market," *Journal of Indian Ocean Archaeology* 2 (2005): 1–7.

9. F. Vergès, "Positions: Looking East, Heading South," *African Studies Review* 44 (2001): 141–49.

10. H. P. Ray, "Seafaring and Maritime Contacts: An Agenda for Historical Analysis," *Journal of Economic and Social History of the Orient* 39 (1996): 422.

11. Vink, "'New Thalassology.'"

12. Chami, "Indian Ocean World Market."

13. A. Anderson, G. Clark, and S. Haberle, Crossing the Green Sea: Early Maritime Mobility, Transoceanic Contact and Remote Island Colonisation in the Tropical Indian Ocean, Australian Research Council Discovery Project, 2009–2011. The project also supported, in part, doctoral research on the genetics of commensal animals in the Indian Ocean islands, and an archaeological survey of Mauritius: K. Seetah, *Mauritius, Archaeological Research and Agendas, the 2009 Season: Survey, Results and Recommendations* (unpublished report, 2010).

14. Vink, "'New Thalassology.'"

15. Bentley, "Sea and Ocean Basin as Frameworks."

16. Beaujard, "Eurasian and African World-Systems."

17. Pearson, *Indian Ocean*, 3–31, 46–61.

18. Vink, "'New Thalassology,'" 59, paraphrasing a remark about the Atlantic by John Elliot.

19. Also between seas and oceans. For example, A. Anderson, "Islands from the South: An Oceanian Perspective on Island Colonization," in *The First Mediterranean Islanders: Initial Occupation and Survival Strategies*, ed. N. Phoca-Cosmetatou, monograph 74 (Oxford: University of Oxford School of Archaeology, 2011), 157–71.

20. The language family is Austronesian, more specifically Malyo-Polynesian to which Malagasy and all non-Taiwanese Austronesian languages belong. K. A. Adelaar, "Malay Influence on Malagasy," *Oceanic Linguistics* 28 (1989): 1–46; R. Blust, "The Prehistory of the Austronesian-Speaking Peoples: A View from Language," *Journal of World Prehistory* 9 (1995): 453–510; and K. A. Adelaar, "Malagasy Culture-History: Some Linguistic

Evidence," in *The Indian Ocean in Antiquity*, ed. J. Reade (London: Kegan Paul, 1996), 487–500.

The IPWP is the large expanse of unusually warm water that extends from the equatorial eastern Indian Ocean through island Southeast Asia to the west Pacific. Changes in it are reflected in irregular fluctuations of the ENSO in the Pacific and in the similar IOD system.

21. For example, G. R. Clark et al., "Stone Tools from the Ancient Tongan State Reveal Prehistoric Interaction Centers in the Central Pacific," *Proceedings of the National Academy of Sciences USA* 111, no. 29 (2014), https://doi.org/10.1073/pnas.1406165111.

22. A. Anderson, "Islands of Exile: Ideological Motivation in Maritime Migration," *Journal of Island and Coastal Archaeology* 1 (2006): 33–48.

23. C. G. F. Simkin, *The Traditional Trade of Asia* (London: Oxford University Press, 1968); and most papers in Reade, *Indian Ocean in Antiquity*.

24. A. Anderson, "Trans-Indian Ocean Migrations," in *The Encyclopedia of Global Human Migration*, ed. I. Ness and P. Bellwood (New York: Wiley, 2013), 254–58.

25. A. Cheke and J. Hume, *Lost Land of the Dodo: An Ecological History of Mauritius, Réunion and Rodrigues* (London: Poyser, 2008), 195–238; and J. P. Hume, "A Synopsis of the Pre-human Avifauna of the Mascarene Islands," in *Paleornithological Research: Proceedings of the 8th International Meeting of the Society of Avian Paleontology and Evolution*, ed. U. B. Göhlich and A. Kroh (Vienna: Natural History Museum, 2013), 228.

26. Cheke and Hume, *Lost Land of the Dodo*, 76.

27. Hume, "Pre-human Avifauna," 228.

28. E. J. de Boer et al., "Multi-proxy Reconstruction of Environmental Dynamics and Colonization Impacts in the Mauritian Uplands," *Palaeogeography, Palaeoclimatology, Palaeoecology* 383–84 (2013): 42–51, https://doi.org/10.1016/j.palaeo.2013.04.025.

29. Seetah, *Mauritius, Archaeological Research and Agendas*.

30. P. Bunce, *The Cocos (Keeling) Islands: Australian Atolls in the Indian Ocean* (Milton, Australia: Wiley, 1988).

31. J. Harrington, "Holocene Sea-Level Change across the Indo-Pacific: A New Theory with Implications for Low-Lying Islands and Coastal Communities, Ancient Seafaring and Maritime Migration" (PhD diss., Australian National University, 2014).

32. C. S. Andrews, *Monograph of Christmas Island* (London: Trustees of the British Museum, 1900); and P. H. Armstrong, "Human Impacts on Australia's Indian Ocean Tropical Ecosystems: A Review," *Environmentalist* 12 (1991): 191–206.

33. G. Clark and A. Anderson, unpublished notes, Australian National University, 2002.

34. H. C. P. Bell, *The Maldive Islands: Monograph on the History, Archaeology and Epigraphy* (Colombo, Sri Lanka: Government Record Office, 1940; Malé, Maldives: Novelty Printers Publishers, 2002); A. D. W. Forbes, "Archives and Resources for Maldivian History," *South Asia* 3 (1980): 70–82; T. Heyerdahl, *The Maldive Mystery* (London: Allen and Unwin, 1986); A. D. W. Forbes, "The Pre-Islamic Archaeology of the Maldive Islands," *Bulletin de l'Ecole Française D'Extrême-Orient* 76 (1987): 281–88; A. Skjölsvold, *Archaeological Test Excavations on the Maldive Islands* (Oslo: Occasional Paper of the Kon-Tiki Museum, 1991); J. Carswell, "The Excavation of Mantai," in Reade, *Indian Ocean in Antiquity*, 501–16; E. Mikkelsen, *Archaeological Excavations of a Monastery at Kaashidhoo: Cowrie Shells and Their Buddhist Context in the Maldives* (Malé, Maldives: National Centre for Linguistic and Historical Research, 2000); and N. Mohammed, "Note on the Early History of the Maldives," *Archipel* 70 (2005): 7–14.

35. J. Heimann, "Small Change and Ballast: Cowry Trade and Usage as an Example of Indian Ocean Economic History," *South Asia* 3 (1980): 48–69.

36. J. Hogendorn and M. Johnson, *The Shell Money of the Slave Trade* (Cambridge: Cambridge University Press, 1986).

37. C. Maloney, "Where Did the Maldives People Come From?," *International Institute of Asian Studies Newsletter* 5 (1995): 33–34. Evidence of former Southeast Asian shipbuilding techniques was found in the Maldives by P.-Y. Manguin, "Trading Ships of the South China Sea: Shipbuilding Techniques and Their Role in the History of the Development of Asian Trade Networks," *Journal of the Economic and Social History of the Orient* 36 (1993): 253–80.

38. Just who first discovered the Chagos islands is uncertain. Vasco da Gama, in 1501, is often suggested, but R. Edis, *Peak of Limuria: The Story of Diego Garcia and the Chagos Archipelago* (London: Chagos Conservation Trust, 2004), 22, suggests other Portugese mariners during 1509–32.

39. D. G. DeFant et al., "Final Report: Phase I Archaeological Reconnaissance Survey, U.S. Navy Support Facility, Island of Diego Garcia, British Indian Ocean Territory" (unpublished report, 1997); and E. West and M. Curtis, "Analysis of Archaeologically Recovered Ceramics on Diego Garcia" (unpublished report, 2009).

40. In the absence of any other evidence, we hoped that radiocarbon dates on shell and charcoal, although lacking any cultural context, might suggest a period of premodern human habitation. They did not.

41. G. R. Tibbetts, *Arab Navigation in the Indian Ocean before the Coming of the Portugese* (London: Luzac and Royal Asiatic Society, 1971). Tibbetts disagrees with the frequent assertion—for example, G. F. Hourani,

Arab Seafaring in the Indian Ocean in Ancient and Early Medieval Times (Princeton, NJ: Princeton University Press, 1951), 83—that da Gama was guided by the famous Arab navigator Ahmad Ibn Majid, who had been one of the authors of the geographical texts published in the late fifteenth century that mentioned the Zarin Islands.

42. Da Gama did not land, nor did he write that on one island a fire and some people, possibly castaways, were seen on a beach, as reported by a Flemish sailor in da Gama's fleet. W. McAteer, *Rivals in Eden, Being the First Part of the History of the Seychelles, 1742–1827* (Mahé, Seychelles: Pristine Books, 2001), 17, 264.

43. For example, volume 20 of the *Encyclopaedia Brittanica* (Chicago: University of Chicago, 1968), 30, says this: "The Seychelles are believed to have been visited in the twelfth century by ships from the Arabian Sea and Persian Gulf." According to L. Mair and L. Beckley, *Seychelles: The Bradt Travel Guide* (Chalfont St. Peter, UK: Bradt Travel Guides, 2008), 11, "islands in roughly the same position as the Seychelles appeared in Arab documents dated AD 851. A cluster of mouldering graves, believed to be those of Arab sailors, has also been found on the island of Silhouette." However, A. C. McKenzie, "Fragments of Early Seychelles History," *Journal of the Seychelles Society* 1 (1961): 7–21, writes that Arab texts from 851 CE and 915 CE refer to the Maldives and, vaguely, to high islands beyond.

44. J. S. Gardiner, "The Seychelles Archipelago," *Geographical Journal* 29 (1907): 148–68.

45. E. Meriton, "Anse Lascar Archaeological Research" (unpublished report to the National Museum, Mahe, India, 9 May 1993); and Meriton, "Supposed Pirates' Marking on Rocks in Seychelles," *Vilaz Lazenes*, no issue or date: 55–56.

46. H. T. Wright, "Early Seafarers of the Comoro Islands: The Dembeni Phase of the IXth–Xth Centuries AD." *Azania* 19, no. 1 (1984): 13–60; C. Allibert, A. Argant and J. Argant et al., "Le site de Dembeni (Mayotte, Archipel des Comores) Mission 1984," *Études Océan Indien* 11 (1989): 63–172; and C. Allibert and P. Vérin, "The Early Pre-Islamic History of the Comores Islands: Links with Madagascar and Africa," in Reade, *Indian Ocean in Antiquity*, 461–70. P. Beaujard, "East Africa, the Comoros Islands and Madagascar before the Sixteenth Century: On a Neglected Part of the World System," *Azania* 42, no. 1 (2007): 15–35, notes exports of Madagascan chlorite schist to the Comoros in this phase.

47. Wright, "Early Seafarers," 35.

48. C. Allibert, "Austronesian Migration and the Establishment of the Malagasy Civilization: Contrasted Readings in Linguistics, Archaeology, Genetics and Cultural Anthropology," *Diogenes* 218 (2008): 7–16.

49. H. T. Wright, "Early Islam, Oceanic Trade and Town Development on Nzwani: The Comorian Archipelago in the XIth–XVth Centuries AD," *Azania* 27, no. 1 (1992): 81–128.

50. P. Vérin and H. T. Wright, "Madagascar and Indonesia: New Evidence from Archaeology and Linguistics," *Indo-Pacific Prehistory Bulletin* 18 (1999): 35–42; Adelaar, "Malay Influence on Malagasy"; R. Blust, "Prehistory of the Austronesian-Speaking Peoples"; and K. A. Adelaar, "Malagasy Culture-History."

51. R. E. Dewar and H. T. Wright, "The Culture History of Madagascar," *Journal of World Prehistory* 7 (1993): 417–66; R. E. Dewar, "The Archaeology of the Early Colonization of Madagascar," in Reade, *Indian Ocean in Antiquity*, 471–86; and Vérin and Wright, "Madagascar and Indonesia: New Evidence." It is difficult to specify a precise chronology for these sites because most have few dates with wide ranges of probability, and sometimes inconsistencies between them.

52. C. Radimilahy, *Mahilaka: An Archaeological Investigation of an Early Town in Northwestern Madagascar* (Uppsala: Societas Archaeologica Upsaliensa, 1998).

53. M. Parker-Pearson et al., *Pastoralists, Warriors and Colonists: The Archaeology of Southern Madagascar*, British Archaeological Reports (hereafter BAR) International Series 2139 (Oxford: Archaeopress, 2010), 514.

54. R. E. Dewar and A. F. Richard, "Madagascar: A History of Arrivals, What Happened, and Will Happen Next," *Annual Review of Anthropology* 41 (2012): 495–517; and R. E. Dewar et al., "Stone Tools and Foraging in Northern Madagascar Challenge Holocene Extinction Models," *Proceedings of the National Academy of Sciences USA* 110, no. 31 (2013): 12583–88.

55. Disagreement between charcoal and OSL dates is not uncommon, and for very similar reasons as here. For example: rat bones in New Zealand were dated two thousand years old by association with OSL, but subsequent reexcavation showed heavy bioturbation, and radiocarbon dates directly on the rat bones then showed that none were older than 1200 CE. J. M. Wilmshurst et al., "Dating the Late Prehistoric Dispersal of Polynesians to New Zealand Using the Commensal Pacific Rat," *Proceedings of the National Academy of Sciences USA* 105 (2008): 7676–80. Ekblom, Anneli, Paul Lane, Chantal Radimilahy, Jean-Aime Rakotoarisoa, Paul Sinclair, and Malika Virah-Sawmy. "Migration and interaction between Madagascar and eastern Africa, 500 BC–1000 AD: An archaeological perspective." In *Early Exchange between Africa and the Wider Indian Ocean World*. edited by G. Campbell, 195–230. New York: Palgrave MacMillan 2006, refer

surreptitiously to our spoken remarks about Lakaton'i Anja and misrepresent our view on OSL dating and Madagascan chronology.

56. Radiocarbon dating measures the age at which an organism died. As trees are often long-lived, and their inner wood is already long dead, many charcoal dates are too old. The old wood problem bedeviled Polynesian radiocarbon dating for many years until routine identification of charcoal to find material from short-lived shrubs or grasses became a routine requirement. That is not yet the case in Indian Ocean island research, largely because there is no readily available expertise to do the identification, so our charcoal dates, along with most others, should be regarded as approximate.

57. R. D. E. MacPhee and D. A. Burney, "Dating of Modified Femora of Extinct Dwarf Hippopotamus from Southern Madagascar: Implications for Constraining Human Colonization and Vertebrate Extinction Events," *Journal of Archaeological Science* 18 (1991): 695–706; D. A. Burney, "Late Holocene Environmental Changes in Arid Southwestern Madagascar," *Quaternary Research* 40 (1993): 98–106; D. A. Burney, G. S. Robinson, and L. P. Burney, "*Sporomiella* and the Late Holocene Extinctions in Madagascar," *Proceedings of the National Academy of Sciences USA* 100 (2003): 10800–10805; E. L. Simons, "AMS ^{14}C Dates for Extinct Lemurs from Caves in the Ankarana Massif, Northern Madagascar," *Quaternary Research* 43 (1995): 249–54; and B. E. Crowley and K. E. Samonds, "Stable Carbon Isotope Values Confirm a Recent Increase in Grasslands in Northwestern Madagascar," *Holocene* 23 (2013): 1066–73.

58. D. A. Burney et al., "A Chronology for Late Prehistoric Madagascar," *Journal of Human Evolution* 47, nos. 1–2 (2004): 25–63; V. R. Perez et al., "Evidence of Early Butchery of Giant Lemurs in Madagascar," *Journal of Human Evolution* 49 (2005): 722–42; and B. E. Crowley, "A Refined Chronology of Prehistoric Madagascar and the Demise of the Megafauna," *Quaternary Science Reviews* 29 (2010): 2591–603.

59. D. Gommery et al., "Les plus anciennes traces d'activités anthropiques de Madagascar sure des ossements d'hippotames subfossiles d'Anjohibe (province de Mahajanga)," *Comptes Rendus Palevol* 10, no. 4 (2011): 271–78, https://doi.org/10.1016/j.crpv.2011.01.006.

60. P. Beaujard, "The First Migrants to Madagascar and Their Introduction of Plants: Linguistic and Ethnological Studies," *Azania* 46 (2011): 169–89.

61. The criteria we used included those from M. Domínguez-Rodrigo et al., "A New Protocol to Differentiate Trampling Marks from Butchery Cut Marks," *Journal of Archaeological Science* 36 (2009): 2643–54. Heavy trampling moves bones within upper sediments, causing scratching and scoring in contact with quartz grit and similar material.

62. Notably, MacPhee and Burney, "Dating of Modified Femora"; and Perez et al., "Evidence of Early Butchery."

63. Whether it occurred around the time of death, either as a cause of that or in subsequent processing of the carcass.

64. This is especially so in the National Museum of Natural History (Paris), where heavy chopping on megafaunal bones appears modern and was seemingly intended to create pegs or similar articles out of subfossil bone.

65. We assume that the cutmark is contemporary with the radiocarbon date but, strictly speaking, all we really know is that it was preexisting (before excavation). It is possible that it was made at some substantial time after the death of the animal. It is important to note as well that radiocarbon dating of bone has improved markedly since most of the earlier determinations on Madagascan megafauna were made in the twentieth century. One consequence is a high rate of dating failure today: of fifty-five bone samples that we submitted for accelerator mass spectrometry (AMS) dating at Oxford University, twenty-seven were rejected during processing. It is probable that many of the bones dated some decades ago would have failed today, and that their results are unreliable.

66. Radiocarbon samples on giant tortoise, elephant birds, and some giant lemurs from our excavations failed to produce results.

67. K. J. Willis, L. Gillson, and M. Virah-Sawmy, "Nature or Nurture: The Ambiguity of C4 Grasslands in Madagascar," *Journal of Biogeography* 35 (2008): 1741–42; M. Virah-Sawmy, L. Gillson, and K. J. Willis, "How Does Spatial Heterogeneity Influence Resilience to Climatic Changes? Ecological Dynamics in Southeast Madagascar," *Ecological Monographs* 79 (2009): 557–74; and M. Virah-Sawmy, "Ecosystem Management in Madagascar during Global Change," *Conservation Letters* 2 (2009): 163–70. These papers show that late Holocene Madagascan vegetation was more heterogeneous in composition than earlier imagined, with forest-scrub-grassland mosaics being natural formations in drier areas rather than variously the results of anthropogenic firing. A summary of these current views is in M. Virah-Sawmy, K. J. Willis, and L. Gillson, "Evidence for Drought and Forest Declines during the Recent Megafaunal Extinctions in Madagascar," *Journal of Biogeography* 37 (2010): 506–19.

68. This concept is drawn from work by B. W. Brook and C. N. Johnson, "Selective Hunting of Juveniles as a Cause of the Imperceptible Overkill of the Australian Pleistocene Megafauna," *Alcheringa* 30 (2006): 39–48.

69. Virah-Sawmy, Willis, and Gillson, "Evidence for Drought." Severe aridification may have played a significant part in extinction of giant lemurs as these often used nonriparian habitats that were already very dry. B. E. Crowley, L. R. Godfrey, and M. T. Irwin, "A Glance at the Past: Subfossils,

Stable Isotopes, Seed Dispersal, and Lemur Species Loss in Southern Madagascar," *American Journal of Primatology* 73 (2011): 25–37.

70. It is possible that early Madagascan colonists, having some domestic animals of their own, did not bother to hunt adult megafauna for food. If they preferred juveniles, especially very young animals, taking them individually as needed and processing them in domestic sites, then not much could be expected to survive. Juvenile bone decays much more rapidly on the ground surface than adult bone, and is often consumed by dogs and other scavengers. Until we have much more evidence from early middens, the rate of predation upon the Madagascan megafauna cannot be estimated. It was, though, potentially significant to "imperceptible overkill" through slaughter of juveniles (Brook and Johnson, "Selective Hunting of Juveniles"). In that case, the scarcity of megafaunal bone in cultural sites, and the still greater scarcity of undoubted butchery damage on collected megafaunal bones that are almost entirely from adult individuals, do not provide useful guides to human-megafaunal interaction in Madagascar or its role in megafaunal extinction.

71. Parker-Pearson et al., *Pastoralists, Warriors and Colonists*, 86–98.

72. Dewar et al., "Stone Tools and Foraging" suggest East African hunter-gatherer settlement of Madagascar by about 2000 BCE. East African migration to Madagascar at about 300 BCE, followed by Greco-Roman contact, then migration from East Africa by Malay seafarers bringing captured African servants in the fifth to seventh centuries CE is proposed by R. Blench, "Evidence for the Austronesian Voyages in the Indian Ocean," in Anderson, Barrett, and Boyle, *Global Origins and Development*, 239–48. Late first millennium BCE colonization of Madagascar by Austronesian seafarers is proposed by: Fuller and Boivin, "Crops, Cattle and Commensals"; and D. Q. Fuller et al., "The Archaeobiology of Indian Ocean Translocations: Current Outlines of Cultural Exchanges by Proto-historic Seafarers," in *Maritime Contacts of the Past*, ed. S. Tripati (Delhi: Kaveri, 2015), 1–23.

73. There has been considerable recent research in this area, notably in the Sealinks Project: Fuller and Boivin, "Crops, Cattle and Commensals"; Fuller et al., "Across the Indian Ocean"; and N. Boivin et al., "Indian Ocean Food Globalisation and Africa," *African Archaeological Review* 31 (2014): 547–81. See also: R. Blench, "The Ethnographic Evidence for Long-Distance Contacts between Oceania and East Africa," in Reade, *Indian Ocean in Antiquity*, 417–38; Blench, "The Movement of Cultivated Plants between Africa and India in Prehistory," *Africa Praehistorica* 15 (2003): 273–92; and Blench, "New Palaeozoogeographical Evidence for the Settlement of Madagascar," *Azania* 42, no. 1 (2007): 69–82.

74. Possibly earlier, as debated by: B. J. Lejju, P. Robertshaw, and D. Taylor, "Africa's Earliest Bananas?," *Journal of Archaeological Science* 33 (2006): 102–13; and R. Blench, "Bananas and Plantains in Africa:

Re-interpreting the Linguistic Evidence," *Ethnobotany Research and Applications* 7 (2009): 363–80.

75. Boivin et al., "East Africa and Madagascar"; and Fuller et al., "Archaeobiology of Indian Ocean Translocations."

76. X. Perrier et al., "Multidisciplinary Perspectives on Banana (*Musa* spp.) Domestication," *Proceedings of the National Academy of Sciences USA* 108 (2011): 11311–18.

77. Boivin et al., "East Africa and Madagascar," 259.

78. A. Ardalan et al., "African Origin for Madagascan Dogs Revealed by mtDNA Analysis," *Royal Society Open Science* 2 (2015), http://dx.doi.org/10.1098/rsos.140552.

79. J. M. Mwacharo et al., "Mitochondrial DNA Reveals Multiple Introductions of Domestic Chicken in East Africa." *Molecular Phylogenetics and Evolution* 58 (2011): 374–82.

80. C. Tollenaere et al., "Phylogeography of the Introduced Species *Rattus rattus* in the Western Indian Ocean, with Special Emphasis on the Colonization History of Madagascar," *Journal of Biogeography* 37 (2010): 398–410.

81. J. M. Duplantier et al., "Evidence for a Mitochondrial Lineage Originating from the Arabian Peninsula in the Madagascar House Mouse (*Mus musculus*)," *Heredity* 89 (2002): 154–58.

82. V. Dubut et al., "Complete Mitochondrial Sequences for Haplogroups M23 and M46: Insights into the Asian Ancestry of the Malagasy Population," *Human Biology* 81 (2009): 495–500.

83. S. Msaidie et al., "Genetic Diversity on the Comoros Islands Shows Early Seafaring a Major Determinant of Human B Biocultural Evolution in the Western Indian Ocean," *European Journal of Human Genetics* 19 (2011): 89–94.

84. M. P. Cox et al., "A Small Cohort of Island Southeast Asian Women Founded Madagascar," *Proceedings of the Royal Society B* 279 (2012): 2761–68.

85. M. Poetsch et al., "Determination of Population Origin: A Comparison of Autosomal SNPs, Y-chromosomal and mtDNA Haplogroups Using a Malagasy Population as Example," *European Journal of Human Genetics* 21 (2013): 1423–28.

86. J. Pijpe et al., "Indian Ocean Crossroads: Human Genetic Origin and the Population Structure of the Maldives," *American Journal of Physical Anthropology* 151 (2013): 58–67.

87. Blench, "Movement of Cultivated Plants"; Boivin et al., "Indian Ocean Food Globalisation"; and Fuller et al., "Archaeobiology of Indian Ocean Translocations."

88. Square sails were the early sail form in the Indian Ocean and China up to the second millennium CE and square or quadrilateral sails were

dominant historically in the islands north of New Guinea. Enigmatic structures on canoes in East Indonesian rock-art probably represent sails but masts are seldom shown and the sails are mainly quadrilateral. S. McGrail, *Boats of the World: From the Stone Age to Medieval Times* (Oxford: Oxford University Press, 2001), 278, 308, 357; S. O'Connor, "Nine New Painted Rock-Art Sites from East Timor in the Context of the Western Pacific Region," *Asian Perspectives* 42 (2003): 96–128; P. V. Lape, S. O'Connor, and H. Burningham, "Rock Art: A Potential Source of Information about Past Maritime Technology in the South-East Asia-Pacific Region," *International Journal of Nautical Archaeology* 36 (2007): 238–53; and W. Ambrose, "Contradictions in Lapita Pottery, a Composite Clone," *Antiquity* 71 (1997): 525–38.

89. P.-Y. Manguin, "The Southeast Asian Ship: An Historical Approach," *Journal of Southeast Asian Studies* 11 (1980): 266–76; Manguin, "Trading Ships"; Manguin, introduction to *Early Interactions between South and Southeast Asia: Reflections on Cross-cultural Exchanges*, ed. P.-Y. Manguin, A. Mani, and G. Wade (Singapore: Institute of Southeast Asian Studies, 2011), xiii–xxxi; and L. S. P. Lacsina, "Traditional Island Southeast Asia Watercraft in Philippine Archaeological Sites" (unpublished manuscript, National Museum of the Philippines, Manila, 2011).

90. McGrail, *Boats of the World*, 297–305.

91. Speculation that ships such as that depicted at Borobudur did sail to Madagascar was indulged by J. Hornell, "Outrigger Devices: Distribution and Origin," *Journal of the Polynesian Society* 52 (1943): 91–100, but without adduction of evidence.

92. C. Breen and P. J. Lane, "Archaeological Approaches to East Africa's Changing Seascapes," *World Archaeology* 35 (2004): 469–89, say the grafitti are thirteenth to sixteenth century CE. R. J. Whitewright, "Maritime Technological Change in the Ancient Mediterranean: The Invention of the Lateen Sail" (PhD diss., University of Southampton, 2008), has fifteenth century for square-sailed ships resembling *mtepe* at Zanzibar and sixteenth century for the earliest depiction of a lateen rig.

93. J. Hornell, "Indonesian Influence on East African Culture," *Journal of the Royal Anthropological Institute* 64 (1934): 305–32.

94. J. Fleisher et al., "When Did the Swahili Become Maritime?," *American Anthropologist* 117 (2015): 100–115.

95. G. Boulinier and G. Boulinier-Giraud, "Chronologie de la pirogue à balancier: Le témoignage de l'océan Indien occidental," *Journal de la Société des Océanistes* 50 (1976): 89–98.

96. Rejected by A. Pawley and M. Pawley, "Canoes and Seafaring," in *The Lexicon of Proto Oceanic: The Culture and Environment of Ancestral Oceanic Society*, vol. 1, *Material Culture*, ed. M. Ross, A. Pawley, and M. Osmond, series C, 152 (Canberra: Pacific Linguistics, 1998), 173–209; and also by A. Pawley, "The Austronesian Dispersal: Languages, Technologies

and People," in *Examining the Farming/Language Dispersal Hypothesis*, ed. P. Bellwood and C. Renfrew (Cambridge: McDonald Institute Monographs, 2002), 251–73. Accepted by A. Pawley, "The Origins of Early Lapita Culture: The Testimony of Historical Linguistics," in *Oceanic Explorations: Lapita and Western Pacific Settlement*, ed. S. Bedford, C. Sand, and S. Connaughton, Terra Australis 26 (Canberra: Australian National University Press, 2007), 17–49, who also accepts Proto Malayo-Polynesian **(c,s)a(R)man* = outrigger float on meanings that, at best, refer to the float indirectly.

97. Pawley and Pawley, "Canoes and Seafaring"; and A. Pawley, "Austronesian Dispersal." These terms are: **patoto* = outrigger connecting sticks; **katae* = canoe side without outrigger, and **kiajo* = outrigger boom. Some of them may refer not to outriggers in the modern sense, but to their precursors, such as bamboo floats attached to hulls. Proto-Oceanic is associated with Lapita culture, dating about 1200–600 BCE.

98. C. Ballard et al., "The Ship as Symbol in the Prehistory of Scandinavia and South-East Asia," *World Archaeology* 35 (2003): 385–403; D. Bulbeck, "An Integrated Perspective on the Austronesian Diaspora: The Switch from Cereal Agriculture to Maritime Foraging in the Colonisation of Island Southeast Asia," *Australian Archaeology* 67 (2008): 31–51; O'Connor, "Nine New Painted Rock-Art Sites"; and Lape, O'Connor, and Burningham, "Rock Art."

99. Depicting outriggers might have been difficult in the side-on perspective adopted. Lape, O'Connor, and Burningham, "Rock Art."

100. Lape, O'Connor, and Burningham, "Rock Art," explain the deficiency of the Chinese case. See McGrail, *Boats of the World*, 266, 307, on outriggers.

101. Pawley and Pawley, "Canoes and Seafaring," 195–97; and A. Pawley, "Origins of Early Lapita Culture," 27–28. The earliest term for rigging is Proto–Central Pacific, **tuku* = running stay.

102. Fuller and Boivin, "Crops, Cattle and Commensals," 24–25; Fuller et al., "Across the Indian Ocean," 553; and Fuller et al., "Archaeobiology of Indian Ocean Translocations," 13–14.

103. For descriptions, depictions, and distributions of the double spritsail and oceanic spritsail see E. Doran Jr., *Wangka: Austronesian Canoe Origins* (College Station: Texas A&M University Press, 1981), 42, 80–81. A. Horridge, "The Evolution of Pacific Canoe Rigs," *Journal of Pacific History* XXI (1986): 83–99, depicts the Pacific form of the double spritsail, in this case from Melanesia.

104. L. Casson, *Ships and Seamanship in the Ancient World* (Baltimore: Johns Hopkins University Press, 1995), 244.

105. A. Anderson, "Catching the Wind: The First Great Phase of Oceanic Colonization" (lecture, New Zealand Aronui Lecture Series, Royal

Society of New Zealand, 2014). A. Schottenhammer, "The 'China Seas' in World History: A General Outline of the Role of Chinese and East Asian Maritime Space from Its Origins to c. 1800," *Journal of Marine and Island Cultures* 1 (2012): 63–86, thinks that functional sails may not have been in use in China until about 500 BCE, but agrees that they were probably invented by people such as the Yue, who were, as it happens, part of the Southeastern non-Han population from which sprang the Austronesian speakers.

106. Captain Cook and Joseph Banks commented on the absence of a windward capacity in the Maori sailing rig, the Austronesian form of the double spritsail. Modern examples of the spritsail in Madagascar have a useful windward capacity but we note that in these, one sprit is stepped and stayed as a mast so the rig is now effectively a common spritsail, not a double spritsail.

107. S. M. Fitzpatrick and R. Callaghan, "Seafaring Simulations and the Origin of Prehistoric Settlers to Madagascar," in *Islands of Inquiry: Colonization, Seafaring and the Archaeology of Maritime Landscapes*, ed. G. Clark, F. Leach, and S. O'Connor (Canberra: Australian National University Press, 2008), 47–58.

108. I. D. Goodwin, S. Browning, and A. Anderson, "Climate Windows for Polynesian Voyaging to New Zealand and Easter Island," *Proceedings of the National Academy of Sciences USA* 111 (2014): 14716–21.

109. The existence of the lateen sail in the Indian Ocean before the arrival of the Portugese is uncertain. Iconographic depictions date to no earlier than the fifteenth century, but slight archaeological data suggest it may have been used by the thirteenth or fourteenth centuries and perhaps earlier. Whitewright, "Maritime Technological Change," 166.

110. Boivin et al., "Indian Ocean Food Globalisation," 554.

111. As proposed variously by Beaujard, "First Migrants to Madagascar," Figure 1; and R. Blench, "Two Vanished African Maritime Traditions and a Parallel from South America," *African Archaeological Review* 29 (2012): 281. Other scholars suggest a midoceanic staging point such as the Maldives or Sri Lanka; for example, Fuller et al., "Archaeobiology of Indian Ocean Translocation," 15.

112. K. A. Adelaar, "The Indonesian Migrations to Madagascar: Making Sense of the Multidisciplinary Evidence," in *Austronesian Diaspora and the Ethnogenesis of People in Indonesian Archipelago*, ed. T. Simanjuntak, I. H. E. Pojoh, and M. Hisyam (Jakarta: LIPI Press, 2006), 221.

113. As envisaged, for example, by B. Domenichini-Ramiaramanana, "Madagascar," in *A General History of Africa*, vol. 3, *Africa from the Seventh to the Eleventh Century*, ed. M. Elfasi and I. Hrbek (Paris: Heinemann, 1988), 681–703, although his hypothesis included earlier Southeastern Asian migration to Madagascar. E. A. Alpers, "Indian Ocean Africa: The Island

Factor," in *East Africa and the Indian Ocean*, ed. E. A. Alpers (Princeton, NJ: Marcus Wiener, 2009), 39–51, envisages a lengthy island-hopping movement down the coast of East Africa, and its creolizing impact on Indonesian immigrants, before migration to Madagascar. The hypothesis of Southeast Asian migration along established trade routes to East Africa and thence to the remote islands is almost precisely opposite to that preferred by Allibert, "Austronesian Migration."

114. G. W. B. Huntingford, *The Periplus of the Erythraean Sea* (London: The Hakluyt Society, 1980), 1; M. W. Lewis, "Dividing the Ocean Sea," *Geographical Review* 89 (1999): 188–214; Vink, "'New Thalassology,'" who notes that "Green Sea" was also a Persian name; and Dr. Thorsten Foegen, Department of Classics and Ancient History, University of Durham, personal communication, 2010.

115. As observed by Toussaint, *History of the Indian Ocean*, 6–7.

116. More than 500 km or so offshore, the northeast monsoon winds turned northwesterly and flowed intermittently over the Seychelles and Chagos. The northwesterlies blowing offshore into an apparently empty ocean were probably a danger known to early navigators that reinforced their persistence with coastal routes.

117. Tradewind-adapted seafaring was the primary agency of interoceanic globalization in the sixteenth to eighteenth centuries.

118. The story is legendary. "Hippalus" is more probably a misspelling of *hipalum*, meaning "the wind from below or under the sea" (i.e., from the unknown regions to the south), according to McGrail, *Boats of the World*, 256.

THREE

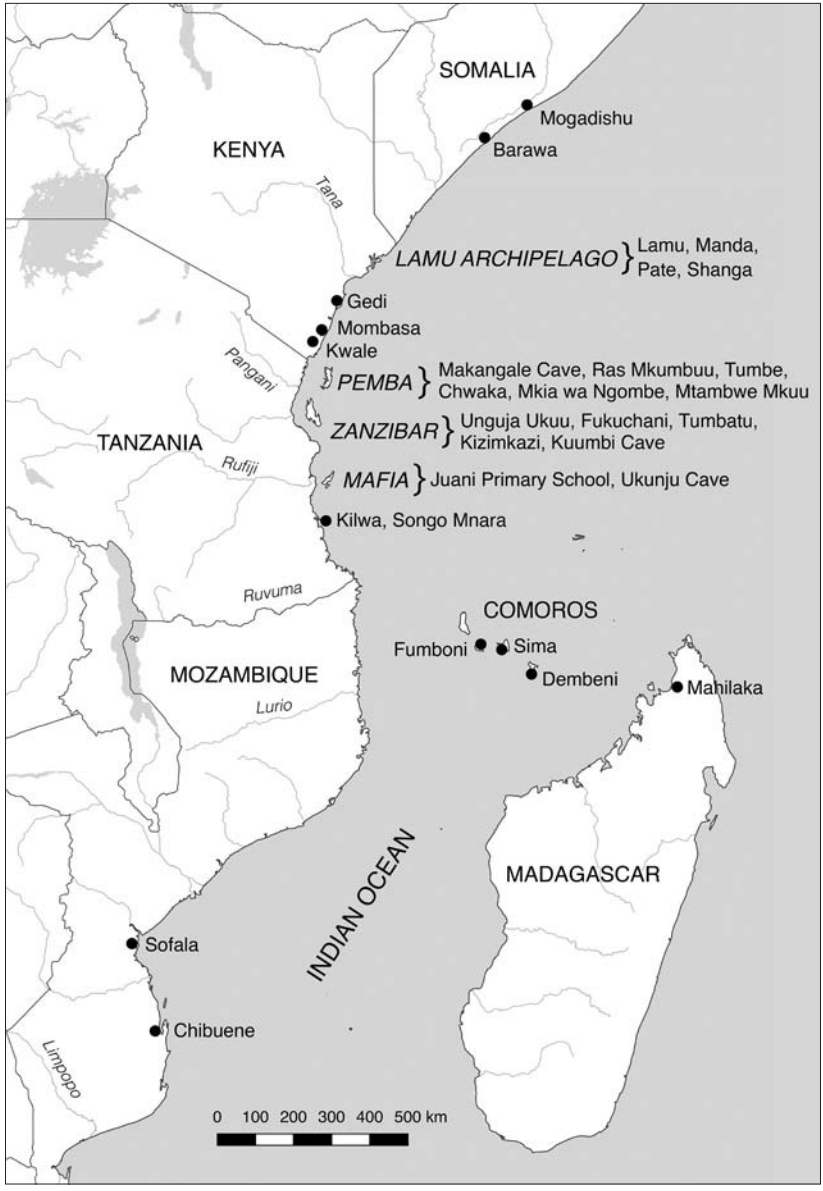
Facing Mecca from Africa

Islam and Globalization on the Swahili Coast during the First Millennium CE and Beyond

MARK HORTON, ALISON CROWTHER,
AND NICOLE BOIVIN

THE SWAHILI COAST OF East Africa borders the Indian Ocean along some 3,000 km of coastline and adjacent islands (map 3.1). Historically, and for at least two millennia, it was a region where the maritime trading systems of the western Indian Ocean intersected with the indigenous exchange networks that extended throughout eastern and southern Africa.[1] The Swahili, the indigenous people who live along the coast, and their antecedents came to act as cultural brokers between the African and Oceanic worlds, transforming commodities, ideas, religion, and values. While historians and anthropologists have documented this process in some detail for the early modern and modern periods,[2] archaeologists are only just beginning to shed light on its ancient origins.

This chapter will examine the emergence of the Swahili Coast as part of the wider Indian Ocean world, focusing on the latest archaeological



MAP 3.1. The Swahili coast, East Africa, showing sites and other locations mentioned in text.

evidence from the region for the first millennium CE. It will explore how long-distance connections developed through the expansion of Indian Ocean trade and exchange, and how this commercial exchange was interwoven with the spread of Islam to eastern Africa. This process of intensifying engagement and cross-cultural interaction is increasingly recognized as a form of "globalization" or, in its incipient phases, "protoglobalization."[3] Understanding of the globalizing processes active on the early Swahili Coast constitutes part of a broader recognition that globalization was a factor in world history long before the expansion of European power in the colonial era.[4] This perspective is important to Africanists, as it enables us to argue for much earlier connections between Sub-Saharan Africa and the wider Indian Ocean world than often recognized by historical discourse—continental Africa was not an isolated appendage, but a significant element in the Eurasian world for at least the last two millennia.

The key to understanding protoglobalization processes, at least from an East African perspective, is through the study of the Swahili themselves. During the 1970s and 1980s, there were a number of debates concerning the identity of the Swahili, and whether they comprised a definable or single ethnic group, or were simply a people who happened to speak the Swahili language, a product of colonial classification, or indeed whether they were an African society at all, rather than simply a group of creolized Afro-Arab communities.[5] Among anthropologists and most archaeologists, a consensus view has now emerged that the Swahili are a definable and complex African society of considerable antiquity. That definition includes features such as a maritime orientation and trade, largely urbanized communities, adherence to Islam, and the use of Swahili as a language.[6] The distribution of the Swahili people and their culture is generally accepted to extend from southern Somalia through coastal Kenya and Tanzania to northern Mozambique, and includes the islands of Pemba, Zanzibar, and Mafia, as well as the Comoros (map 3.1). The southern limit of Swahili-speakers nowadays is the Kirimba Islands, although maritime contact extended further south along the coasts of Mozambique and northern Madagascar, and these communities have also been claimed as formally part of the Swahili world.[7]

These Swahili societies and their antecedents have become the focus for archaeological work in recent decades. With an archaeological

perspective comes a longer time frame than would normally be considered by historians and linguists. Have all these features been present in Swahili society since time immemorial? Do they all need to be present to define Swahili culture? Can we think about a process of Swahili ethnogenesis? Is Islam a key defining feature, or are we able to identify pre-Islamic Swahili? Was a maritime orientation always present?

This chapter is framed around the research findings of the European Research Council–funded Sealinks Project, hosted by Oxford University, which has examined how the early settlements of the East African coast were connected to a globalizing Indian Ocean world during the first millennium CE.[8] This has involved excavations both on the African mainland coast and hinterland, and the near-shore islands (Zanzibar, Pemba, and Mafia), and in 2013–15 extended to northern Madagascar and the Comoros. The Sealinks methodology has involved targeted, small-scale excavations at key trade and settlement sites, with a strong emphasis on the recovery of carbonized materials (such as crop seeds) to trace early agriculture, direct radiocarbon-dating of a large number of plant and animal remains to construct reliable absolute chronologies for trade and biological translocations, scientific identification of introduced fauna using proteomic and ancient DNA studies, and the recovery and geochemical analysis of other key economic indicators such as vessel glass, glass beads, ceramics, and metalwork.[9]

SWAHILI ORIGINS AND THE BEGINNING OF GLOBALIZATION

Linguistically, Swahili forms part of the Northeast Coastal Bantu group of languages, whose main distribution lies along the Kenyan and northern Tanzanian coasts.[10] The chronology of the separation of Swahili from the other languages in this group is suggested at around one thousand years ago. It is generally thought that the NE Coastal Bantu speakers can be identified archaeologically with the first farmers, who arrived on the coastal hills around 200 CE (or possibly earlier, although there is a dearth of reliable dates), and whose pottery is generally termed "Kwale" ware, after the type site discovered in the 1960s.[11] Pushing back the chronology of this Kwale tradition just a century or so suggests a possible identification with the inhabitants of Rhapta and the adjacent island of Menouthias, the trade entrepôt mentioned in the *Periplus*

Maris Erythraei (c. 50 CE) and *Geographia* of Claudius Ptolemy (c. 150 CE).[12] These classical period texts supply detailed information on the inhabitants of the eastern African coast, then referred to as Azania, and their culture, including the use of sewn boats, dugout canoes, and fishing methods both from boats and using basket traps. In this model, we have two thousand years of continuous settlement and trade on the east coast, providing a neat scenario for Swahili origins and an unbroken record of maritime commerce connecting East Africa with the Indian Ocean world. If we can locate either Rhapta or Menouthias, we would have a much better understanding of the early stages of this process and a definite link between the classical texts and the archaeology.

Some new material from the Sealinks excavations at the Juani Primary School site in the Mafia archipelago[13] shows that Kwale tradition ceramics were present on the East African near-shore islands, confirming the earlier discoveries of Tanzanian archaeologist Felix Chami.[14] Study of the subsistence economy on the site suggests that the Kwale inhabitants were maritime in orientation, with fish and shellfish forming their diet, with no domesticated crops or animals. They were also manufacturing shell beads in quantity, possibly for local or interregional trade with the mainland. The Mafia evidence does demonstrate that these presumably early Bantu speakers were capable of crossing open areas of ocean and adopting a marine subsistence in a manner that closely parallels the description in the *Periplus*. However, radiocarbon dates so far place this occupation between c. 390 and 540 calibrated years (cal) CE,[15] at least some three hundred years later than the time of the *Periplus*, so at present a direct association is not possible. Our excavations also found no in situ evidence of the early Indian Ocean trade described in the *Periplus* and *Geographia*, which is often assumed to have been active along the whole coast region even in the fifth century CE.[16] If trade was indeed occurring at this time, however, it may have been isolated to only a few entrepôts, such as the archaeologically elusive Rhapta.

The Sealinks Project also investigated a number of cave sites on the near-shore islands where published claims have been made for classical trade items in association with seemingly early stratified Neolithic and Later Stone Age (LSA) levels (i.e., pre–Iron Age). Our reexamination of Ukunju Cave in the Mafia archipelago, for example, showed that the late first millennium BCE / early CE "Neolithic" levels, where a number of glass beads were found, in fact dated to the later first millennium CE,

and the glass beads were likely Indo-Pacific beads of types widely seen at this later period.[17] While the Kwale ware site is just 2 km away, not a single sherd of Kwale pottery was found in our excavation at the site, suggesting that these early Bantu speakers generally avoided these caves.

The other two islands of Zanzibar and Pemba are also candidates for the *Periplus*'s Menouthias. Extensive survey in the southern part of Zanzibar failed to produce any significant Kwale sites, beyond a few sherds in cave deposits and in later levels in coastal sites.[18] At Kuumbi Cave, excavation of a long sequence of LSA occupation that may have spanned the "classical" period did not recover a single convincing import from this period. The "Neolithic" pottery identified there by previous excavators[19] most likely dates to the later first millennium CE or Middle Iron Age, as demonstrated by our recent direct luminescence dating of a sample of sherds.[20]

The island of Pemba fits the *Periplus*'s description of Menouthias more closely than either Mafia or Zanzibar. It is a very fertile island with many small rivers and low-lying hills, and also lies close to the African mainland, where many of the significant Kwale sites have been found. Its topography closely matches the *Periplus*'s description: "It is low and wooded and has rivers, a wide variety of birds, and mountain tortoise."[21] Pemba's identification as Menouthias was until recently largely rejected, as the *Periplus* described crocodiles present on the island, and none are there now or were known historically.[22] However, the Sealinks excavation of a cave at Makangale in northern Pemba has revealed the presence of crocodile bones with dates through the second millennium CE. The cave also contains cultural remains dating back to the seventh to eighth century CE, alongside evidence for introduced Asian black rat.[23] The crocodiles may have been using the cave as a nest or were possibly the result of human predation. Nonetheless, despite very comprehensive and systematic survey in northern Pemba, not a single piece of Kwale pottery has yet come to light. The explanation may be related to rapid deposition of soil in some places and heavy erosion in others, making site location difficult. Alternatively, it is possible that during the *Periplus* era, Pemba was not occupied by Iron Age groups with Kwale ceramics, but rather by more mobile foragers whose ephemeral archaeological signature has yet to be recognized on the island.

Thus, while good historical accounts of classical-era trade exist, actual archaeological evidence for it remains elusive.[24] Since the 1980s,

a significant number of projects have intensively surveyed and studied many of the likely areas with minimal results. Early Iron Age sites with Kwale tradition ceramics of the right period have been located on the mainland but no certain imports have been found in clearly stratified contexts—an archaeological absence that is difficult to reconcile with expectations that imported and identifiable trade goods such as glass beads, vessel glass, and pottery would also occur.[25] One explanation may be the complex ways in which these exotic commodities were being processed and exchanged within indigenous Iron Age society. The presence of shell bead-making at Juani hints, for example, at a degree of craft specialization that might be linked to a trade network with the interior (where shell beads have also been found). The quantity of classical imports may have been at such a very low level that simply not enough sites have yet been excavated or recovery has not been good enough to locate this material.

The beginning of significant globalized trade with East Africa therefore really belongs to the seventh century onward. In the seventh century, when Mediterranean trade was at a low ebb,[26] the Indian Ocean world was developing monsoon-based trading systems that connected the late Sasanian Gulf region, western and southern India, Sri Lanka, Indonesia, and probably beyond into the Gulf of Thailand, as evidenced by the recent discovery of an eighth-century Western-type shipwreck near Bangkok.[27] These trade routes led to the spread of Buddhism to Southeast Asia, and Islam into India and East Africa following its rise in the seventh century CE.[28] The growth of port cities such as Siraf and Sohar in the Gulf was linked to the development of this monsoon-based trade, which by the mid-eighth century also connected China and island Southeast Asia with the western Indian Ocean.[29]

In East Africa, there was also an important disjunction in the cultural sequence in the seventh century CE, which complicates claims for Swahili continuity from the Early Iron Age. Archaeologists have identified and excavated a number of key sites along the East African coast, where occupation, dating to the second half of the first millennium CE, can be recognized as "Swahili," both in urban form and historical and ethnographic record. In some cases, these sites continued to be occupied into the early modern period or beyond. Examples include Shanga and Manda in the Lamu Archipelago, Tumbe/Chwaka and Unguja Ukuu on Pemba and Zanzibar, and Kilwa in Tanzania.[30] In all of these cases

(and many other sites known to date to the second half of the first millennium CE), the earliest ceramic is not Kwale, but a distinct tradition known as Tana (or Early Tana Tradition [ETT], or TIW).[31] The dating of ETT pottery in all the investigated sites has been shown to be no earlier than the late sixth century CE, suggesting a short break, or possibly an overlap, between Tana and Kwale. On some early Tana sites such as Unguja Ukuu and Fukuchani (also on Zanzibar) there are small quantities of Kwale pottery, but in amounts suggestive of exchange with Kwale groups rather than any transition between the traditions. Despite several attempts to show that Kwale "evolved" into Tana ware,[32] many archaeologists continue to argue that they are distinct traditions, with different Iron Age origins in Africa.[33] It seems possible that the "Tana" populations displaced the earlier "Kwale" ones at some point in the middle of the first millennium CE. Much more systematic research on these ceramics as well as secure dating evidence is desperately needed to clarify their stylistic, technological, and chronological relationship to one another.

The makers of Tana pottery were linked into Indian Ocean trade networks from the earliest phase of settlement in coastal villages and towns, beginning at around 600 CE. This is clear from the ceramics at these sites, with imports forming between 3 and 10 percent of the total ceramic assemblage, as well as from the presence of imported glass beads and vessels. At Fukuchani, in northern Zanzibar, which dates to the early seventh to eighth century, the imports are characterized by unglazed torpedo jars—the type-fossil of late Sasanian trade from the Gulf. The site of Unguja Ukuu, dated in Sealinks excavations by some thirty-one radiocarbon determinations,[34] began by the mid-seventh century, with a sequence that extends to the eleventh century.[35] It contains a remarkable assemblage of imported ceramics, including Gulf, Indian, and Chinese wares, that makes up to 10 percent of the total pottery assemblage at the site, as well as glass, glass beads, copper and bronze, and much iron and iron slag.[36] It has no masonry buildings until the tenth century. Subsistence was based around fish and shellfish, hunted wild animals, and a small minority of domesticated animals. The crops from the Unguja Ukuu excavations are almost entirely African millets though small quantities of Asian rice, mungbean, and wheat have also been found. Unguja Ukuu and many other sites were the settlements of African fishing and farming communities, who were able to exploit

their location to engage in long-distance maritime trade and through this become increasingly large and wealthy. Unguja Ukuu began as a small village of 2–3 hectares (ha.), but at its height in the tenth century, covered over 20 ha.

One aspect of the globalization of these early Swahili sites that is still extremely poorly understood is the possible impact of Austronesian or Southeast Asian contact. Investigation of this axis of interaction has drawn us to investigate sites in both the Comoros and Madagascar, where the presence of Tana tradition pottery is more slight and balanced with the presence of shell-impressed and red-slipped wares (known in the Comoros as Dembeni-phase ceramics).[37] Indeed, there is a cline across the Comoros in which the westerly island of Grande Comore has a higher proportion of Tana pottery, the most easterly island of Mayotte has a higher proportion of Dembeni wares, and Anjouan, in the middle, has a mix of the two.[38] Another feature of the Comoros is the near absence of African crops, with subsistence assemblages instead dominated by Asian rice and mungbean.[39] The sites are probably eighth century onward. Dembeni ceramics have not yet been found on Madagascar, although a local variant decorated using shell-impressed dentates has been found in post-tenth-century levels at Mahilaka,[40] the main early trading settlement in northwest Madagascar. A site with pure Tana ceramics, possibly a Swahili colony, has been found in the south of the island but has yet to be excavated and properly recorded.[41]

It seems plausible, based on the archaeological patterns observed at sites in the Comoros and Madagascar, that the Austronesian / Southeast Asian settlement of Madagascar may have been via or coincident with the settlement of the Comoros, and that the Comoros may have had a mixed Proto-Swahili and Austronesian culture in the first millennium. This cosmopolitan cultural milieu may have provided a route for Southeast Asian elements (such as bananas and coconuts, rice cultivation, outrigger canoes, and domestic chicken) into Swahili culture. The potential role of the Indian Ocean slave trade in the Southeast Asian settlement of both the Comoros and Madagascar has been little discussed apart from occasional references.[42] These often observe the description in the c. mid-tenth-century *Book of the Marvels of India* (*Kitab al-Ajaib al-Hind*) of the attacks by people called Wakwak—frequently identified with Austronesian speakers from Southeast Asia or Madagascar—on African populations dwelling on the near coastal islands and coastal

mainland.[43] These Wakwak apparently sought leopard skins, slaves, and possibly iron. Claude Allibert suggests two separate corridors of slave trading: the more well-known route between Africa and Arabia that was controlled by the Arabs, as well as another possible African-Asian route dominated by Southeast Asians, who may have settled in small Islamized communities in the Comoros and Madagascar.[44] The ability of archaeology to shed light on this slave trade in the absence of historical sources is currently limited, though genetic studies have a potential role to play.

ISLAM, URBANISM, "MARITIMENESS," AND THE DEVELOPMENT OF SWAHILI CULTURAL IDENTITY

The early Swahili sites of the mid- to late first millennium CE were neither urban nor Islamic. Self-evidently, if early Tana sites date from c. 600 CE, their earliest levels cannot be Islamic. The process of Islamization can be seen at Shanga, where the earliest mosque dates to c. 780 E, and where a series of timber mosques was rebuilt on the same site until the tenth century. Thereafter, there is a small stone mosque, followed by a much larger structure that continued in use until the fifteenth century.[45] This timber-to-stone mosque sequence has also been found at Ras Mkumbuu on Pemba, where there is a timber building followed by two stone mosques,[46] and possibly at Old Sima in the Comoros, where postholes were found below the stone mosque.[47]

It might be argued that these early mosques represent places for visiting merchants to pray.[48] This is, however, unlikely, as the burials excavated in contemporary levels at Shanga include both women and children interred according to Islamic conventions, suggesting that local communities had been, or were in the process of, converting to Islam. Excavations at Shanga were also able to identify a converted African "dynasty" that minted Islamic-style silver coins from the ninth century onward. While stone inscriptions from East Africa, using locally carved coral, only date from the early twelfth century, evidence of local issues of coins such as this shows clearly that local Muslim rulers were minting their own coins in between the ninth and twelfth centuries, not just on Shanga (and nearby Manda), but also on Pemba, Zanzibar, and Mafia.[49]

The archaeological evidence provides a more robust case for the early conversion to Islam of coastal East African communities than do

the historical sources, which are very ambiguous and often contradictory. For example, while al-Mas'udi provides an eyewitness account of what he implies is the only Muslim community living on the island of Qanbalu (most likely Pemba / Ras Mkumbuu) in 916 CE, later writers, such as twelfth century al-Idrisi,[50] deny the presence of Muslims south of Barawa (in Somalia), although al-Idrisi does note a mixed Muslim community in the Comoros.

The tone of many of the Arab writers is for a non-Islamic East African coast. In fact, their descriptions are useful in visualising the nature of indigenous religious practices more so than Islamic. Abu Said al-Hasan, writing in the ninth century, describes men "devoted to religious life" who are covered in leopard or monkey skins and who make long and eloquent speeches,[51] a practice that is recorded widely in African ethnography. Al-Mas'udi notes the key role that religious leaders rather than kings enjoyed and the significance of ancestors in religious practice.[52] Al-Idrisi describes standing stones being worshipped and anointed with fish oil.[53] This is a curious reference, as standing stones are not known on the East African coast.[54]

These traditional religious practices may have made the conversion to Islam rather easier, creating a preadaptation to Islam with a partly institutionalized religion that ensured that an acceptance of Islam did not require too many social or political changes. The adoption of Islam by coastal communities would also have facilitated their connection into the trading world of the Indian Ocean, which Chaudhuri describes as a "Muslim lake" by the latter half of the second millennium CE.[55] Visiting merchants and seafarers could be guaranteed safety in the Islamic ports, and the material culture and social practice that may have come with Islam would have provided for a degree of comfort and familiarity. Critically, there was a demand for Indian Ocean luxuries such as ceramics, glass, and cloth that were not locally available.

We do begin to see changes in the archaeological record, in material culture, cuisine and food consumption, as well as religious practice and architecture, that can be linked to Islamization, but only gradually. Literacy in Arabic was clearly implied among an elite, with the minting of coins and production of inscriptions. Where sites have been excavated that span the likely period of conversion to Islam in the later eighth century, it is noticeable that there are a few cultural changes that mark the shift. The clearest sequence is at Unguja Ukuu, where the earliest stone

building is likely to have been a mosque, dating to the tenth century,[56] but there are a full three centuries of earlier occupation associated with timber and daub structures, as was also recorded at Shanga. One interesting find in levels dating to the mid-eighth century CE was a bronze incense burner, an imported artifact, but used for burning locally sourced copal incense, and perhaps associated with Islamic practice.[57]

The remarkable living stonetowns of Lamu and Pate, or the walled towns on the Comoros, such as Fumboni, give the impression of great age for this urban culture, backed up by the many ruined sites such as Shanga, Gedi, or Kilwa. When the Portuguese arrived on the East African coast in the late fifteenth century, they too found a fully urban culture with large stonetowns, facing the sea and using ships that were larger than their own. This was a well-developed "city-state culture."[58] In fact, this stone architecture began not that much earlier than Portuguese contact.

Swahili "stone" architecture uses coral rag and lime construction—drawing on materials readily available on the coast—which produces permanent and impressive ruins. However, for domestic architecture at least, this method of construction dates only to the beginning of the fourteenth century; before this most houses were built from wattle and daub. Even after this date, many of the "towns" were constructed using these organic materials, and stone houses were often a rarity. Only mosques and tombs were built in stone, and many of the earlier examples use undersea-quarried *Porites* coral rather than the much harder terrestrial coral rag. At Chwaka (Pemba), a major fifteenth-century site with import-rich levels, there was a single stone house, although there were both stone tombs and three stone mosques.[59] Recent excavations in 2013 in the "open" areas of the large stonetown of Songo Mnara located several daub-walled houses, providing a different plan to that achieved from simply mapping stone ruins.[60]

An interesting insight into the urbanization process comes from Jeff Fleisher's work in northern Pemba.[61] Through extensive and randomized survey, he was able to map the distribution of sites over time. This exercise showed a dense rural population, located in small settlements during the early Tana period, up until the eleventh century. At this point there was widespread abandonment of these rural sites and a shift to the developing ports (such as Mkia wa Ngombe, Mtambwe Mkuu, and Chwaka). These proto-urban sites contain stone tombs and mosques

and cover up to 15 ha. in total area, with assumed populations of several thousand.[62] Many of the large first-millennium CE sites, such as Unguja Ukuu and Tumbe, which were little more than overgrown villages but with extensive trade networks, were abandoned around the turn of the millennium, and a new kind of Swahili settlement seems to emerge around these new towns, with a stronger sense of urban planning and spatial order.[63]

We would argue that Swahili communities acquired both Islam and urbanism over time, and while these features may have defined "Swahiliness" in later centuries, they were not necessarily always present from the start but gradually adopted as part of a process of globalization in which these African societies were exposed to ideas, practices, and material culture from around the Indian Ocean.

A similar argument can be applied to the adoption of a maritime culture. The Swahili have long been considered to be strongly maritime. The sea dominated their food, location of settlements, the practice of trade, even their literature and poetry. As all the early Swahili sites are found on the coast, it might be assumed that this was always the case. However, Swahili 'maritimeness,' like Islam and urbanism, is something that Swahili communities acquired over time.[64] A range of evidence, from the study of fishbones[65] to the study of mosque and house location, suggests that the strong maritime identity of the Swahili only dates from the twelfth or thirteenth century, and before this sites were often set back a little from the sea, fishing did not involve open sea activity, and diets were terrestrial in focus. The emerging towns develop plans that are sea-facing, with the provision of mosques that are located on the beach and are intended to be seen from the sea.

FACING MECCA ACROSS THE SEA

The current renewed interest in global histories, and with this, aspects of world systems theory, tends to take a position that civilizations create networks of interaction that may extend to peripheral zones. Understanding the culture-history of these peripheries requires an understanding of wider global forces that may be operating, often a large distance away. The Swahili are sometimes seen as one such peripheral zone, responding to global economic forces that were operating in the late classical, Islamic, European, or even East Asian worlds. In particular,

their practice of Islam is seen as marginal and distant from the central Islamic lands.

For those of us working on the East African coast, the core/periphery model seems somewhat inappropriate, removing any agency from the Swahili to develop their own global networks, and seeing them as passive responders to global forces. As more research is done in the western Indian Ocean, it is clear that there was a major African presence beyond African shores in the medieval period. Tana pottery, largely used for cooking, has been found at Sharma (Yemen),[66] Ras al-Hadd (Oman),[67] and Siraf (Iran), suggesting the presence of African communities there. Africans seem to have been sailors (as shown, for example, on the famous thirteenth-century Hariri ship illustration),[68] and through the slave trade, could have moved to important political positions (such as the later Mamluks did), or formed distinct local communities far away from African shores.

The East African perspective also enables us to understand how global pressures may have impacted (or been ignored by) local communities. An interesting example is the adoption of rice—an Indian and Southeast Asian crop.[69] Rice first appears as a main staple food in the eighth century in the Comoro Islands. Mahilaka in northwestern Madagascar also became a major rice consumer, with archaeological evidence indicating a massive investment in irrigation systems and the construction of dams, reservoirs, and paddies in the vicinity of the site. This adoption of rice does not spread to the central and northern Swahili Coast for another three hundred years. Early Tana sites such as Unguja Ukuu used African millets, and only a few grains of rice have been recorded—probably from ship-borne cargos. The switch to rice was recorded at Chwaka in Pemba (another ideal place to grow rice) in the twelfth century, where it rapidly became the dominant food.[70] By the sixteenth century, historical sources record that Pemba became a major supplier of "grain," by which was probably meant rice, to Mombasa and adjacent areas. Even in recent times two similar towns, Pate and Lamu, adopted different staple foods—communities in Pate ate millets, whereas those in Lamu consumed rice.[71] The conclusion is that this global crop, even though well known, was only selectively adopted, for complex and little-understood cultural reasons.[72]

A similar story exists in the study of imports found in archaeological levels. What survives tends to be inorganic materials—ceramics,

glass, beads, metalwork—and these may be not fully representative: items such as cloth may have been one of the major imports, as it was in the premodern period.[73] However, these inorganic materials do offer an indicator of the main direction of trade and exchange. Glass beads are particularly useful, as they can be chemically analyzed, and much work is currently being done on bead provenancing.[74] What emerges from these studies is a pattern of complexity across space and time. The four main glass bead–producing areas (Middle East, western and southern Asia, southeast Asia) are represented on many Swahili sites, but in different proportions and at different dates. Significantly, glass beads are also items that find their way into the African interior,[75] allowing the prospect for more fully understanding coast-interior exchanges. That glass bead types found on archaeological sites reflect African consumer preferences, as observed in more recent African societies,[76] is a possibility that is rarely considered. These beads likely reflect both consumer desires and the trade relationships in which Africans played an active role.[77]

Complex patterns and intracommunity differences are also observed in the imported pottery from early archaeological sites on the coast, where assemblages provide quite different compositions of wares from Arabia, the Gulf, western and southern India, and East Asia. Thus, for example, the eighth-to-ninth-century site of Chibuene in southern Mozambique has imported white-glazed pottery, but little turquoise-glazed ware, in complete contrast to contemporary Unguja Ukuu,[78] while the Comoros sites have both, but early Chinese pottery is absent.[79] A little later, in the thirteenth century, the Pemban sites continued to trade with the Gulf, while sites on Zanzibar, Lamu, and Kilwa reoriented their networks toward southern Arabia. Tumbatu, a small island off Zanzibar, imported exceptionally large quantities of Indian pottery in the thirteenth and fourteenth centuries, far in excess of any other site at this date.[80] The pattern that seems to emerge is of particular towns or polities developing their own trade networks across the Indian Ocean world. While the Swahili were cultural brokers between that world and the African interior, they were also active in setting up and developing their own long-distance relationships, supplying and receiving commodities from very different worlds.

Globalization is not only about trade, but also about shared culture across global spaces. One of the key globalizing forces in the medieval

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world was Islam, which created a relatively uniform set of rules and practices across vast areas of space. By being part of the Islamic world, the Swahili were able to develop commonality with their most important trading partners. However, they did not simply adopt Islamic forms as slavish copies of Middle Eastern practices, but often developed their own styles. Thus, for example, the Swahili did not build courtyard mosques—the commonest form of congregational mosque in the Islamic world—but instead built rectangular halls with internal columns. Their mihrabs, such as at Kizimkazi on Zanzibar, were also distinctive and unique and cannot be paralleled in any Middle East architecture.[81] Minarets are very rare, and are generally found only after the sixteenth century. The designs on cut *Porites* coral used on mosque decoration show a strong indigenous influence, which can be seen in more recent ethnographic material such as woodcarving and cloth.

Today, the Swahili face probably the greatest set of challenges in their history, with the rise of fundamental and radical Islam, exported from Somalia, and the massive commercial pressures, for example in the heartland of the Swahili in the Lamu Archipelago, where an enormous port development is planned. As archaeologists, we are able to observe a much longer history. From their origins in the seventh century, the Swahili have been part of a globalizing world, both responding to and actively shaping global forces. The strong and resilient nature of Swahili culture today in the face of the modern globalization process is probably a result of this long history of choice and adaptation.

Archaeology and history offer different perspectives on the Indian Ocean world. It is commonplace to describe these perspectives as complementary, but what is far more interesting is when one perspective contradicts or challenges the other. Archaeology not only extends the concept of the Swahili into earlier time periods, it provides an alternative understanding of the nature of the Swahili identity and the globalization process. Historical texts prioritize particular economic, social, and ethnic groups, and in the case of the Swahili, for early periods at least, these were often outside groups from other parts of the Indian Ocean and Islamic world. Archaeology has been able to provide a view of Swahili development from a local perspective and to rewrite and challenge dominant historical narratives. Archaeology has a key role to play in understanding the processes of globalization that shaped the Indian Ocean world in eastern Africa and beyond for millennia, though there

is still much work to do to improve coverage of underresearched regions and time periods, more systematically recover diverse types of remains, and apply new methods and technologies in tandem with greater dialogue with historians and others.

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75. James Denbow, Carla Klehm, and Laure Dussubieux, "The Glass Beads of Kaitshàa and Early Indian Ocean Trade into the Far Interior of Southern Africa," *Antiquity* 89 (2015): 361–77; Edwin Wilmsen, "Hills and the Brilliance of Beads: Myths and the Interpretation of Iron Age Sites in Southern Africa," *Southern African Humanities* 21 (2009): 263–74; and Wood, *Interconnections*.

76. Prestholdt, *Domesticating the World*.

77. For similar discussion on sites in southern Africa, see Shadreck Chirikure, "Land and Sea Links: 1500 Years of Connectivity between Southern Africa and the Indian Ocean Rim Region, AD 700 to 1700," *African Archaeological Review* 31 (2014): 705–24.

78. Paul Sinclair, "Chibuene: An Early Trading Site in Southern Mozambique," *Paideuma* 28 (1982): 149–64; and Paul Sinclair, Anneli Ekblom, and Marilee Wood, "Trade and Society on the South-East African Coast in the Later First Millennium AD: The Case of Chibuene," *Antiquity* 86 (2012): 723–37.

79. Wright, "Early Seafarers"; and Allibert et al., "Le site de Dembeni."

80. Horton, *Zanzibar and Pemba*.

81. Horton, *Zanzibar and Pemba*; and S. Flury, "The Kufic Inscription of Kizimkazi Mosque, Zanzibar, A.D. 1107," *Journal of the Royal Asiatic Society* 21 (1922): 257–64.

FOUR

Researching the History of the Indian Ocean World

An Interdisciplinary Approach

EDWARD A. ALPERS

THE KNOWN HUMAN HISTORY of the Indian Ocean World (IOW) encompasses some seven millennia; to address this deep history necessarily requires the historian to employ a wide range of disciplinary methodologies and sources. If our collective purpose in this volume is to set "an agenda for a historical archaeology of the Indian Ocean World," however, we need to combine boldness with caution and care. For the historian of the IOW as a subset of world or global history, I must first emphasize that I do not adhere to any particular theoretical model for understanding the history of the Indian Ocean region. Here I depart, for example, from my distinguished friend Philippe Beaujard, who is a foremost European scholar working within the orbit of world systems theory.[1] Rather, my approach to this history has been to focus on the movement of people, things, and ideas, as well as what I regard

as key epochs and linking themes that both drove and were driven by such movements. In order to understand these movements and to create a meaningful periodization by which to organize them I am obliged to draw upon many different kinds of evidence and scholarship.

In writing *The Indian Ocean in World History* (2014), I called upon archaeology, linguistics, art history and architecture, anthropology and ethnography, geography, environmental studies, botany, technology, ethnomusicology, and literature—all figure into the mix. Of course, I also utilized the historian's familiar body of written sources, both primary and secondary. For the historian, the challenge is to integrate these disparate kinds of evidence into a meaningful analytical narrative. Specifically, Krish Seetah, the organizer of the workshop at which this chapter was originally presented, asked me to reflect on how historians do interdisciplinary research and how my own experience of integrating such diverse sources and methodologies might be useful for informing archaeological studies.[2]

I can think of no better place to set out on this quest than by calling upon an important intervention on linguistic archaeology directed in 2012 by my distinguished UCLA colleague Christopher Ehret to archaeologists of Africa.[3] In this article Ehret "addresses the essential issues in evaluating works that use linguistic evidence in reconstructing the past."[4] Speaking in terms designed to get the attention of his specific audience, he contends: "Linguistic evidence is hard evidence. Let us qualify that assertion: linguistic evidence, properly situated in a systematic phonological reconstruction, is hard evidence. An archaeologist may say, I can't hold these words in my hand. I cannot subject them to tests of material science. How, then, is linguistic evidence hard evidence?"[5]

Drawing upon his own work and that of his former students, Ehret proceeds methodically to lay out his case for language evidence as hard evidence and then applies the methodology he has just articulated to the history of an old root word, in this case the word for "donkey" in "the ancestral language, proto-Eastern Cushitic, of the Eastern sub-branch of the Cushitic branch of the Afroasiatic language family."[6] Toward the conclusion of his painstakingly detailed reconstruction, Ehret addresses the question of what every scholar of the past should know, which he reduces to two lessons of special significance for archaeologists:

> The first lesson relates to the nature of linguistic evidence and argument. Linguistics is a separate, capacious source of evidence about history and culture of earlier times, with its own well-developed body of theory and practice. Its evidence is subject to rigorous validation. Its findings stand on their own. They are not some impressionistic adjuncts to other kinds of historical argument. We do not get to pick and choose or to engage in special pleading to make the linguistic evidence fit our notions.[7]

Leaving nothing to chance, Ehret ends his contribution by providing an example of how some archaeologists have mistakenly argued for linking the origins of agriculture in Europe to Indo-Europeans, when the linguistic evidence clearly contradicts such a conclusion. He emphasizes the requirement to provide "a systematic phonological reconstruction" or else to "direct the reader to where that apparatus is to be found." He hammers home his point that "to claim to do history from language without a systematic phonological reconstruction is like claiming to do archaeology without stratigraphy and without engaging the essential analytical tools of the discipline."[8]

What Ehret argues for linguistics applies equally to every other kind of disciplinary evidence that the historian or archaeologist seeks to use in their work. Of course, we all must rely on the trustworthiness of our colleagues, nor can we all expect to master every methodology for the sources we wish to apply to our own work, but Ehret's injunction cautions us against engaging in either lazy scholarship or wishful thinking. Seizing upon a piece of evidence to support an interpretation because it fits our sense of or insistence upon "what must have been so" runs the risk of undermining our effort to achieve an interdisciplinary scholarship, whether we be archaeologists or historians. Moreover, this kind of poorly documented speculation creates a fragile foundation for further hypothesis building. To take only one egregious example, a key element of Charles and Frances Pearce's convoluted arguments about the settlement of Madagascar in the second millennium BCE is their mistaken belief in the existence of an ancient Cinnamon Route and "a direct route from the Spice Islands to Rhapta. If so, it would probably also have been the trigger for the initial colonization of Madagascar."[9] Here I note only that there is no mention in the *Periplus of the Erythraen*

Sea of cinnamon being traded to Rhapta, nor is cinnamon mentioned among the spices discovered at Berenike.[10]

As it happens, a very good Indian Ocean example that cuts across the entire oceanic basin and involves numerous methodologies and forms of evidence is the settlement of Madagascar, whose people and cultures embody both insular Southeast Asian and East African Bantu elements. Gwyn Campbell, director of the Indian Ocean World Centre at McGill University, provides a concise introduction to the received historiography regarding this still unresolved historical process in which he identifies various competing schools of interpretation and their historical lineages to explain Malagasy origins.[11] More recently, Solofo Randrianja and Stephen Ellis have reminded us further that "arguments about the relative importance of the Austronesian element, the Bantu element, or some other influence in the composition of the early ancestors of the Malagasy [have] become highly ideological, tending to follow quite closely the political needs of the moment, according to whether proponents would prefer to regard Madagascar today as a country related primarily to Asia or to Africa."[12]

The basic historical problem is that although Madagascar is an African island, its people today speak an Austronesian language, Malagasy, that is part of the Western Malayo-Polynesian subfamily with its closest linguistic relative being Manyaan, a language spoken on the island of Borneo.[13] Conflicting theories about when and by what route Austronesian pioneers reached and settled Madagascar have flourished since the late nineteenth century, one school of thought favoring a direct open-sea route across the central Indian Ocean, another supporting a passage that followed the combination of open-sea and coastal sailing that characterized Indian Ocean trading networks. Among the former, some scholars believe that Austronesian ships either rode the central Indian Ocean currents directly to northeast Madagascar or followed a staged crossing by way of the Maldive Islands.[14] Inspired by the bas reliefs depicting indigenous Indonesian shipping at the early ninth-century Mahayana Buddhist temple complex at Borobudur in central Java, British adventurer Philip Beale even built a replica ship called Borobudur 2 that sailed from Jakarta to northwest Madagascar via the Seychelles and the Comoro Islands in 2003.[15] Nevertheless, this kind of adventure, like the Kon-Tiki voyage across the Pacific Ocean from Peru to Polynesia in 1947, proves nothing historically. Among the

latter, some scholars favor a route along the East African coast and then across to the Comoros and northwest Madagascar, while others lean toward a direct sailing route from southern India to Madagascar.[16] Atholl Anderson et al., in their contribution to this volume, argue strongly for a path following the traditional monsoon-driven trading links around the northern littoral of the Indian Ocean. What is certain—given the maritime skills of the Austronesians and the patterns of Indian Ocean winds and currents—is that all these routes were possible, but that there is no unambiguous evidence for any of them. Indeed, a recent seafaring simulation—a technique based on computer simulations that integrate oceanographic, anemological, and climatological data to model how shipping will travel at specific times of the year—argues that each of these routes was possible during specific seasons of the year.[17]

While the details are often disputed and the evidence sometimes stretched beyond recognition,[18] there is general agreement that initial voyages probably reached northern Madagascar sometime between around 100 BCE and 300–400 CE, while further settlement continued sporadically for another one thousand years.[19] Most recently, an international team of geneticists has argued for "a model in which Madagascar was settled by a small effective founding population – estimated at only approximately 30 women, most of whom had Indonesian ancestry (93%)." The authors date this settlement to a period "beginning around AD 830."[20] This finding was immediately embraced by a number of news outlets and popular scientific reports, so that at the time of my writing it seems to have gained wide acceptance.[21] To their credit, the authors conclude their discussion by declaring, "Without further evidence, the exact nature of Madagascar's settlement must necessarily remain unresolved," to which they add that "Malagasy are the children of both east and west, with clear Indonesian and African antecedents."[22] What concerns me here, however, is that although the authors are explicit in their methodology and assumptions, the process of coalescent model building in which they engage is still a form of (very sophisticated) hypothesis-building. As they themselves acknowledge, their mitochondrial DNA data collection in Indonesia and Madagascar is not comprehensive. In Madagascar, their sample derives from the publication of data drawn from only three groups: Mikea "hunter-gatherers," "semi-nomadic" Vezo fishermen, and "the dominant" Andriana Merina.[23]

The Mikea are an interesting group to have chosen because a separate analysis of their genome data from a small group of individuals indicates that they reflect a mixture of African (Bantu) and Austronesian sources that is common to Vezo individuals who were also included in this study. Furthermore, its authors confirm ethnographic studies that the Mikea are not a remnant group of hunter-gatherers but rather were previously agriculturalists who reverted to a foraging economy under pressure from either the Sakalava or the French.[24] Inclusion of the Vezo data is also interesting since the most important ethnographic study of these fishers argues strongly that "Vezo become what they are through what they do," not because of some shared past ethnicity.[25] Accordingly, in modern terms it seems to me that the Vezo are very much like the Mikea. I am not sure what this conclusion says about DNA testing, or the hypothesis that thirty Indonesian women settled Madagascar, but it suggests that there are levels of complexity still to be plumbed in how archaeologists and historians make use of genetic analysis and its model-building.

Turning now to material culture, what we can demonstrate is that the distribution of both the double- and single-outrigger canoe follows the known trading networks of the Indian Ocean across to Sri Lanka and southern India, and then along the African coast over to the Comoros and Madagascar.[26] Previous claims based on archaeological evidence from first century BCE Zanzibar that chickens had been introduced from Southeast Asia, however, have been called into question by reinvestigation of the Kuumbi Cave site on which this assertion was based.[27] The main methodological thrust of their skepticism is a combination of "animal burrowing and associated bioturbation," which "demonstrate the problems with charcoal dates in complex cave sequences."[28] As the authors of this multidisciplinary and multifaceted study conclude, "we find no supporting evidence for pre-Medieval Indian Ocean trade connection at Kuumbi Cave, either in the form of imported glass beads or of the remains of domestic chicken or other non-native fauna likely to have been introduced through trade."[29] Against this negative record there is also almost no evidence of Austronesian influence on Swahili or any of the modern Bantu languages of the Mozambique coast that faces western Madagascar.[30] Even the genetic evidence that the modern population of Madagascar incorporates a significant proportion of people of African ancestry[31] and that the Malagasy language includes many

words of Bantu origin and demonstrates structural influence[32] as well do not resolve the conundrum, since there is no question that, once populated, there were regular contacts between the people of Madagascar and those of Comoro Islands and the African coast.

Similarly, unresolved questions about the routing and dating of the dissemination to Africa of Southeast Asian food crops like the banana (*Musa x paradisiacal*), water yam (*Dioscorea alata*), and taro or cocoyam (*Colocasia esculenta*) cannot resolve this question. That said, and notwithstanding my previous comment about the absence of linguistic evidence of Austronesian in any modern Bantu languages, Ehret has recently argued in an unpublished presentation that one of the two prevailing terms for *Musa* in the geographically separate Proto Northeast-Coastal Bantu subgroups of Seuta languages and Comorian [*-*fu(n)ti*] derives from pre-proto-Malagasy.[33] It is worth noting, as well, that remains of coconut (*Cocos nucifera*), the fruit of a tree of probable Southeast Asian origin, have been found at Berenike, adding to the incidental evidence favoring the monsoonal trading networks of the Indian Ocean.[34] More recently, the vexing question of Austronesian settlement of Madagascar has been approached by a team of scholars who have examined the dissemination in coastal East Africa, the Comoros, and Madagascar of Southeast Asian seed-based crops, notably rice and mung bean. Their findings that "the overwhelming dominance of Asian crops in the earliest records of the Comoros and Madagascar is consistent with patterns observed when crops move through human colonization" and that "an Island Southeast Asian source for the early Asian crops of the Comoros and Madagascar seems to offer the best fit for the patterns observed in the available records" leads them to suggest that "the presence of Asian crops in the Comoros earlier than at sites in Madagascar…may reflect Austronesian colonization of the Comoros before Madagascar."[35] In the end, what can be said is that at about the same time as the proto-Swahili were expanding down the African coast and onto its offshore islands, proto-Malagasy were at the beginning stages of settling the part of Madagascar nearest to this region of Bantu expansion. It seems more than likely that at various moments in time these maritime immigrants followed all the routes that we have noted above and that they ventured in small groups of both men and women, the ultimate transmitters of their Malayo-Polynesian mother tongue. Just as probably, connections between African speakers

of Bantu languages and Malagasy initially developed in fits and starts, but over time their destinies as Indian Ocean peoples became more intimately connected through trade to produce the Afrasian culture today known as Malagasy.

A nagging question that continues to vex scholars of the peopling of Madagascar is whether or not there was a pre-proto-Malagasy population on the great island. Radrianja and Ellis neatly summarize this scattered evidence and suggest that, at best, they reflect activity by transient sailors who stopped over on its shores.[36] In 2007 Roger Blench, always a provocative multidisciplinary scholar but not without his methodological critics (see nn. 8 and 18 above), suggested an earlier chronology and a new interpretation for the settlement of the island based mainly on paleozoogeographical evidence.[37] He concludes his paper in the following terms: "Conventional narratives of the occupation of Madagascar have been increasingly at odds with new indications from a variety of disciplines and a fresh approach is required. The model advanced here attempts to account for these but only more intensive archaeology in targeted sites will provide the type of physical evidence required to refute or enrich these hypotheses."[38] An initial response to Blench's call may be a startling paper coauthored by a group of experienced archaeologists who make the case that their "evidence shows that foragers with a microlithic technology were active in Madagascar long before the arrival of farmers and herders and before many Late Holocene faunal extinctions," suggesting a date "at least as early as 2000 B.C."[39]

According to their report, they discovered tools of chert and obsidian in a small rockshelter at Ambohiposa, near Vohémar and overlooking the Bay of Iharana. These tools "are certainly a result of human action." Moreover, "even though a small sample of tiny items, they are clearly a stone tool assemblage created and used by people." The team also identified some bits of pottery and some wood charcoal that "suggests the stone toolmakers of Ambohiposa were contemporary with the earliest iron-using villagers of Vohémar."[40] They then link this site to a later (eleventh to fourteenth century) one at Lakaton'i Anja, near the Bay of Antsiranana (Diego Suarez), with its own small stone tool industry "created by people." Imported Indian Ocean ceramics and other artifacts, as well as animal bones, also exist for this period at this site. In their discussion, the authors contend that "the stone tools from Ambohiposa and Lakaton'i Anja are unlike anything reported

from Madagascar" and are "indicative of intermittent occupation by small groups engaged in foraging." Finally, Lakaton'i Anja yielded two OSL-dated sediment samples to roughly 1460–2370 BCE, which the authors state "are in correct stratigraphic order" with respect to the later (eleventh to fourteenth century CE) radiocarbon dates for the site.[41] In their discussion of these finds, the authors acknowledge the very small size of their stone tool samples, yet suggest that "they resemble those known from southern and eastern Africa, southern Arabia, and south Asia, and are unlike those from Southeast Asia." Linking this new evidence to arguments that interpret "the Holocene extinctions as catastrophic and quick following human settlement of Madagascar," they argue that their "unique evidence shows that extinctions occurred long after human arrival on the island." Finally, they contend that "the view that Madagascar's history can be sharply divided by the arrival of humans between an undisturbed Eden and anthropogenic chaos is no longer tenable," even though they cannot yet establish "when foragers first arrived in Madagascar."[42]

Now, what is a historian to make of this new evidence? Colleagues with whom I have been working on food crop exchanges across the Indian Ocean are both excited by this possibility and cautious about the reliability of the dating. As Simon Haberle, director of the Centre for Archaeological Research at the Australian National University (ANU), commented in an email to a group of us,

> The evidence from the stone tools is interesting but given the sedimentary context (sandy) it is entirely possible that the cultural material has been distributed downwards by bioturbation and thus is not dated accurately by the OSL determinations. It was around almost exactly such a case that the argument about 2000-year-old rats in NZ revolved—now well and truly rejected on the basis of many tightly constrained c14 dates at a number of sites and reassessment of sedimentary context. Anderson in several papers[43] and Wilmhurst et al.[44] (attached) showed eventually that the 2000-yr old dates in intact strata were correct but the rat bones had been displaced and were less than 1000 years old. This kind of situation is not unexpected in coastal rockshelters where burrowing animals and birds—especially petrels and shearwaters—seek nesting sites. It seems that it will be even

> more difficult to test this in Madagascar because there is nothing suitable for radiocarbon dating in association with the chert flakes in the lower levels…but that alone should raise a flag of caution when interpreting this data. Much work to be done.[45]

Shades of the revisionist investigations at Kuumbi Cave, Zanzibar, noted above. Could there be a clearer statement of the kind of caution that scholars of all stripes must take when relying upon evidence from sources that derive from disciplines in which they are not themselves professionally trained? Still, this is exciting stuff and bears out the alert sounded by Randrainja and Ellis: "No doubt future discoveries will continue to produce surprises, and may cause historians to revise their theories on the timing and exact manner of Madagascar's settlement."[46]

Let me leave Madagascar and suggest another large IOW topic that is of equal interest to both historians and archaeologists with respect to interpretation, narrative, sources of evidence, and methodology: Swahili origins and society and, on a larger canvas, coastal East Africa's place in the IOW. Summing up some two dozen papers presented at the 2012 conference of the Sealinks Project at Oxford University, Peter Mitchell notes that "if there was one overarching theme connecting the papers presented it was the value—indeed the necessity—of interdisciplinary studies of East Africa's part in the Indian Ocean world."[47] The most important of these interdisciplinary sources of evidence and methodologies for archaeologists would seem to be located in the sciences; for example, paleogeography, paleobotany, paleozoology, and genetics, among others. To take only a single example, whereas the provenance of carnelian beads from Gujarat to Africa were once "usually made on visual parallels alone," a decade ago the application of "characterization studies" using chemical analysis both clarifies these connections "based upon more objective data" as well as raises new questions for research.[48] Nevertheless, it is worth noting that many current archaeological contributions to interpreting the past of coastal East Africa and Swahili society depend essentially on basic archaeological fieldwork and consequent rethinking of the past.

One example of how basic fieldwork and scientific analysis of resulting finds can work together to reshape our understanding of the earliest periods of agriculture and exchange on the coast is the results from excavations in the coastal hinterland of Kenya as part of the Sealinks

Project. Fieldwork in 2010 at three sites located in the foothills of the Dzitsoni Uplands in Kilifi District yielded numerous stone artifacts, potsherds, and animal bones, as well as some perforated marine shells and glass beads in later occupations. Together these finds suggest "a mosaic of continuous and increasingly complex occupation and interaction from at least the LSA [Late Stone Age] onwards."[49] At all three sites the team collected archaeobotanical remains. The authors state that "preliminary analysis … indicates that all three of the major native pan-African cereals were being consumed, and presumably cultivated locally, by the ceramic era." They also tentatively identify seeds of one Asian pulse, *Vigna* sp. In presenting this material they note that "most accounts for the origins of agriculture in this region rely on inferences from historical linguistics," but that "hard archaeological evidence has been lacking for the presence of these crops in particular regions and periods and whether these crops co-occur, or correlate with particular material culture traditions remains unconfirmed."[50] Taken together with evidence of the transmission of baobab seeds across the continent from western Africa, "these findings suggested that this mainland savanna package was well established by the MIA [Middle Iron Age] on the mainland and was introduced with the initial agricultural settlement of the islands of eastern Africa." Their research also implies that exchanges of plant crops across the Indian Ocean were a regular phenomenon during this period. Accordingly, the authors argue that this preliminary research "testifies to the importance of obtaining direct archaeobotanical evidence for the reconstruction of changes in the distribution of African agricultural systems."[51] This work both enriches our knowledge of this early period in coastal history and reminds us not to jump at reaching hasty or convenient conclusions about ancient food crop exchanges across the western Indian Ocean.[52]

Another example of how basic fieldwork continues to transform the way in which we understand the past of coastal eastern Africa is the result of many seasons of fieldwork in rural Pemba island by Adria LaViolette, Jeffrey Fleisher, Bertram Mapunda, and many others. This effort has completely changed the way in which historians regard this East African island. Rather than the agricultural "breadbasket" that characterizes Pemba's image after 1500, the conclusions they draw from their extensive research based at Tumbe and Chwaka, at the northeast corner of the island, place Pemba in a much more central position in the

evolving history of the coast. Their research enables them to demonstrate further that the Indian Ocean trade of coastal eastern Africa did not depend on the existence of hierarchical towns dominated by monumental buildings, such as those that have exemplified the archaeology of the period between about 1000 and 1500.[53]

In an innovative approach that combines performance studies with analysis of coastal material culture, Stephanie Wynne-Jones proposes a new way to approach the question of identity as revealed in the archaeological record. She argues for "a more analytical approach to material culture, focusing on the social role of artifacts, rather than viewing distributions as archaeological facts." In the article, she explores the known data from Kilwa to illustrate her argument, "rather than as a corpus of radically new data for the coast."[54] Combining a critique of distributional analyses with more fluid models for understanding what she calls "archaeologies of identity," Wynne-Jones concludes her discussion with a section on "nested identities." Here she makes the important, but often ignored, point in narratives about Swahili identity that "an individual can perform or inhabit different identities in different contexts." Carrying this observation to its logical conclusion she suggests "the multiple, overlapping interactions that might be reflected by the archaeological record and the ways that these interactions, particularly as these were conducted through and mediated by material culture, would have been part of a complex process of identification."[55] Indeed, I make the same point when I argue—without reference to archaeology—about "Shirazi" origins and the formation of coastal society:

> The integration of foreign Muslims into coastal East African society resulted from the intermarriage of men from the Gulf with local women, preferably from locally prominent families who could facilitate trade. As Muslims, their children would have claimed the Gulf origins of their fathers; indeed, such sons may well have traveled to the Gulf with their male relatives. Yet they would also have drawn upon the familial connections of their African mothers. Neither identity was necessarily exclusive of the other; indeed, depending on the situation, it made good sense for such individuals to be able to claim both.[56]

Performance also occupies a central place in Fleisher's recent discussion of monumentality and what he calls "the 'built exterior'" on the Swahili Coast.[57] Stimulated by his original work in Pemba, no doubt, Fleisher argues for viewing Swahili towns "*as a whole* rather than isolating particular buildings," adding that we should appreciate that "towns themselves were monuments on a broader regional landscape." He continues by recommending the study of public spaces "as places of performance," as "part of the performance and negotiation of power," and "as part of the monumental landscape in the town."[58] Fleisher reviews how previous archaeologists have either ignored or examined open spaces before 1500 and then proceeds to propose "possible archaeological correlates"[59] for more modern examples of Swahili performances, focusing first on dances and processions in public spaces and next on pilgrimages and enthronement in cemeteries. For his case study, he looks at the well-known site of Songo Mnara, which he gives as "one of the best examples of a Swahili town plan."[60] His analysis of this important town depends on his walking familiarity with the entire location and his willingness to look for relevant visual perspectives to test his hypothesis. He concludes with the following caution: "It is not possible, of course, to determine whether dances or other public spectacles occurred within the central and western areas of Songo Mnara. However, despite the fact that archaeology will always be challenged to recover evidence of such performances, comprehensive investigation of such zones allows us to begin sketching out the boundaries and sightlines of what were likely intentionally created and managed public spaces."[61] This reexamination of coastal towns challenges both archaeologists and historians to reconsider the larger role of space and how it may have been utilized in the economic, social, political, and ritual life of pre-1500 Swahili towns. Fleisher's bold intervention also opens up its own space for historians to engage in this process without having to do any actual digging.[62]

Indeed, this article brings to mind other fascinating examples of performance in public spaces in coastal and insular eastern Africa that might bear archaeological investigation. Two of these are unique to offshore islands: bull-baiting in Pemba and Great Marriage (*ada*) in Ngazidja. The origins of the former date to the sixteenth-century presence of Portuguese on Pemba, but would seem to suggest possible affinities to agricultural rituals that are also connected to spirit possession.[63] The latter involves enormous expense and elaborate public celebration as it

integrates matrilineal age-sets, generational categories, Islam, and citizenship, as well as reinforces social hierarchy. The real question here from an archaeological perspective concerns its antiquity, since all descriptions of Great Marriage are modern.[64] A third example, this one from Lamu, would seem to offer rather more concrete possibilities for archaeologists. According to the late Peter Lienhardt, in years when the rains were late it was customary for the leading member of one lineage, the Makhatibu, of the oldest clan in Lamu to perform a rain-making ceremony.

> He sacrifices a bull which is eaten at a communal meal. On the day before the sacrifice, a man goes round the town with a horn asking each household to contribute to the cost of the bull and to prepare rounds of bread for the meal. The next day, the bull is led round the town, starting from the Mwana Lalo Mosque in the northern half, and then it is led outside the northern end of the town and sacrificed, after prayers, at a particular baobab tree. It is cooked and eaten there with the bread rounds which may be of any grain but are usually of rice or millet. The bones and inedible intestines are wrapped in the skin and buried in the ground near the tree. In the past, it was considered disastrous to bring any part of the animal back into the town.[65]

While the bull's circuit around the town served to exemplify the unity in a town typically divided between competing moieties, what caught my attention in Lienhardt's description of this communal ritual is the penultimate sentence that points to a specific location near the designated baobab for the burial of the animal's skin, bones, and intestines. Here, then, is a case where archaeologists may well be able to identify evidence of performance in a "built exterior."

The work of Matthew Pawlowicz at Mikindani, on the southern or Mgao coast of mainland Tanzania, again demonstrates how innovative thinking combined with basic fieldwork can open up new vistas for both archaeologists and historians to reexamine how we understand the Swahili past. He argues that Mikindani and its neighbors, lying at the edge of reliable monsoonal trade winds, "developed stronger connections with the interior African groups than with communities along

the Indian Ocean" so that they "were largely absent from Indian Ocean trade during the Swahili florescence and did not follow the cosmopolitan Islamic sociocultural ideal."[66] Although there is evidence of its settlement from the middle of the first millennium CE, the people of Mikindani built no stone buildings until the eighteenth and nineteenth centuries, when they became more deeply engaged in the Indian Ocean ivory and slave trades. Pawlowicz constructs his thesis on the basis of his own fieldwork, careful reading of local Swahili chronicles, and an intelligent review of the received literature in coast-hinterland relations. His discussion of dietary and settlement patterns, as well as his analysis of local ceramics and their connection to ceramic traditions from east central Africa, convincingly sustains his case that the larger Mikindani region represents a very different kind of Swahili society with possible implications for other, more northerly subregions. Indeed, as he contends for Mikindani, "its archaeology forces us to reconsider what we mean when we talk about Swahili culture and social complexity on the East African coast."[67] He continues, "Increasing archaeological evidence for regional variability compels us to avoid overly narrow definitions of Swahili." Furthermore, "Its divergences from Swahili norms suggest that there are alternative historical narratives for East African coastal history, extending themes developed from investigations of coast-hinterland networks and prompting re-evaluation of the popular notion of the Swahili as, first and foremost, a mercantile society apart from other Africans."[68] He concludes his stimulating intervention with an earnest admonition to us "to strike a balance between recognizing the importance of trade, Islam and urbanism to Swahili society without regarding those things as deterministic essentialisms, but rather as socially meaningful elements of broader strategies used to attain social and economic advantage within some coastal circumstances but not others."[69] These words strike me as being directed most of all to historians, though also of course to Pawlowicz's fellow archaeologists.

Yet for all these exciting new developments in coastal archaeology, older views still die hard, as recent contributions by archaeologist Stéphane Pradines, who adopts an Oriental diffusionist reading of the sources of Swahili urbanization over the prevailing interpretation that appreciates the complex interaction between African foundations and Indian Ocean inputs, demonstrate.[70] In a sharply worded review of Pradines's book on Gedi, historian Thomas Vernet contends that

"this interest in the Arab and Persian worlds too often slides into a profoundly islamo-centric perception that is external to Swahili society" and also undervalues African contributions available in the archaeological record. "Beyond the archaeological methodology," he argues, "the main problem with the work is a singularly limited binary conception of identity." Finally, Vernet notes, "The naïve reading made of the Shirazi accounts is the best illustration of these different problems."[71] How different from the positions taken by Wynne-Jones and Pawlowicz!

Similarly, just as Vernet takes Pradines to task for a simplistic reading of Shirazi myths, changing translations and interpretations (including geographical identifications) of the handful of ancient and Islamic written sources for coastal history have indicated that there remains room for historians and other humanists and social scientists to contribute to this continuing project. For an example of how translation can change our understanding of the distant past, Lionel Casson's 1989 translation of *The Periplus of the Erythraen Sea* revises a single word in Wilfred H. Schoff's 1912 translation that seriously confounds historical interpretation of the text with reference to eastern Africa. Describing the still-unidentified trading center of Rhapta,[72] Casson's translation reads, "Very big-bodied men, tillers of the soil, inhabit the region; these behave, each in his own place, just like chiefs."[73] According to Schoff, however, "Along this coast live men of piratical habits, very great in stature, and under separate chiefs for each place."[74] Especially in view of the long history of piracy in the Indian Ocean, the implications of the differences between Schoff's and Casson's translations are indeed significant, not to mention the implications for social and political history.[75] To take a different textual example, in this case of wishful thinking, various scholars reading a passage on cinnamon in Pliny the Elder's *Natural History*[76] often mistakenly take the "rafts" that sailed "from gulf to gulf" to indicate Austronesian double-outrigger canoes. As Gary Young emphasizes, however, "all literary sources state that cinnamon was a product of Arabia or Somalia, and thus the most likely explanation is that the spice known as cinnamon in ancient times was not the same commodity as the Asian product we know as cinnamon today."[77] If one misunderstands the local Horn of Africa sources for indigenous varieties of cinnamon supplied to the Egyptian market in this era as the Southeast Asian spice that is the source of the Greek word for this precious spice, one can readily see how one mistake could compound

another and completely distort one's historical interpretation. Indeed, as I commented earlier, this kind of serial supposition is methodologically treacherous in any discipline.

Before concluding I want to expand the geographical scope of this paper to examine a problem in the archaeology of insular Southeast Asia that echoes the kinds of issues raised in the archaeology of Madagascar and the Swahili Coast. Looked at historiographically and methodologically, the development of both Southeast Asian and East African archaeology was marked by an initial period in which models imported from the Mediterranean and ancient Near East dominated. In both contexts, urban centers and monumental buildings were what archaeologists looked for. In addition, both areas of the IOW were regarded as peripheral so that diffusionist theories for the transmission of "civilization" tended to shape interpretation of whatever was found on the ground. In coastal East Africa, the centers of diffusion were seen to be Arabia and Persia, and in insular Southeast Asia they were India and China. In particular, for many decades Southeast Asian archaeology was dominated first by a theory of Hinduization that was replaced in the 1960s by a broader diffusionist category of Indianization.[78] Again like the Swahili Coast, insular Southeast Asia is notably lacking in internal primary texts,[79] so that approaches to the history of early state-building in Southeast Asia relied upon a wide variety of mainly Indian and Chinese written texts. Consequently, according to archaeologist S. Jane Allen, this diffusionist perspective meant that any and all Indian "influences are rarely distinguished from total control in the literature, which tends to lump the two under the term 'Indianization.'"[80] Beginning in the 1970s archaeologists working in Southeast Asia have challenged this assumption and have focused on revealing indigenous agency in state-building through on-the-ground research and reconceptualizing their methodological and theoretical models. Such a reorientation of research clearly parallels that which has been taking place in East Africa. Here I will give one concrete example of how this scholarly transition in historical archaeology has influenced prevailing interpretations of the most important IOW maritime trading state in the centuries before 1400: Srivijaya/Sriwijaya.

Unlike the mainland, insular Southeast Asia was considered to be "almost empty of archaeologically locatable cities earlier than the 14th century A.D." That said, "this is partly because few have looked for

them."[81] One aspect of this assumption was that despite the extensive nonindigenous documentation that Srivijaya was the dominant state in insular Southeast Asia from the later seventh century to about 1100, no one had been able to identify its capital city. In the late 1960s, Oliver Wolters published a major historical study based on this documentation that argued strongly for the location of the capital at Palembang, in the area drained by the Musi River basin of southern Sumatra.[82] Stimulated by Wolters's hypothesis, in July–August 1974 a team of American and Indonesian archaeologists undertook a survey and a series of trial excavations around Palembang to see if they could locate a site for Srivijaya. To make a complicated story short, although the team found "convincing positive evidence for the existence of two substantial settlements in the vicinity of Palembang," these towns were dated to the middle centuries of the second millennium, much later than the heyday of Srivijaya. In short, the major finding for these archaeologists was negative. As they noted, "The entire vicinity of Palembang does not contain enough pre-14th century domestic artifacts to make a small village." Together with other indications that did not bear out their assumptions about cities, they concluded: "For all these reasons, we feel forced to conclude that Śrīvijaya in all except perhaps the very last stages of its existence was not in or near Palembang and probably not anywhere in the area drained by the Musi River."[83] Disappointed with these results, the authors of this report suggested that archaeologists and historians might instead consider a central-place model, "which may be very different from the wet rice-based, ceremonially focused, and *enceinte*-surrounded [i.e., walled] Mainland sites that have dominated much of our past thinking of early Southeast Asian urbanization."[84]

In fact, that is precisely what happened. At the end of the 1970s, Wolters wrote a seminal paper on studying Srivijaya, in which he noted that "even its capital's location is still unknown."[85] Bravely stating, "I realize my work needs revision," Wolters engaged in a thorough review of previous scholarship, including theories of Indianization, and abjuring the practice of "hopping from one piece of isolated evidence to another."[86] He acknowledged the growing sense from the 1960s that only archaeological research could solve the problem of where the capital of Srivijaya was located, adding further that "foreign sources can never be taken at face value."[87] The great contribution made by Wolters was his conviction that "the physical environment [is] the master-text

for Śrīvijayan studies."[88] He proceeded to argue for studying the exceptional riverine network that surrounded Palembang, a conclusion that was driven home to him by a field visit in 1978. As he noted, "Śrīvijayan studies in the future will not be so usefully pursued in libraries," pointing instead "to the need for a semiological approach." What is most remarkable about Wolters's essay is his confession that he "had to unlearn" much of what he had assumed from his earlier reading of Chinese sources after his engagement with the Musi landscape.[89] The result of this process of critical reexamination was his conclusion that "no 'city' in any conventional sense of the term ever existed there," and that "archaeological research will one day supply empirical data" about the important riverine centers that he identifies in his article, as indeed it has.[90]

Building on Wolters's achievement, from 1988 to 1991 a series of excavation campaigns by a joint group of French and Indonesian archaeologists established "that one solid conclusion at least has been reached so far: a Malay harbor-city has indeed proved to have flourished for the past thirteen centuries…on the banks of the Musi river, and the site of modern Palembang was therefore, for some time, that of Sriwijaya's capital."[91] These scholars engaged in intensive surveying, sampling, and aerial photography to determine where excavation would be most rewarding. They were able to demonstrate "a clear occupational pattern" with a lower floor that yielded a calibrated date of 650–850 CE. Excavation yielded abundant imported Chinese ceramics, as well as local wares "that proved beyond doubt that the area had been densely occupied in Sriwijayan times."[92] In addition to other archaeological evidence, one method that helped these scholars understand Palembang was a historical geography comparison to post-1400 Southeast Asian "trade-oriented harbor polities," such as Melaka, Aceh, and Makassar, for which much richer documentation exists. According to Pierre-Yves Manguin, "This urban pattern has been said to be typical only of the post-1400 period, but this, I believe, is more a reflection of the scarcity of earlier sources than of any critical argumentation." In fact, "it appears that the sites in Palembang fit in nicely within the pattern defined for later times."[93] Thus, a combination of challenging older interpretations, questioning familiar sources, utilizing new methodological approaches, and basic archaeological digging has brought us to the present certainty that the capital of the great insular Southeast Asian empire of Srivijaya had its original capital at Palembang.[94]

Today the results of this fascinating case study of Indian Ocean historical archaeology are manifested in both the Sriwijayan Kingdom Archaeological Park in the western suburbs of Palembang and the numerous ways in which Srivijaya has come to represent a golden age of Sumatran history.[95] Even though the park suffers from neglect and is rarely visited by the public, both aspects of memorialization remind us that—like the continuing popular debates over Malagasy or Swahili origins—the combined efforts of historians and archaeologists do not exist in a vacuum.

Let me end with a quite different case study, one that—at least so far—does not involve archaeologists. Christian A. Kull, Jacques Tassin, and I have recently collaborated on a paper titled "Marooned Plants: Vernacular Naming Practices in the Mascarene Islands."[96] Our original premise was to explore possible relationships between runaway slaves—maroons—and the association of at least 114 common names of plants that include the adjective *marron*/*marronne* as reported in the online database of the *Conservatoire Botanique National de Mascarin*.[97] Unlike the settlement of Madagascar or the evolution of Swahili society, the time frame for our study is much more recent, focusing on the eighteenth and nineteenth centuries when plantation slave economies were established in the Mascarenes (La Réunion, Mauritius, and the Seychelles) and *marronage* was a common feature of these colonial societies. As we drafted the paper serially in our three different global time zones we realized that we understood as little about naming practices as about the possible roles that maroons themselves played in the development of plant usage and foodways on these Indian Ocean islands. Without ignoring maroon agency and the larger implications of their impact on regional food cultures, most notably in Réunion, our goal in this paper now is to understand how these plants acquired the designation marron/marronne by examining evidence of plant exchanges primarily from the ecological record and published historical sources, such as accounts by visitors to the islands, colonists, and missionaries, as well as both French and Creole dictionaries. Although archaeology is not among the sources of evidence that we draw upon in this joint endeavor, it is important to note that archaeology has not been totally ignored in the reconstruction of maroon history in Mauritius.[98] What is needed now is equal attention to this heritage in Réunion—including the kind of innovative archaeological research that I have discussed

above—where maroons were historically a much more prevalent feature of slavery than on Mauritius and where the heritage of marronage remains an important and contested part of Réunionais identity.[99]

To conclude, I want to emphasize that just as archaeology was once called "the handmaid of history,"[100] today both disciplines find themselves engaged with an ever-expanding number of disciplines in the sciences, arts, humanities, and social sciences in their mutual efforts to understand the past and its meaning for the present. In this paper I have touched on several ways in which this kind of increasingly collaborative multidisciplinary approach has been employed in studies of the Indian Ocean past. The expanding range of methodologies employed by historians and archaeologists to grapple with the conundrum of the settlement of Madagascar, as well as the changing scope of historical archaeology in both coastal East Africa and insular Southeast Asia, demonstrate the ways in which such scholars have sought to gain greater clarity in their understanding of the past. What stands out for me is both the continuing potential that this sort of research brings to our collective work and the always-present caution that as we integrate these different sources of evidence and argument we must be attentive to the methodological rules of each individual discipline.

NOTES

1. Philippe Beaujard, "East Africa, the Comoros Islands and Madagascar"; Beaujard, "Un seul système-monde avant le XVIe siècle? L'Océan Indien au Coeur de l'intégration de l'hémisphère Afro-eurasien," in *Histoire globale, mondialisations et capitalism*, ed. Philippe Beaujard, Laurent Berger, and Philippe Norel (Paris: La Découverte, 2009), 82–148; Beaujard, *Les Mondes de l'Océan Indien*; and Beaujard, "Systèmes-mondes anciens. Processus de domination, de co-évolution et de résistance. L'example de la côte est-africaine avant le XVIIe siècle," *Actuel Marx*, 53 (2013): 40–62. Beaujard is described on the jacket of his magnum opus as "ingénieur agronome, ethnologue et historien."
2. Krish Seetah email to Ned Alpers, 27 January 2014.
3. Christopher Ehret, "Linguistic Archaeology," *African Archaeological Review* 29 (2012): 109–30. More generally, see Ehret, *History and the Testimony of Language* (Berkeley: University of California Press, 2010).
4. Ehret, "Linguistic Archaeology," 109.
5. Ehret, 110.
6. Ehret, 114.

[67.248.25.248] Project MUSE (2025-07-11 01:44 GMT)

7. Ehret, 125.

8. Ehret, 126. Ehret also includes an appendix titled "What Can Go Wrong?" (126–29) in which he demonstrates how the reconstruction of "donkey" by Roger Blench fails to meet these criteria. See also Ehret's review of *Archaeology, Language, and the African Past* by Roger Blench, *Journal of African Archaeology* 6, no. 2 (2008): 259–65.

9. Charles E. M. Pearce and Frances M. Pearce, *Oceanic Migration: Paths, Sequence, Timing and Range of Prehistoric Migration in the Pacific and Indian Oceans* (New York: Springer, 2010), 73.

10. See W. Z. Wendrich et al., "Berenike Crossroads: The Integration of Information," *Journal of Economic and Social History of the Orient* 46, no. 1 (2003): 67–68, Table 2, section on "Spices and Condiments."

11. Gwyn Campbell, "The Debate over Malagasy Origins," *Zanzibar International Film Festival* [hereafter ZIFF] *Journal* 2 (2005): 5–14.

12. Solofo Randrainja and Stephen Ellis, *Madagascar: A Short History* (Chicago: University of Chicago Press, 2009), 27.

13. For an important contribution on the development of Malagasy, see Alexander Adelaar, "Malagasy Phonological History and Bantu Influence," *Oceanic Linguistics* 51, no. 1 (2012): 123–59.

14. See sources cited in Campbell, "Debate over Malagasy Origins," 7; and Randrainja and Ellis, *Madagascar*, 31–32. For an interesting comment on the possibility that Austronesians may have traveled across the Indian Ocean via the Maldive Islands, see Martin Walsh, "The Maldives Connection," *East African Notes and Records* (blog), 4 February 2011, http://notesandrecords.blogspot.com/2011/02/maldives-connection.html.

15. Philip Beale, "From Indonesia to Africa: Borobudur Ship Expedition," *ZIFF Journal* 3 (2006): 17–24. Beale's description of the route followed (22) notes the arbitrary and highly disputable decision to detour via the Seychelles "because it represented a position close to the East African coast where Indonesians certainly made contact, although no evidence of Indonesian presence on these islands have [sic] yet been found."

16. Campbell, "Debate over Malagasy Origins," 9–10; and Randrainja and Ellis, *Madagascar*, 31, 34.

17. Fitzpatrick and Callaghan, "Seafaring Simulations."

18. For an especially bizarre pseudoscientific interpretation of the settlement of Madagascar, see Pearce and Pearce, *Oceanic Migration*, 67–86 *passim*. For a different example of highly speculative hypothesis-building, see Blench, "Evidence from the Austronesian Voyages," 239–48.

19. For a convenient and up-to-date summary, though one that is not without its own contentious hypotheses, see Randrianja and Ellis, *Madagascar*, 17–43. For a wider review of both animal and human settlement of Madagascar, see Dewar and Richard, "Madagascar: A History of Arrivals." Two recent and very detailed considerations of these problems are Adelaar,

"Towards an Integrated Theory"; and Noémie Martin, "Madagascar, une île au Carrefour d'influences," *Études Océan Indien*, 46–47 (2011), https://doi.org/10.4000/oceanindien.1309. Here again, however, I note the later dating preferred by Anderson et al., this volume.

20. M. Cox et al., "Small Island Cohort," 2766.

21. There are at least two pages of Google online links to such articles under the search item "30 women founded Madagascar."

22. M. Cox et al., "Small Island Cohort," 2767.

23. M. Cox et al., 2762. The source being Harilanto Razafindrazaka et al., "Complete Mitochondrial DNA Sequences Provide New Insights into the Polynesian Motif and the Peopling of Madagascar," *European Journal of Human Genetics* 18 (2010): 575–81.

24. Denis Pierron et al., "Genome-Wide Evidence of Austronesian-Bantu Admixture and Cultural Reversion in a Hunter-Gatherer Group of Madagascar," *Proceedings of the National Academy of Sciences* 111, no. 3 (2014), https://doi.org/10.1073/pnas.1321860111.

25. Rita Astuti, "'The Vezo Are Not a Kind of People': Identity, Difference, and 'Ethnicity' among a Fishing People of Western Madagascar," *American Ethnologist* 22, no. 3 (1995): 465. See also Astuti, *People of the Sea: Identity and Descent among the Vezo of Madagascar* (Cambridge: Cambridge University Press, 1995).

26. James Hornell, "The Outrigger Canoes of Madagascar, East Africa and the Comoro Islands," *Mariner's Mirror*, 30 (1944): 3–18, 170–85. There is nothing on the sailing culture of early western Austronesians like Paul D'Arcy, "Seafaring in Oceania," chapter 4 in *The People of the Sea: Environment, Identity, and History in Oceania* (Honolulu: University of Hawaii Press, 2006).

27. Felix Chami, "Chicken Bones from a Neolithic Limestone Cave Site, Zanzibar: Contact between East Africa and Asia," in *People, Contact and the Environment in the African Past*, ed. Felix Chami, Gilbert Pwiti, and Chantal Radimilahy (Dar es Salaam: Dar es Salaam University Press, 2001), 84–97.

28. Mary E. Prendergast et al., "Continental Island Formation and the Archaeology of Defaunation on Zanzibar, Eastern Africa," *PLoS ONE* 11, no. 2 (2016): 5–6, https://doi.org/10.1371/journal.pone.0149565.

29. Shipton et al., "Reinvestigation of Kuumbi Cave," 227.

30. The late Wilfred Whiteley long ago suggested to me that someone should look at the Emakhuwa (Makua, Macua) language for possible signs of Indonesian (i.e., Austronesian) influences, but to my knowledge no one has ever attempted to do so.

31. Matthew E. Hurles et al., "The Dual Origin of the Malagasy in Island Southeast Asia and East Africa: Evidence from Maternal and Paternal

Lineages," *American Journal of Human Genetics* 76 (2005): 894–901; Sergio Tofanelli et al., "On the Origins and Admixture of Malagasy: New Evidence from High-Resolution Analyses of Paternal and Maternal Lineages," *Molecular Biological and Evolution* 26, no. 9 (2009): 2109–24; and Pierron et al., "Genome-Wide Evidence." For an interesting implication of the African component among the Malagasy, see Jason A. Hodgson et al., "Natural Selection for the Duffy-Null Allele in the Recently Admixed People of Madagascar," *Proceedings of the Royal Society B* 281 (2014), http://dx.doi.org/10.1098/rspb.2014.0930.

32. Adelaar, "Malagasy Phonological History."

33. Christopher Ehret, "Bananas in Africa: Linguistic Perspectives" (PowerPoint slides from a presentation at the 7th International Workshop for African Archaeobotany at Vienna in July 2012, email attachment from Chris Ehret to Ned Alpers, 30 October 2012).

34. Steven E. Sidebotham, *Berenike and the Ancient Spice Route* (Berkeley: University of California Press, 2011), 228–29.

35. Crowther et al., "Ancient Crops." This also finds support in Anderson et al., this volume.

36. Randrianja and Ellis, *Madagascar*, 19–24.

37. Blench, "New Paleozoogeographical Evidence."

38. Blench, 78.

39. Dewar et al., "Stone Tools and Foraging." For a brief discussion of what led Dewar to examine this site, see the obituary by Henry T. Wright III, Jean-Aimé Rakotoarisoa, and Chantal Radimilahy, "Robert E. Dewar (1949–2013)," *Azania* 48, no. 4 (2013): 534–36.

40. Dewar et al., "Stone Tools and Foraging," 12584–85.

41. Dewar et al., 12587.

42. Dewar et al., 12587. See also Burney et al., "Chronology for Late Prehistoric Madagascar," where the authors develop a large database to argue (41) that "the late prehistoric extinctions in Madagascar were not a single, brief event with a simple unicausal explanation, but rather a more complex and drawn-out process in which human-perturbed systems underwent a series of drastic phase transitions." Cf., the discussion of this question in Anderson et al., this volume.

43. See, inter alia, Atholl Anderson, "Was '*Rattus exulans*' in New Zealand 2000 Years Ago? AMS Radiocarbon Ages from Shag River Mouth," *Archaeology in Oceania* 31, no. 3 (1996): 178–84; A. Anderson, "Differential Reliability of C AMS Ages of *Rattus exulans* Bone Gelatin in South Pacific Prehistory," *Journal of the Royal Society of New Zealand* 30, no. 3 (2000): 243–61; and T. F. G. Higham et al., "Problems Associated with the AMS Dating of Small Bone Samples: The Question of the Arrival of Polynesian Rats to New Zealand," *Radiocarbon* 46, no. 1 (2004): 207–18.

44. Wilmshurst et al., "Dating the Late Prehistoric Dispersal."

45. Simon Haberle email to Haripriya Rangan and Jacques Tassin, with seven copied recipients, including me, 7 August 2013.

46. Randrianja and Ellis, *Madagascar*, 19.

47. Peter Mitchell, "Linking Up East Africa: East Africa in the Indian Ocean World II, Oxford, 22–23 March 2012," *Azania* 47, no. 2 (2012): 226–30.

48. Timothy Insoll et al., "Towards an Understanding of the Carnelian Bead Trade from Western India to Sub-Saharan Africa: The Application of UV-LA-ICP-MS to Carnelian from Gujarat, India, and West Africa," *Journal of Archaeological Science* 31 (2004): 1161–73.

49. Helm et al., "Exploring Agriculture, Interaction and Trade," 42.

50. Helm et al., 55. The reference to "hard evidence" recalls Ehret's comment about linguistic "hard evidence," for which see Ehret, "Lingustic Archaeology," 3.

51. Helm et al., "Exploring Agriculture, Interaction and Trade," 58.

52. For more on this broader topic, see Fuller and Boivin, "Crops, Cattle and Commensals"; Fuller et al., "Across the Indian Ocean"; and Rangan, Carney, and Denham, "Environmental History of Botanical Exchanges."

53. LaViolette and Fleisher, "Urban History of a Rural Place"; and Fleisher and LaViolette, "Early Swahili Trade Village."

54. Stephanie Wynne-Jones, "It's What You Do with It That Counts: Performed Identities in the East African Coastal Landscape," *Journal of Social Anthro*pology 7, no. 3 (2007): 326.

55. Wynne-Jones, 340. See also Wynne-Jones, *A Material Culture: Consumption and Materiality on the Coast of Precolonial East Africa* (New York: Oxford University Press, 2016).

56. Alpers, *Indian Ocean in World History*, 50.

57. Jeffrey Fleisher, "Performance, Monumentality and the 'Built Exterior' on the Eastern African Swahili Coast," *Azania* 48, no. 2 (2013): 263–81.

58. Fleisher, 263–64.

59. Fleisher, 267.

60. Fleisher, 270.

61. Fleisher, 277–78.

62. For more on this project to explore public space in Swahili archaeology, see Wynne-Jones, "The Swahili Stonehouse"; and Jeffrey Fleisher, "The Complexity of Public Space at the Swahili Town of Songo Mnara, Tanzania," *Journal of Anthropological Archaeology* 35 (2014): 1–22. Fleisher's research also involves geophysical surveys and geochemical sampling.

63. John M. Gray, "Bull-Baiting in Pemba," *Azania* 15, no. 1 (1980): 121–32.

64. Gillian M. Shepherd, "Two Marriage Forms in the Comoro Islands: An Investigation," *Africa: Journal of the International African Institute*, 47, no. 4 (1977): 344–59; Sophie Blanchy, "Le partage des boeufs dans les rituels sociaux du Grand Mariage à Ngazidja (Comores)," *Journal des Africanistes*, 66, nos. 1–2 (1996): 169–203; and Blanchy, "Seul ou tous ensemble? Dynamique des classes d'âge dans les cités de l'île de Ngazidja, Comores," *L'Homme* 167–68 (2003): 153–86.

65. Peter Lienhardt, "The Mosque College of Lamu and its Social Background," *Tanganyika Notes and Records* 53 (1959): 232. For a lengthier description and analysis, see Abdul Hamid M. el-Zein, *The Sacred Meadow: A Structural Analysis of Religious Symbolism in an East African Town* (Evanston, IL: Northwestern University Press, 1974), 281–321.

66. Matthew Pawlowicz, "Modelling the Swahili Past: The Archaeology of Mikindani in Southern Coastal Tanzania," *Azania* 47, no. 4 (2012): 490.

67. Pawlowicz, 502.

68. Pawlowicz, 503.

69. Pawlowicz, 504. See also Pawlowicz, "A Review of Ceramics from Tanzania, Malawi, and Northern Mozambique, with Implications for Swahili Archaeology," *African Archaeological Review*, 30 (2013): 367-98.

70. Stéphane Pradines, "L'île de Sanjé ya Kati (Kilwa, Tanzanie): un mythe Shirâzi bien réel," *Azania* 44, no. 1 (2009): 49–73; and Pradines, *Gedi, une cite portuaire swahilie. Islam medieval en Afrique orientale* (Cairo: Institut Français d'Archéologie Orientale, 2010). For a more methodologically informed reading of Shirazi myths combined with a careful reading of the archaeological evidence then available, see Randall L. Pouwels, "Eastern Africa and the Indian Ocean to 1800: Reviewing Relations in Historical Perspective," *International Journal of African Historical Studies* 35, no. 2-3 (2002): 385–425.

71. Thomas Vernet, review of *Gedi*, by Stéphane Pradines, *Journal of African Archaeology* 9, no. 2 (2011): 246–47. The original French for these passages reads, "cet intérêt pour les mondes arabo-persans se mue trop souvent en une perception profondément islamo-centrée et exogène de la société Swahili,"and "Au-delà de la méthode archéologique, le principal problème de l'ouvrage est une conception singulièrement limitée, sinon biniare, de l'identité," and "La lecture naïve qui est faite des récits shirazi est la meilleure illustration de ces divers problems."

72. For an innovative approach to locating Rhapta see Carl Hughes and Ruben Post, "A GIS Approach to Finding the Metropolis of Rhapta," in Gwyn Campbell, ed., *Early Exchange between Africa and the Wider Indian Ocean World* (Palgrave Macmillan, 2016), 135–55.

73. Casson, *Periplus Maris Erythraei*, 61, §16.

74. W. H. Schoff, trans. and ed., *The Periplus of the Erythraean Sea: Travel and Trade in the Indian Ocean by a Merchant of the First Century* (London: Longmans, Green, and Company, 1912), §16, http://www.fordham.edu/halsall/ancient/periplus.asp.

75. For a convenient review of the long history of Indian Ocean piracy, see Edward Alpers, "Piracy and Indian Ocean Africa," *Journal of African Development* 13, nos. 1–2 (2011): 17–38.

76. Pliny the Elder, book 6, ch. 26 in *Natural History*, trans. John Bostock and H. T. Riley (London: Taylor and Francis, 1855), n. 6, http://www.perseus.tufts.edu/hopper/text?doc=Perseus%3Atext%3A1999.02.0137%3Abook%3D6%3Achapter%3D26#note-link34.

77. See Gary Young, *Rome's Eastern Trade: International Commerce and Imperial Policy, 31 BC–AD 305* (London: Routledge, 2001), 20, n. 60 on 243. This misreading vexes both the Pearces and Blench (see n. 18, this chapter). My thanks to Ronald Mellor for alerting me to this source.

78. See, for example: Miriam T. Stark and S. Jane Allen, "The Transition to History in Southeast Asia: An Introduction," *International Journal of Historical Archaeology* 2, no. 3 (1998): 165; Pierre-Yves Manguin, "De la 'Grande Inde' à l'Asie du Sud-Est" la contribution de l'archéologie," *Comptes rendus des séances de l'Académie des Inscriptions et Belles-Lettres* 144, no. 4 (2000): 1485–92; and Heather Christie, "Intro to Southeast Asian Archaeology," *Rantin' and Rovin'* (blog), 21 January 2013, http://www.rantinandrovin.com/2013/01/21/intro-to-southeast-asian-archaeology/.

79. As noted by Henry T. Wright, among others, who has also conducted archaeological research in the Comoros. Wright, "Developing Complex Societies in Southeast Asia: Using Archaeological and Historical Evidence," *International Journal of Historical Archaeology* 2, no. 4 (1998): 344.

80. S. Jane Allen, "History, Archaeology, and the Question of Foreign Control in Early Historic-Period Peninsular Malaysia," *International Journal of Historical Archaeology* 2, no. 4 (1998): 267.

81. Bennett Bronson and Jan Wisseman, "Palembang as Śrīvijaya: The Lateness of Early Cities in Southern Southeast Asia," *Asian Perspectives* 19, no. 2 (1976): 220–21. A few years later Bronson amended this statement to read "no one has looked for them." See Bennett Bronson, "The Archaeology of Sumatra and the Problem of Srivijaya," in *Early South East Asia: Essays in Archaeology, History and Historical Geography*, ed. R. B. Smith and W. Watson (New York: Oxford University Press, 1979), 399. My thanks to Cal Margulis for research assistance.

82. Wolters, *Early Indonesian Commerce*. This identification was first proposed by Georges Coedès in 1918, but, although he maintained his belief

in the centrality of Palembang into the 1960s, it was not generally accepted by most scholars.

83. Bronson and Wisseman, "Palembang as Śrīvijaya," 233.

84. Bronson and Wisseman, 236.

85. O. W. Wolters, "Studying Śrīvijaya," *Journal of the Malaysian Branch of the Royal Asiatic Society* (hereafter *JMBRAS*) 52, no. 2 (1979): 1.

86. Wolters, 3, 10. Here is another echo of Ehret's admonition, which I quote earlier in this chapter (see n. 7, this chapter).

87. Wolters, 13, 16.

88. Wolters, 16.

89. Wolters, 25.

90. Wolters, 28, 32.

91. Pierre-Yves Manguin, "Palembang and Sriwijaya: An Early Malay Harbor-City Rediscovered," *JMBRAS* 66, no. 1 (1993): 25. For a wider regional perspective, see Manguin, "The Archaeology of Early Maritime Polities of Southeast Asia," in *Southeast Asia: From Prehistory to History*, ed. Ian Glover and Peter Bellwood (London: RoutledgeCurzon, 2004), 282–313.

92. Manguin, "Palembang and Sriwijaya," 27.

93. Manguin, 33–34. See also Pierre-Yves Manguin, "Sriwijaya, entre texte historique et terrain archéologique: un siècle à la recherche d'un État évanescent," *Bulletin de l'École française d'Extrême-Orient* 88 (2001): 331–39. For two very different yet related contributions, see: Dashu Qin and Kunpeng Xiang, "Sri Vijaya as the Entrepôt for Circum-Indian Ocean Trade: Evidence from Documentary Records and Materials from Shipwrecks of the 9th–10th Centuries," *Études Océan Indien* 46–47 (2011): 308–36; and John N. Miksic, "Heterogenetic Cities in Premodern Southeast Asia," *World Archaeology* 32, no. 1 (2000): 106–20.

94. See Kenneth R. Hall, *A History of Early Southeast Asia: Maritime Trade and Societal Development, 100–1500* (Lanham, MD: Rowman and Littlefield, 2011) for a current authoritative interpretation of these developments.

95. See Wikipedia, s.v. "Sriwijaya Kingdom Archaeological Park," last modified 6 June 2017, 18:09, http://en.wikipedia.org/wiki/Sriwijaya_Kingdom_Archaeological_Park; and Pierre-Yves Manguin, "'Welcome to Bumi Sriwijaya' or the Building of a Provincial Identity in Contemporary Indonesia" (Asia Research Institute Working Paper Series No. 102, National University of Singapore, February 2008).

96. Christian Kull is a human geographer in the School of Geography and Environmental Science at Monash University in Melbourne, Australia, and the Institut de géographie et durabilité at the Université de Lausanne, Géopolis, Switzerland; Jacques Tassin is a plant ecologist based in the Environment and Society Department at Cirad, the Center of International Cooperation in Agronomic Research for Development in Montpellier, France.

97. Available at http://mascarine.cbnm.org/.

98. Vijayalakshmi Teelock, "Archaeology and History of Le Morne Brabant," in *Maroonage and the Maroon Heritage in Mauritius*, ed. Vijayalakshmi Teelock (Réduit: University of Mauritius, 2005), 153–58.

99. Prosper Ève, *Les esclaves de Bourbon: la mer et la montagne* (Paris: Karthala, 2003); and Edward Alpers, "The Idea of Marronage: Politics and Literature in Réunion," *Slavery and Abolition* 25, no. 2 (2004): 18–29.

100. The phrase appears in Robert Bulwer-Lytton, "Inaugural Address," *Journal of the British Archaeological Association* 26 (1870): 22.

FIVE

History, Historical Archaeology, and the "History of Silence"

Forced and Free Labor Migration in the Indian Ocean, 1700–1900

RICHARD B. ALLEN

MORE THAN THIRTY-FIVE YEARS ago, Hubert Gerbeau discussed the problems that contributed to the "history of silence" that surrounded the history of slave trading in the Indian Ocean.[1] As the publication of important edited collections since the late 1980s[2] and recent surveys of slavery and slave trading in this oceanic world attest,[3] this silence is no longer nearly as deafening as it once was. A review of this scholarship also reveals, however, that many of the problems that Gerbeau identified in 1979—the pervasive Atlantic-centrism of slavery and African diaspora studies, the paucity of archival sources on slavery and slave trading compared to the Atlantic, the difficulties of defining and conceptualizing this oceanic world—continue to limit our understanding of the nature, dynamics, and consequences of the labor diasporas that

are an important but frequently ignored component of Indian Ocean history.[4] Similar problems constrain attempts to acquire a deeper understanding of the multicultural societies that developed in tandem with these transoceanic migrant labor trades. Other difficulties stem from the propensity of those who study these societies and cultures to view local developments through the lens of a dominant conceptual paradigm, to foreswear examining these developments in broader comparative contexts, and to avoid drawing on the methodological approaches and insights offered by other disciplines.[5] In many instances, this emphasis on the particular has resulted in studies that, while informative and insightful in many ways, ultimately shed only so much light on the societies and cultures in question.

Scholarship on labor migration in the Indian Ocean and the sociocultural history of South Africa and the Mascarene Islands of Mauritius and Réunion attests to the complexity of the human experience in the Indian Ocean basin, especially during the eighteenth and nineteenth centuries, as forced and free labor migration became an increasingly prominent feature of European colonialism in this part of the globe. This research demonstrates, moreover, that a deeper understanding of this experience is contingent upon developing a fuller awareness of the multifaceted and multidirectional connections between eastern Africa, Madagascar, the Persian Gulf, South Asia, and Southeast Asia that are a hallmark of the region's history, and a greater appreciation of the need for interdisciplinary approaches to the study of the societies and cultures in question. Historical archaeology provides one such approach because its emphasis on recovering, analyzing, and contextualizing material culture opens an avenue to examine aspects of human activity on which documentary sources may shed little, if any, light. As Alan Mayne notes in his recent review of historical archaeology, studying materiality has the potential to emphasize and recalibrate ambiguity in ways that can expand the interpretative parameters of historical understanding.[6]

What we now know about European slave trading in the Indian Ocean reinforces the need to adopt an interdisciplinary approach to studying the nature, dynamics, and impact of forced and free labor migration in this oceanic basin. British, Dutch, French, and Portuguese traders exported a minimum of 449,900–565,200 slaves from Madagascar, Mozambique, the Swahili Coast, the Persian Gulf, India, and

Southeast Asia to European administrative centers, factories, and colonies in the Indian Ocean basin between 1500 and 1850. Europeans also shipped hundreds of thousands of slaves from the Indian Ocean westward to the Americas and eastward to East Asia and the Philippines from whence thousands were subsequently transported across the Pacific to Mexico. Overall, Europeans traded at least 954,000–1,275,900 slaves within and beyond the Indian Ocean basin during this 350-year period, with much of this activity concentrated in the years between 1700 and 1850.[7]

While the volume of European slave trading in the Indian Ocean pales in comparison to the estimated 12,521,000 Africans consumed by the transatlantic trades, research on slavery in South Africa[8] and the Mascarenes[9] leaves little doubt that this transoceanic traffic in chattel labor had a pronounced impact on social, economic, cultural, and political life in European Indian Ocean establishments. Mauritius and Réunion played a particularly important role in the history of European slave trading in this region. Perhaps as many as 388,000 African, Indian, and Southeast Asian slaves were exported to the islands between 1670 and 1848, with approximately 85 percent of such exports occurring between 1770 and the early 1830s.[10] That the Mascarenes may have consumed 68–86 percent of all European transoceanic slave exports within the Indian Ocean world between 1500 and 1850 further underscores the islands' importance in regional and global migrant labor history.

Perhaps 277,000–318,000 of the slaves exported to Mauritius and Réunion reached the islands alive, where they made up the overwhelming majority of the islands' inhabitants. The slave trade's impact on Mauritian and Réunionnais society and culture is revealed in other ways. The islands drew chattel laborers from a global catchment area that stretched from West Africa eastward across the Indian Ocean to Southeast Asia. Early nineteenth-century accounts of Mauritius note that the colony housed "blacks of every ethnicity," including individuals from West Africa (Bambara, Guinean, Wolof), Mozambique and the Swahili Coast (Makonde, Makua, Ngindo, Nyambane, Nyamwezi, Sena), the Comoros (Anjouanais), Madagascar (Betsileo, Merina, Sakalava), India (Bengali, Goan, Lascar, Malabar, Talinga [Telegu]), and Southeast Asia (Malay, Timorese).[11] Early nineteenth-century Mauritian slave censuses shed additional light on the diverse backgrounds of these bondmen and bondwomen. The 1817 census, for example, reveals

that the men, women, and children who arrived from Madagascar, Mozambique, and the Swahili Coast, the most important sources of chattel labor in the Indian Ocean between 1500 and 1850, came from a large number of ethnocultural populations.[12] At least thirteen such groups on Madagascar supplied slaves to the islands, while those exported from Mozambique and the Swahili Coast came from fourteen populations that can be identified with certainty, some of which were located as far away as modern Malawi and eastern Zambia. The census includes other African and Malagasy ethnonyms whose modern equivalents remain uncertain. Other sources report the presence of slaves from the Horn of Africa (Abyssinians), the Persian Gulf (Arabs, Persians), elsewhere in Southeast Asia (Bali, Java, Makassar, Nias, Sumatra), and even China among the island's servile inhabitants.[13]

Although British, French, Mauritian, Réunionnais, and South African archives have allowed historians to reconstruct European slave trading and slavery in the western Indian Ocean in some detail, various aspects of this slave experience remain hidden from view because of what documentary sources do not discuss. While the archival record has permitted the compilation of three inventories of European Indian Ocean slave trading voyages,[14] detailed information about this traffic in chattel labor often remains elusive and problematic. An inventory of some 950 slaving voyages involving the Mascarenes between 1718 and 1809 by American, Arab (probably Omani), French, Portuguese, and Spanish ships, for example, is based mostly on the *déclarations d'arrivée*, or statements that ship captains made to authorities following their arrival at Port Louis. The content of these declarations varies widely. While statements made to admiralty officials during the 1770s, 1780s, and early 1790s are frequently more detailed than those made to colonial authorities during the first decade of the nineteenth century, this detail often consists of reports about weather conditions during the voyage and damage to the ship that captains wanted recorded for insurance or legal purposes. Many declarations are silent about exactly where or how a ship's human cargo was acquired, its size and demographic structure, shipboard conditions and slave mortality during the middle passage from Madagascar, Mozambique, the Swahili Coast, or India, or how these cargoes were disposed of once they arrived.[15] Problematic records likewise limit attempts to reconstruct the illegal slave trade that carried an estimated 122,000–149,000 slaves away from eastern Africa,

Madagascar, and Southeast Asia toward Mauritius, Réunion, and the Seychelles from 1811 to the early 1830s, some 107,000 of whom apparently reached the islands alive.[16]

Similar constraints compromise our ability to develop a fuller understanding of slave life in the Mascarenes before the abolition of slavery in Mauritius and its dependencies in 1835 and on Réunion in 1848. Although governmental sources such as censuses, judicial records, maroon registers, the reports of royal commissions of inquiry, and annual reports on the colony's condition make it possible to reconstruct local slave populations' demographic structure, to ascertain how slaves were employed and treated, and to discuss public acts of slave resistance, especially maroonage,[17] much of this documentation dates to the first half of the nineteenth century. Comparable information on the eighteenth century is often less readily available, partly because of the officially sanctioned destruction of documents during the nineteenth century and the loss of others since then because of neglect, insect predation, and the damage wrought by cyclones and the island's tropical climate.[18] Studies of Mauritian, Réunionnais, and Seychellois slavery likewise reveal little about the internal dynamics of local slave society or slaves' cultural beliefs and practices, much less processes of creolization.[19] On those occasions when slaves themselves speak to us, often indirectly via colonial officials who recorded their complaints, they rarely refer to the sociocultural world in which they lived.[20] Occasional archival hints about this world, such as the discourse networks they created,[21] highlight the need for new strategies to probe otherwise opaque realms of slave life. A police report dated 26 September 1799 is a tantalizing case in point. The report notes that a male slave belonging to a Mr. Humblot had been murdered by maroon slaves who left the corpse surrounded by the heads of fowls (*têtes de volailles*) they had stolen from Humblot, an act that points to religious or cultural practices not unlike those associated with voodoo in the Caribbean.[22]

Recent excavations in Mauritius, South Africa, and elsewhere in the European colonial world underscore the important role that historical archaeology can play in deepening our understanding of European slave systems in the Indian Ocean. The discovery and excavation of the wreck of *Le Coureur*, a notorious slaver that landed six illegal cargoes, each containing 150–200 slaves, on Mauritius during 1819 and 1820,[23] afforded an opportunity to explore the day-to-day dynamics of European

slave trading in the Indian Ocean in greater detail, recover potential evidence of slaves' material culture,[24] and ultimately compare this activity with that of European slavers that operated elsewhere in the region and in the Atlantic.[25] That only a few of the more than 180 documented shipwrecks of slavers operating in the Atlantic have been located, much less excavated,[26] makes *Le Coureur*'s discovery all that much more noteworthy and a powerful incentive to locate other wrecked slave ships in the Indian Ocean.[27] The Mascarene slave trade inventory includes 22 other wrecks between 1733 and 1803 (table 5.1). Of these, that of *L'Aurore* may be an especially suitable candidate for archaeological survey and excavation. The ship, which was the site of a slave insurrection on 19 January 1790 while anchored off Mozambique Island, was wrecked four weeks later in the Mozambique roads with a cargo of 600 slaves on board destined for the Americas, only 269 of whom apparently survived this catastrophe.[28]

That archaeological research has the potential to shed significant light on hitherto hidden aspects of slave life in the southwestern Indian Ocean is indicated in other ways. Excavations on the island of Tromelin, 350 miles north of Mauritius, yielded significant information about the determination of the slaves marooned on the island for fifteen years after the 1761 wreck of the French slaver *L'Utile* to survive.[29] Those near Cape Town at the places along the Platteklip stream used by slave washerwomen during the eighteenth century resulted in the recovery of thousands of artifacts that have provided information about slave women's work in the kind of detail rarely found in documentary sources.[30] Research in the caves near Shimoni on the southern Kenyan coast has, in turn, provided insights into how slaves were held for export during the nineteenth century.[31] Archaeological sites that can be linked definitively with slavery remain a rarity in Mauritius,[32] but the reward that identification and excavation of such sites may yield is suggested by fieldwork at the Powder Mills in Pamplemousses that produced fifteen metal badges similar to well-documented slave badges from Charleston, South Carolina. Because these badges were probably worn by government-owned slaves assigned to these gunpowder works, they may provide an opportunity to discern how this chattel workforce was organized and controlled.[33] Excavations of slave sites in the Caribbean provide a template for the ways in which historical archaeology can deepen our understanding of the slave experience, including the creolization process, in

TABLE 5.1. Shipwrecks and the Mascarene slave trade, 1733–1803

Year	Ship	Tons	Slave Cargo	Wreck Site
1733	*La Vénus*	300	---	Réunion
1733	*La Méduse*	300	39[a]	Mauritius, Pointe aux Canonniers
1739	*La Subtile*	130	190	Mangaëls [*sic*], Madagascar
1761	*L'Utile*	---	60+	Tromelin Island
1777	*L'Indigent*	---	---	Anbonin, Madagascar
1778	*Les Deux Amis*	150	---	Unknown – sailed from Bengal
1780	*L'Entreprenant*	---	82	Fort Dauphin, Madagascar
1784	*La Ste. Anne*	300	c. 364?[b]	Ibo, Mozambique
1785	*Le Bélisaire*	250	246[c]	Ibo, Mozambique
1786	*Le David*	438	386?	Mozambique
1786	*La Belle Union*	---	18[a]	Fort Dauphin, Madagascar
1788	*La Françoise*	---	43?	Zanzibar
1788	*L'Insulaire*	---	10[d]	Coetivi, Seychelles
1788	*La Diane*	425	---	Cape of Good Hope
1789	*Le Chorèbe*	326	386	East African coast
1790	*L'Aurore*	522	600	Mozambique roads
1790	*La Paquete de Bourbon*	---	---	Matundo island, Mozambique coast
1790	*Le Diligent*	---	60[e]	Seychelles
1791	*La Belle Africaine*	---	361[e]	East African coast
1792	*L'Idée*	250	10[f]	Foulpointe, Madagascar
1792	*Le Sauveur de l'Ile de France*	---	144[g]	Soug Soug islands, Swahili Coast
1803	*L'Ana Joaquina*	250	365+[h]	Unknown – Mozambique coast?

N*otes:*
a Number of slaves saved at time of wreck.
b Number of slaves acquired during a 1783 voyage to Mozambique.
c Number of slaves loaded; 168 deaths at sea and from shipwreck.
d Number of slaves returned to Mauritius.
e Fifty-five slaves saved.
f Nine slaves saved.
g One hundred twenty-seven slaves saved.
h Approximately 55 slaves lost at time of shipwreck.
S*ource:* Richard B. Allen, unpublished Mascarene slaving voyage inventory, 1639–1816.

the Indian Ocean.[34] Excavation of such sites in the Mascarenes can also be potentially important for comparing the slave experience in these islands with that in the French Caribbean.[35]

Excavations at a small cemetery near Le Morne in the island's southwestern corner demonstrate that historical archaeology also has the potential to expand our understanding of other important groups in colonial slave societies such as *gens de couleur libres*, or free(d) persons of color. The Mauritius National Archives' extensive collection of notarial acts has been an invaluable resource in reconstructing the history of this population, which became increasingly important socially and economically during the late eighteenth and early nineteenth centuries, as well as the life histories of individual *gens de couleur*.[36] Such reconstructions ultimately remain incomplete, however, because archival information about these men and women comes largely, if not exclusively, from governmental and legal documents whose content is invariably circumscribed in one way or another. Analysis of the human remains recovered from the Le Morne cemetery, by comparison, provides a unique opportunity to investigate living conditions and cultural practices in a rural free colored or possibly slave community in early nineteenth-century Mauritius without having to contend with the distortions that invariably color contemporary accounts of slave and/or free colored life on the island.[37]

Historical archaeology's potential to shed additional light on hitherto obscure or opaque aspects of the slavery and slave trading extends to the other migrant labor trades that flourished in the Indian Ocean between the 1780s and the late nineteenth century. Late eighteenth- and early-nineteenth-century attempts to abolish European slave trading in the Indian Ocean resulted in the increasingly interconnected movement of slave, convict, and indentured labor within the Indian Ocean.[38] British authorities transported at least 74,800 and perhaps as many as 100,000 or more Indian and Ceylonese convicts to the Andaman Islands, Bencoolen (Benkulen, Bengkulu) on Sumatra's west coast, Burma (Myanmar), Malacca (Melaka), Mauritius, Penang, and Singapore, mostly between the late 1780s and mid-nineteenth century.[39] The 1830s to early 1920s witnessed the migration of 2.2 million African, Chinese, Indian, Japanese, Javanese, Melanesian, and other indentured laborers throughout and beyond the European colonial plantation world in what is frequently characterized as a "new system of slavery."[40] Similar

structural links with slavery are a hallmark of the *engagé* system that entailed the recruitment of 50,000 ostensibly liberated slaves and free contractual laborers along the East African coast and in Madagascar to work on Mayotte in the Comoros, the island of Nosy Bé off Madagascar's northwest coast, and Réunion during the second half of the nineteenth century.[41]

Mauritius has long been acknowledged as the crucial test case in the use of indentured labor in the postemancipation plantation world.[42] More indentured laborers landed on the island than any other European colony, while the total number of such workers in the Indian Ocean surpassed those who arrived in the Caribbean by 259,000. The Indian Ocean's significance in the history of this global labor migration becomes even more pronounced if the 1.5 million or more men and women who emigrated from southern India to plantations in Ceylon (Sri Lanka) and Malaya to work under short-term, often verbal, contracts between the 1840s and the early twentieth century and the 700,000–750,000 Indian migrants who labored on Assamese plantations between 1870 and 1900 are included in this labor diaspora.[43]

As even cursory searches of the *World Catalogue* and *Historical Abstracts* reveal, indentured labor is the subject of substantial research, research facilitated by an extensive body of official and unofficial documentation about the men, women, and children who migrated throughout a colonial plantation world that reached from the Caribbean to South Africa, eastern Africa, the southwestern Indian Ocean, South and Southeast Asia, and the South Pacific.[44] Indentured labor in Mauritius has likewise been a subject of considerable scholarly interest.[45] A review of this scholarship reveals, however, that despite the existence of often detailed information about the indentured experience, including that provided by immigrants themselves in their petitions and letters,[46] important aspects of the sociocultural world in which these men, women, and children lived remain hidden from view. While the Aapravasi Ghat, as the immigration depot in Port Louis is now known, and other structures associated with indentured labor in Mauritius have been the subject of archaeological investigation,[47] these excavations have revealed little about the more intimate and intriguing aspects of these immigrants' lives.

A striking feature of slave, convict, and indentured labor studies is the marked propensity among historians to study these populations in isolation from one another even though we know that these ethnically

and culturally diverse populations interacted with each other in various ways. Indentured Indians labored alongside slaves in Mauritian cane fields during the late 1820s and early 1830s, and continued to do so with the island's apprentices and ex-apprentices after the abolition of slavery in 1835 and the apprenticeship system's collapse in 1838, respectively. This historiographical apartheid is a product of the conceptual parochialism that is a persistent problem in indentured and global labor studies[48] and the content of the archival materials at our disposal. Mauritian colonial officials, for example, paid less and less attention to the island's emancipated slaves after the "apprenticeship" system ended in 1838 as they focused on managing the tens of thousands of indentured Indians who arrived in the colony during the 1840s. As a result of this governmental disinterest, ex-apprentices largely disappear as a readily discernible sociopolitical entity in Mauritian history after 1851.[49]

While sources such as notarial records provide occasional tantalizing glimpses into the social and cultural world of the colony's Creole and Indian immigrant populations,[50] the nature and extent of these communities' interactions with each other remain shrouded by the mists of time. Oral tradition and family histories provide obvious avenues to explore these relationships in greater detail but, as historians know only too well, such sources can be problematic, especially in societies with well-educated populations with access to published histories of their ancestors, community, or locality.[51] As the excavation of an East Indian laborer's house site at Seville plantation in Jamaica demonstrates,[52] historical archaeology holds out the promise of providing an alternative opening to a more comprehensive understanding of cultural identity and diversity in the plural societies created by the slave and indentured labor trades.

If the multidirectional movement of hundreds of thousands of forced and free laborers in the Indian Ocean basin during the eighteenth and nineteenth centuries provides an obvious starting point to establish a historical archaeological research agenda for the Indian Ocean world,[53] historians and archaeologists must remain aware of the problems they will invariably face in pursuing such an agenda. Some aspects of slave life, such as maroonage, will never lend themselves to archaeological investigation unless sites associated with well-developed, long-term maroon communities, such as those found in the Americas and Kenya, can be identified.[54] Recent attempts to use archaeology to document maroon activity in Mauritius are a classic case in point. Excavations conducted

on and near Le Morne, popularly regarded as an important refuge for fugitive slaves, yielded results that can only be characterized as problematic and inconclusive.[55] These results, coupled with the small number of archival references to maroon slaves on and near Le Morne, mandated that the dossier nominating the Le Morne Cultural Landscape for inscription as a UNESCO World Heritage Site (WHS) had to emphasize the mountain's intangible cultural, rather than historical, value as a symbol of slave resistance and sacrifice.[56]

If some facets of the free and forced migrant labor experience in the Indian Ocean will remain beyond the historian and archaeologist's reach, other aspects of that experience will undoubtedly lend themselves to collaborative interdisciplinary research. What we now know about slaves and indentured laborers suggests that a central component of such a research agenda should be the identification and excavation of sites that housed both slave and indentured populations.[57] Such an agenda should likewise include identification and excavation of sites associated with the convict systems that scattered tens of thousands of individuals throughout the Indian Ocean basin during the late eighteenth and nineteenth centuries. Excavations in western and northern Australia and Tasmania[58] highlight the potential value of doing so at Bencoolen and Penang and in the Andamans where structures closely associated with convict laborers or constructed specifically to house them have been documented. As research in the Caribbean demonstrates, historical archaeologists working in the Indian Ocean also need to focus on sites associated not only with sugar and other commodity production, but also with marketing these commodities.[59]

Any such agenda must invariably include a commitment by both historians and historical archaeologists to situate the results of their research in appropriately developed comparative contexts. As reports on the excavation of Dutch East India Company (VOC) forts at Katuwana in Sri Lanka and Vieux Grand Port in Mauritius illustrate,[60] examining these sites in isolation does little to deepen our understanding of the ways in which these constituent elements of the VOC company-state functioned. The need to contextualize such studies is underscored by the growing body of scholarship on the British, Dutch, French, and Portuguese imperial networks that are a hallmark of European presence in the Indian Ocean,[61] networks that intersected and overlapped in ways that we are only beginning to discern, much less understand.

NOTES

1. Gerbeau, "Slave Trade in the Indian Ocean."

2. For example: William Gervase Clarence-Smith, ed., *The Economics of the Indian Ocean Slave Trade in the Nineteenth Century* (London: Frank Cass, 1989); Campbell, *Structure of Slavery*; Campbell, ed., *Abolition and Its Aftermath in Indian Ocean Africa and Asia* (London: Routledge, 2005); Gwyn Campbell, Suzanne Miers, and Joseph C. Miller, eds., *Women and Slavery*, vol. 1, *Africa, the Indian Ocean World, and the Medieval North Atlantic* (Athens: Ohio University Press, 2007); Harms, Freamon, and Blight, *Indian Ocean Slavery*; Campbell and Stanziani, *Bonded Labour and Debt*; and Henri Médard et al., eds., *Traites et esclavages en Afrique orientale et dans l'océan Indien* (Paris: Karthala, 2013).

3. Marina Carter, "Slavery and Unfree Labour in the Indian Ocean," *History Compass* 4, no. 5 (2006): 800–813; Gwyn Campbell, "Slavery and the Trans-Indian Ocean World Slave Trade: A Historical Outline," in Ray and Alpers, *Cross Currents and Community Networks*, 286–305; Henri Médard, "La traite et l'esclavage en Afrique orientale et dans l'océan Indien: Une historiographie éclatée," in Médard et al., *Traites et esclavages*, 31–63; and Médard, "La plus ancienne et la plus récente des traites: Panorama de la traite et de l'esclavage en Afrique orientale et dans l'océan Indien," in Médard et al., *Traites et esclavages*, 65–118.

4. Histories of the Indian Ocean and its major regions frequently pay little, if any, attention to these labor trades. See: Auber, *Histoire de l'océan Indien*; Toussaint, *Histoire de l'océan Indien*, Eng. trans. as *History of the Indian Ocean*; Toussaint, *L'océan Indien au XVIIIe siècle*; Chaudhuri, *Trade and Civilisation*; Kenneth McPherson, *The Indian Ocean: A History of People and the Sea* (Delhi: Oxford University Press, 1993); Richard Hall, *Empires of the Monsoon: A History of the Indian Ocean and Its Invaders* (London: HarperCollins, 1996); R. J. Barendse, *The Arabian Seas: The Indian Ocean World of the Seventeenth Century* (Armonk, NY: M.E. Sharpe, 2002); M. Pearson, *Indian Ocean*; Kearney, *Indian Ocean in World History*; Sugata Bose, *A Hundred Horizons*; Beaujard, *Les mondes de l'océan Indien*; Sunil S. Amrith, *Crossing the Bay of Bengal: The Furies of Nature and the Fortunes of Migrants* (Cambridge, MA: Harvard University Press, 2013); and Alpers, *Indian Ocean in World History*.

5. Richard B. Allen, "The Intellectual Complacency of Contemporary Plantation Studies," *Historian* 57, no. 3 (1995): 582–86; R. Allen, "Indentured Labor and the Need for Historical Context," *Historian* 63, no. 2 (2001): 390–94; and R. Allen, "'New System of Slavery.'"

6. Alan Mayne, "Edges of History," 94. On the ways in which archaeological fieldwork can transform our understanding of the Indian Ocean world before c. 1500, see Edward A. Alpers, this volume.

7. R. Allen, *European Slave Trading*, 16–19, 22, 24.

8. For example: Robert C.-H. Shell, *Children of Bondage: A Social History of the Slave Society at the Cape of Good Hope, 1652–1838* (Middletown, CT: Wesleyan University Press, 1994); and Nigel Worden, *Slavery in Dutch South Africa* (Cambridge: Cambridge University Press, 1995). On Asian slaves, convicts, and other migrants reaching South Africa, see: Kerry Ward, "Southeast Asian Migrants," in Nigel Worden, ed., *Cape Town between East and West: Social Identities in a Dutch Colonial Town* (Auckland Park, South Africa: Jacana Media, 2012), 84–100; and James C. Armstrong, "The Chinese Exiles," in Worden, *Cape Town*, 101–27.

9. J. V. Payet, *Histoire de l'esclavage à l'Ile Bourbon* (Paris: L'Harmattan, 1990); Karl Noël, *L'esclavage à l'Isle de France (Ile Maurice) de 1715 à 1810* (Paris: Éditions Two Cities ETC, 1991); Sudel Fuma, *L'esclavagisme à La Réunion* (Paris: L'Harmattan, 1992); Anthony J. Barker, *Slavery and Antislavery in Mauritius 1810–33: The Conflict between Economic Expansion and Humanitarian Reform under British Rule* (London: Macmillan Press, Ltd., 1996); Deryck Scarr, *Slaving and Slavery in the Indian Ocean* (London: Macmillan Press, Ltd., 1998); Teelock, *Bitter Sugar*; Deryck Scarr, *Seychelles since 1770: History of a Slave and Post-slavery Society* (London: Hurst and Company, 2000); Hubert Gerbeau, "L'esclavage et son ombre: L'île Bourbon au XIXe et XXe siècles" (Thèse pour le doctorat d'État, Université de Provence [Aix-Marseille I], 2005); Megan Vaughan, *Creating the Creole Island: Slavery in Eighteenth-Century Mauritius* (Durham, NC: Duke University Press, 2005); and Prosper Ève, *Le corps des esclaves de l'île Bourbon: Histoire d'une reconquête* (Paris: Presse de l'Université Paris-Sorbonne, 2013).

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11. M. J. Milbert, *Voyage pittoresque à l'Ile de France, au Cap de Bonne-Espérance et à l'Ile de Ténériffe*, vol. 1 (Paris: A. Nepveu, 1812), 162; Antoine d'Unienville, *Statistiques de l'île Maurice et ses dépendances suivie d'une notice historique sur cette colonie et d'un essay sur l'île de Madagascar*, vol. 1 (Paris: Gustave Barba, 1838), 241–42; and Raymond Decary, *Les voyages du chirurgien Avine à l'île de France et dans la mer des Indes au début du XIXe siècle* (Paris: G. Durassié et Cie, 1961), 17.

12. National Archives of the United Kingdom, Kew: T 71/566, Registry of Personal Slaves, 1817; and T 71/571, Registry of Plantation Slaves, 1817.

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des Pays d'Outre-Mer, 1978), 160–64; Gerbeau, "Les esclaves asiatiques des Mascareignes: Enquêtes et hypothèses," *Annuaire des pays de l'océan Indien* 7 (1980): 169–97; Marina Carter, "Indian Slaves in Mauritius (1729–1834)," *Indian Historical Review* 15, nos. 1–2 (1988): 233–47; Richard B. Allen, "Carrying Away the Unfortunate: The Exportation of Slaves from India during the Late Eighteenth Century," in *Le monde créole: Peuplement, sociétés et condition humaine XVIIe–XXe siècles*, ed. Jacques Weber (Paris: Les Indes Savantes, 2005), 285-98; and Marina Carter, "A Servile Minority in a Sugar Island: Malay and Chinese Slaves in Mauritius," in Weber, *Le monde créole*, 257–71.

14. Michael Reidy, *Ocean of Suffering: Trans-Indian Ocean Slave Trade Database, 1654 to 1860* (n.p.: Amazon Digital Services, 2015), which includes information on more than eight hundred slave ships that passed the Cape of Good Hope between 1654 and 1860, is currently available only as a Kindle download. The two inventories that I compiled on the Mascarene slave trade from 1639 to 1816 and British East India Company slaving voyages between 1622 and 1772 have yet to be published; their contents are discussed in R. Allen, *European Slave Trading*.

15. An exception is *L'Espérance*'s 1774–75 slaving voyage to Zanzibar (Mauritius National Archives [hereafter MNA]: OC 24B, Journal de navigation du vaisseau L'Espérance, cap. Desmolière, faisant la traite à la côte d'Afrique, 5 novembre 1774–30 mai 1775 [incomplet]). On this voyage, see also: Pierre Brest, "Un exemple de commerce 'quadrangulaire' au XVIIIe siècle: Le périple de '*L'Espérance*' (1774–1775)," *Tsingy* 1 (2005): 5–11; and Thomas Vernet, "La première traite française à Zanzibar: Le journal de bord du vaisseau *L'Espérance*, 1774–1775," in *Civilisations des mondes insulaires (Madagascar, îles du canal de Mozambique, Mascareignes, Polynésie, Guyanes)*, ed. Chantal Radimilahy and Narivelo Rajaonarimanana (Paris: Éditions Karthala, 2011), 477–521.

16. R. Allen, *European Slave Trading*, 141–58.

17. On maroonage in the islands, see: R. Allen, *Slaves, Freedmen*, 35–54; Amédée Nagapen, *Le marronnage à l'Isle de France-Ile Maurice: Rêve ou riposte de l'esclave?* (Port Louis, Mauritius: Centre Culturel Africain, 1999); Ève, *Les esclaves de Bourbon*; Richard B. Allen, "A Serious and Alarming Daily Evil: Maroonage and Its Legacy in Mauritius and the Colonial Plantation World," *Slavery and Abolition* 25, no. 2 (2004): 1–17; and Teelock, *Maroonage and the Maroon Heritage*.

18. Auguste Toussaint, *La route des îles: Contribution à l'histoire maritime des Mascareignes* (Paris: SEVPEN, 1967), 98–99.

19. A notable exception is Pier Larson, *Ocean of Letters: Language and Creolization in an Indian Ocean Diaspora* (Cambridge: Cambridge University Press, 2009).

20. See, for example, the complaints slaves lodged with the Mauritian Protector of Slaves, some of which were published in the British Parliament Sessional Papers (hereafter PP) 1830–31 XV [262-VI]. The office of protector was established in 1829.

21. Fiona Vernal, "Discourse Networks in South African Slave Society," *African Historical Review* 43, no. 2 (2011): 1-36.

22. MNA: Z2B/9, fols. 64r–65v, 4 vendémiaire An VIII, no. 199. On the ways in which archaeology can help shed light on socioeconomic networks within and between nearby plantation colonies, see: Mark W. Hauser, "Routes and Roots of Empire: Pots, Power, and Slavery in the 18th-Century British Caribbean," *American Anthropologist* 113, no. 3 (2011): 431–47; and Hauser, "The Infrastructure of Nature's Island: Settlements, Networks and Economy in Two Plantations in Colonial Dominica," *International Journal of Historical Archaeology* 19, no. 3 (2015): 601–22. On archaeology's ability to provide insights into slave religious and cultural systems, see James M. Davidson, "'A Cluster of Sacred Symbols': Interpreting an Act of Animal Sacrifice at Kingsley Plantation, Fort George Island, Florida (1814–39)," *International Journal of Historical Archaeology* 19, no. 1 (2015): 76–121.

23. PP 1829 XXV [292], Report of the Commissioners of Inquiry upon the Slave Trade at Mauritius, 22–23. On the ship's discovery and excavation, see: Ibrahim Metwalli, Nicholas Bigourdan, and Yann van Arnim, "Interim Report of a Shipwreck at Pointe aux Feuilles, Mauritius: *Le Coureur* (1818), an Illegal Slave Trader?," *Bulletin of the Australasian Institute for Maritime Archaeology* 31 (2007): 74–81; and Yann van Arnim, "*Le Coureur*. Recherches historiques et archéologiques sur un navire négrier de Maurice à l'époque de la traite illégale," in *Traites, esclavage et transition vers l'engagisme: Perspectives nouvelles sur les Mascareignes et le sud-ouest de l'océan Indien, 1715–1848*, ed. Vijaya Teelock and Thomas Vernet (Réduit: University of Mauritius, 2015), 40–45.

24. Jerome S. Handler, "The Middle Passage and the Material Culture of Captive Africans," *Slavery and Abolition* 30, no. 1 (2009): 1–26; and Helen MacQuarrie and Andrew Pearson, "Prize Possessions: Transported Material Culture of the Post-abolition Enslaved – New Evidence from St. Helena," *Slavery and Abolition* 37, no. 1 (2016): 45–72.

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die Kaapse slaweskip Leijdsman, *1715* (Cape Town: Africana Publishers, 2006); Andrew Alexander, "Shipboard Slave Uprisings on the Malagasy Coast: The *Meermin* (1776) and *De Zon* (1775)," *Kronos* 33 (2007): 84–111; and Arne Bialuschewski, "Anatomy of a Slave Insurrection: The Shipwreck of the *Vautour* on the West Coast of Madagascar in 1725," *French Colonial History* 12 (2010): 87–101. On the operation of slave ships in the Atlantic, see: Robert Harms, *The Diligent: A Voyage through the Worlds of the Slave Trade* (New York: Basic Books, 2002); Emma Christopher, *Slave Ship Sailors and Their Captive Cargoes, 1730–1807* (Cambridge: Cambridge University Press, 2006); Eric Robert Taylor, *If We Must Die: Shipboard Insurrections in the Era of the Atlantic Slave Trade* (Baton Rouge: Louisiana State University Press, 2006); Marcus Rediker, *The Slave Ship: A Human History* (New York: Viking, 2007); Stephanie Smallwood, *Saltwater Slavery: A Middle Passage from Africa to American Diaspora* (Cambridge, MA: Harvard University Press, 2007); and Sowande' M. Mustakeem, *Slavery at Sea: Terror, Sex, and Sickness in the Middle Passage* (Urbana: University of Illinois Press, 2016). For recent archaeological work on wrecked slavers, see: David D. Moore and Corey Malcom, "Seventeenth-Century Vehicle of the Middle Passage: Archaeological and Historical Investigations on the *Henrietta Marie* Shipwreck Site," *International Journal of Historical Archaeology* 12, no. 1 (2008): 20–38; and Nigel Sadler, "The *Trouvadore* Project: The Search for a Slave Ship and Its Cultural Importance," *International Journal of Historical Archaeology* 12, no. 1 (2008): 53–70.

26. Jane Webster, "Slave Ships and Maritime Archaeology: An Overview," *International Journal of Historical Archaeology* 12 (2008): 6–19.

27. See the activities of the Southern African Slave Wrecks and Diaspora Heritage Routes Project (https://nmaahc.si.edu/explore/initiatives/slave-wrecks-project;https://www.iziko.org.za/static/page/the-slave-wrecks-project). The discovery of the Portuguese slaver *São José-Paquete de Africa* near Cape Town in 2015 elicited considerable media attention (e.g., http://www.digitaljournal.com/science/sunken-18th-century-slave-ship-found-off-cape-town-south-africa/article/434799; http://www.huffingtonpost.com/2015/06/01/slave-ship-wreck_n_7486978.html). For a fuller account of the ship's discovery and excavation, see Jaco Jacqes Boshoff et al., *From No Return: The 221-Year Journey of the Slave Ship São José* (Washington, DC: Smithsonian Institution/National Museum of African American History and Culture, 2017).

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31. Herman O. Kiriama, "Archaeological Investigation of Shimoni Slave Caves," in *Slaves Routes and Oral Tradition in Southeastern Africa*, ed. Benigna Zimba, Edward Alpers, and Allen Isaacman (Maputo, Mozambique: Filsom Entertainment, Lda., 2005), 157–69.

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49. R. Allen, *Slaves, Freedmen*, 134–35. The last expression of official interest in this population dates to 1866.

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51. For example: Marina Carter, ed., *Across the Kalipani: The Bihari Presence in Mauritius* (Port Louis, Mauritius: Centre for Research on Indian Ocean Societies, 2000); Marina Carter and Raymond d'Unienville, *Unshackling Slaves: Liberation and Adaptation of Ex-Apprentices* (London: Pink Pigeon Books, 2000); Benjamin Moutou, *La Rivière Noire: 400 ans d'histoire, 1601–2001* (Port Louis, Mauritius: Caractère Ltée, 2002); M. Carter, V. Govinden, and S. Peerthum, *The Last Slaves: Liberated Africans in 19th Century Mauritius* (Port Louis, Mauritius: Centre for Research on Indian Ocean Societies, 2003); Amenah Jahangeer-Chojoo, *La rose et le henné: Une étude des musulmans de Maurice* (Moka, Mauritius: Mahatma Gandhi Institute, 2004); Huguette Ly-Tio-Fane Pineo and Edouard Lim Fat, *From Alien to Citizen: The Integration of the Chinese in Mauritius* (Rose Hill, Mauritius: Éditions de l'Océan Indien, 2008); Benjamin Moutou, *Pamplemousses, Rivière du Rempart: Quatre siècles d'histoire* (Riche-Terre, Mauritius: Alfran Graphic and Print Co., 2008); and Vishwanaden Govinden and Marina Carter, *Gokoola Family, Temple and Village: By the Banian Tree We Stand* (Port Louis, Mauritius: Aapravasi Ghat Trust Fund, 2012).

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53. For an overview of the archaeology of slavery and indenture in Mauritius, see Seetah, "Archaeology of Mauritius."

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56. See http://whc.unesco.org/en/list/1259.

57. On some of the problems in doing so, see Vijayalakshmi Teelock, "The Potential of Archaeology for the Study of Mauritian Indenture History and Heritage," in Teelock et al., *Angajé*, vol. 2, *The Impact of Indenture*, 101–19.

58. Clayton Fredericksen, "Confinement by Isolation: Convict Mechanics and Labour at Fort Dundas, Melville Island," *Australasian Historical Archaeology* 19 (2001): 48–59; Martin Gibbs, "The Archaeology of the Convict System in Western Australia," *Australasian Historical Archaeology* 19 (2001): 60–72; and Caitlyn D'Gluyas et al., "Everyday Artefacts: Subsistence and Quality of Life at the Prisoner Barracks, Port Arthur, Tasmania," *Archaeology in Oceania* 50 (2015): 130–37.

59. For example, Frederick H. Smith and Karl Watson, "Urbanity, Sociability, and Commercial Exchange in the Barbados Sugar Trade: A Comparative Colonial Archaeological Perspective on Bridgetown, Barbados in the Seventeenth Century," *International Journal of Historical Archaeology* 13 (2009): 63–79.

60. Ranjith M. Jayasena, "The Historical Archaeology of Katuwana, a Dutch East India Company Fort in Sri Lanka," *Post-Medieval Archaeology* 40, no. 1 (2006): 111–28; and Pieter M. Floore and Ranjith M. Jayasena, "In Want of Everything? Archaeological Perceptions of a Dutch Outstation on Mauritius (1638–1710)," *Post-Medieval Archaeology* 44, no. 2 (2010): 320–40.

61. For example: Kerry Ward, *Networks of Empire: Forced Migration in the Dutch East India Company* (Cambridge: Cambridge University Press, 2009); Machado, *Ocean of Trade*; and R. Allen, *European Slave Trading*.

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The Archaeology of Colonial Encounters in Coastal East Africa

Recent Developments and Continuing Conceptual Challenges

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Africa can only be deciphered when history and archaeology are at least coordinated.

—Gervase Mathew[1]

Invoking cultural flows or continuities across the Indian Ocean doesn't help us conceptualise the nature of those connections—or account for potential divergences or disjunctures.

—William C. Bissell[2]

THE PURPOSE OF THIS chapter is to review three overlapping issues as they relate to the archaeology of roughly the last five hundred years of coastal East Africa[3] (i.e., corresponding to the period following the entry of the Portuguese sea captain and explorer Vasco de Gama and his flotilla into the Indian Ocean in November 1497). One of these themes concerns the historiography of archaeology in East Africa, and in particular how the colonial context within which the first systematic efforts to document and interpret the region's coastal archaeology took place has left a lasting legacy. Specifically, I argue that this inadvertently encouraged a general neglect of the archaeology of the last five hundred years along the coast, and refer to this as the "foreshortening of Swahili archaeology." Related to this point, I explore how this foreshortening partly derives from contrasting definitions of "historical archaeology" and their changing application in the region. As a consequence, I suggest, there has also been a general reluctance to engage, both theoretically and practically, with the material legacies of colonial encounters along East Africa's seaboard. I nonetheless acknowledge that even in the early decades of "Swahili" or "coastal" archaeology in East Africa there were important exceptions to this. Accordingly, the final aim of the chapter is to review work framed specifically to investigate the archaeology of colonialism and how continuing efforts in this regard have the potential to deepen scholarly understanding of the history of coastal East Africa.

ARCHAEOLOGICAL HISTORIES IN EAST AFRICA

In East Africa, there is a general, implicit tendency for archaeological research in the region to focus on the evidence from periods prior to 1500 CE. This is in marked contrast to the situation in several areas of southern and western Africa, where there has been a longer and more sustained interest in the archaeology of the last five hundred years, beginning with a focus on the archaeology of colonial encounters and the transatlantic slave trade and expanding in recent decades to cover other topics.[4] Several reasons can be forwarded to account for the comparative neglect of the archaeology of recent centuries in East Africa. These include the low numbers of professional archaeologists, even today, across East Africa, the relative scarcity of research funds available for archaeological investigations of any kind, and the continuation of an unspoken intellectual division of labor between archaeologists and historians that

was established over half a century ago when both fields were very much in their infancy.[5] This latter factor remains especially influential, even though the past decade has witnessed a growth in the number of studies that might be loosely described as examples of historical archaeology.[6]

This neglect of the archaeology of the last five hundred years is particularly apparent for the East African coast, where, despite the presence of archaeological remains associated with different colonizing powers, there has been only limited study of these, and remarkably few studies, also, of post-1500 CE archaeological sites associated with indigenous populations. Again, this contrasts with the situation in some other parts of the continent, where archaeological study of encounters between indigenous African societies and European colonizing powers has been a defining characteristic of historical archaeology for over twenty years.[7] It also contrasts with wider global research interests in the archaeology of colonial encounters more generally and not just those relating to the expansion of European powers after 1500 CE.

One consequence of the lack, until very recently, of any explicit effort to develop a theoretically informed historical archaeology of colonial encounters is that coastal archaeology in East Africa remains dominated by a particular temporal construct of "Swahili archaeology" that limits this to the period roughly between 750 and 1500 CE. Research conducted on this time period, sometimes considered to be the "Golden Age of the Swahili," has unquestionably resulted in major advances in our knowledge and understanding of the archaeology of the East African littoral and offshore islands during the first fifteen hundred years of the Common Era.[8] However, the reluctance to engage with the material consequences of colonialism and a corresponding emphasis on cultural continuity that downplays the role of "outsider" groups in the making of coastal traditions and cultures severely limit the contributions archaeology can make to understanding more recent historical developments along the coast. Even the idea of a "Golden Age" is problematic, since it implicitly invokes the notion of subsequent decline, rather than transformation, response, and revival to meet new circumstances and challenges, and a corresponding neglect of explaining continuities in the face of changing conditions.[9] Thus, my argument here is that the spectre of colonialist interpretations of East African coastal history that explained change and innovation as being entirely externally driven, and primarily as a result of early Asiatic colonization, should no longer

prevent archaeologists from engaging in analytical study of the material legacies of colonialism on the East African coast. Failure to do so will constrain scholarly understanding of the changes instantiated during different episodes of colonialism and knowledge of the diverse forms of resistance and accommodation to colonial overrule that emerged within Swahili society as a consequence.

Accordingly, although certainly mindful that "an emphasis on European expansion [just as one that stresses the presence of written documents]…can lead to the centering of world history on Europe, and on a denial of non-Western histories,"[10] new research agendas are called for that begin to address these particular weaknesses in current scholarship. However, before articulating what these research agendas might involve, it is important to explain why this reluctance to engage with the archaeology of colonial encounters has arisen, and how this reluctance relates to contrasting definitions of "historical archaeology," both globally and regionally.

COASTAL HISTORICAL ARCHAEOLOGY

One of the first archaeologists working in eastern Africa to characterize their work as "historical archaeology" was James Kirkman.[11] He did so long before the term had gained the intellectual traction it now has in North America, and the history Kirkman had in mind was not that of early modern European expansion and encounters, but of quite different times, commencing in the early first millennium CE and ending around 1500. Kirkman's historical archaeology was primarily concerned with reconstructing the social and trade dynamics of East Africa's Indian Ocean littoral, an area now often glossed as "the Swahili Coast." A further difference between Kirkman's notion of historical archaeology and the North American view of this subfield that has become the dominant construction[12] lies in the range of historical sources he drew upon, which include texts written in Classical Greek, Arabic, Chinese, and Swahili.[13] In hindsight, Kirkman's coining of the term "historical archaeology" to refer to archaeological investigation of the distinctive archaeology of the East African coast, therefore, might be said to have been quite radical because it recognized the plurality and diversity of documentary sources that could assist in understanding the region's precolonial past; their largely non-European nature (with the exception

of the limited classical textual sources); and, the importance of triangulating[14] these with the available artifactual, architectural, oral, and linguistic evidence.

In the event, however, Kirkman's term for this kind of archaeology never caught on, although text-driven approaches to interpreting East Africa's coastal archaeology remained dominant for at least the next two decades. The emphasis Kirkman gave to Arab merchants and settlers in the founding of Swahili stonetowns, such as those of Gede and Ungwana on the Kenyan coast where he excavated,[15] and in the organization of the transoceanic trade on which their prosperity was partly based, was also criticized as being "colonial"[16] in its orientation.[17] Subsequent research on the East African coast, especially since the 1980s, has sought to develop alternative perspectives by bringing local agency to the fore and stressing the African origins of the Swahili and the nature of their towns.[18] One result of this approach, after a brief popularity of the term "coastal archaeology," is that the field Kirkman sought to define has come to be known as "Swahili archaeology." While helpful in terms of emphasizing the indigenous origins of Swahili culture and societies, and in line with the views of historical linguists regarding the African (specifically Eastern Bantu) roots of the Swahili language,[19] the term has become a hegemonic device that disguises elements of the internal diversity of Swahili communities along the entire c. 2,500 km of the "Swahili Coast." By implication, it also subsumes the archaeology of other coastal-dwelling groups under this categorization, and crucially, acts to *limit* the archaeology of the Swahili to c. 1500 CE. In other words, to around the time that European merchants and sailors first became engaged directly in the Indian Ocean trade circuits, and shortly before the rise of the Yarʿubī Imamate in the early part of the seventeenth century and expansion of its authority over the East African coast.

This lack of interest in the archaeology of later sites is particularly unfortunate since systematic surveys of the mainland, such as those conducted by Richard Helm immediately north of Mombasa (Kenya),[20] Jonathan Walz along the lower Pangani Valley (northern Tanzania),[21] and Stephanie Wynne-Jones in the vicinity of Kilwa (southern Tanzania),[22] all indicate that sites occupied after 1500 CE are much more numerous than those for any preceding period. The data from surveys on Pemba by Jeffrey Fleisher and Emanuel Kessy indicate a similar trend.[23] Unfortunately, in most cases, these sites are simply categorized rather

loosely as "Post-Swahili"[24] and left uninvestigated.[25] Similarly, by largely ignoring the archaeology of Swahili towns after c. 1500 CE,[26] scholars are missing an opportunity to investigate how the diverse status and occupational groups that inhabited them, including the various "foreign" merchant communities from elsewhere around the Indian Ocean rim, responded to and were affected by successive kinds of colonial overrule and by incursions from other mainland groups, such as the Oromo. As with the more numerous rural sites, the potential for such work (e.g., at places such as Pate,[27] which became more prominent *after* the arrival of the Portuguese, and Takwa, a sixteenth-/seventeenth-century settlement on Manda Island[28]) is enormous. Archaeological study of these sites informed by the large body of archaeological literature from other parts of the world concerning colonial encounters also has the potential to reframe and better contextualize some of the classic historical studies of the material culture of post-1500 CE urban coastal communities.[29]

Furthermore, although aspects of the post-1500 CE archaeology along the East African coast have been investigated, the principal focus of this research has been primarily on the foreign elements. Scant consideration has been given to how the establishment of a colonial presence, whether by a European power or an Omani elite, shaped Swahili life and which aspects in particular were most influenced as a consequence. There is also an epistemic inconsistency in the de facto division of labour that on the one hand constrains the archaeological gaze to the centuries before 1500 CE, while on the other acknowledges that Swahili identities and practices persist into the present but leaves the scholarly investigation of these largely in the hands of historians and anthropologists. In this regard, despite the avowedly anticolonial stance of recent interpretive frameworks, and the wealth of archaeological scholarship in recent decades that has rightly emphasized the African origins and roots of Swahili culture, "Swahili archaeology" as dominantly conceived still reproduces an inverted colonial logic. This simultaneously reifies and homogenizes the category "precolonial Swahili" while ignoring the possible transformative consequences of multiple colonial encounters.

Of course, most specialists in Swahili archaeology are very well aware that the archaeology of the Swahili does not end at 1500 CE, and more comprehensive overviews of the archaeology of the coast usually extend to cover some or all of the subsequent centuries of Swahili settlement.[30] Moreover, the foreshortening of the Swahili past is not unique

to archaeology. Historians have also separated "the Swahili past" from what came after c. 1500, although they do not agree on when that distinction should be drawn.[31] Thus, my comments are not intended as a criticism of current scholarship, or to belittle the very significant research contributions made in the field of Swahili archaeology over the last several decades. Instead, I am more concerned by the conceptual limitations that the term "Swahili archaeology" can impose on archaeological research on the East African coast, however unintended these constraints might be. In particular, by limiting Swahili archaeology to before 1500 CE, some kind of disjuncture is seemingly first implied, although generally left unspecified. Then, this disjuncture is effectively denied by the lack of any sustained archaeological investigation of the period after the disjuncture, and especially overt consideration of the possibility of a refashioning of Swahili identities in relation to external, colonial constructions of those identities (and other factors that emerged after 1500).[32]

ARCHAEOLOGIES OF COLONIAL ENCOUNTERS ON THE EAST AFRICAN LITTORAL

Colonialism takes many forms and is of considerable antiquity. Also, as historical and archaeological scholarship has amply illustrated for other parts of the globe, the perspective of the colonized, their responses, and the impact of colonialism on their lives are rarely, if ever, uniform.[33] On the one hand, colonial rule could provide individuals with opportunities for enrichment or political advancement, prosperity rather than destitution, an enhanced lifespan, and better prospects for their offspring. For others, however, the imposition of colonial rule could and did lead to a loss of livelihood and access to resources, physical displacement, enslavement, repression of cultural practices, and the imposition of a new identity. While colonial relations, especially during the initial establishment of colonial rule, were often violent, it is important not to assume that colonized peoples lacked the agency and power to resist, manipulate, and transform colonial practices.[34] Postcolonial theory, with its emphasis on exploring the complexities of Orientalism, the subaltern, colonial frontiers, borderlands, cultural hybridization, creolization, indigeneity, alterity, mimicry, diaspora, and a host of other concepts, demonstrates as much.[35]

Archaeologists working in other parts of the world have drawn extensively on this literature, particularly in connection with conceptualizing the links between archaeological practice and the uneven and unequal representation of formerly colonized peoples.[36] Increasingly, this literature has also inspired more fine-grained interpretations of the archaeological expressions of colonialism than those offered by older models of culture contact and acculturation.[37] Certain concepts, especially Homi Bhabha's notion of hybridity[38] (and other definitions of the concept) have proved especially popular, although misuse and overuse of the term at times has stripped it of its analytical power.[39] Such criticism notwithstanding, concepts drawn from postcolonial studies challenge many of the taken-for-granted binaries of colonial thought and governmentality. They also underline the lack of singularity in any colonial encounter—something that many historical archaeologists working in other parts of the world are occasionally prone to forget.

This lack of singularity is especially clear in an Indian Ocean context where inhabitants of the East African coast have had to contend with Portuguese, Omani, British, and, in the case of Tanganyika also German, colonial structures. In the wider western Indian Ocean, Dutch, French, and Ottoman Turks also imposed their authority and established their own colonial enclaves and regimes. The activities of all of these extended periodically and in varying degrees of intensity along different parts of the East African coast, creating new conditions of interaction. They transformed the scale, direction, and pattern of trade and intensified natural resources extraction, while also stimulating demands for slave labor. Moreover, all of these new relations between coastal inhabitants and newcomers were played out against long-standing cosmopolitan and translocal contexts.[40]

The entry of the Portuguese and subsequently other European powers into the Indian Ocean arena after November 1497, for instance, introduced a new dynamic to trade with which littoral societies, those located farther inland from the coast, and the already-established foreign merchant communities all had to contend. As Engseng Ho has succinctly observed, the "Portuguese, Dutch, and English[41] in the Indian Ocean were strange new traders who brought their states with them," and were inclined, initially at least, "to do business at the point of a gun" creating "militarized trading post empires" along the way.[42] The Portuguese also imposed stricter regulation on cargo and mobility through the issuing

of licenses (*cartaz*) to ship captains in return for protection from the state. These licences specified the ports that ships could visit and the nature of the cargo they could carry. The system exerted additional control by making ships visit a number of ports around the Indian Ocean, where taxes and duty had to be paid, and so brought additional revenue to those ports under direct Portuguese control, notably Goa, Hormuz, and Diu. These were not the modus operandi of the non-European merchant groups, such as Guajaratis, Bohras, and Hadramis, that had operated around the Indian Ocean rim for centuries, where they sought to establish more intimate relations with local trading partners, including settling among them and adapting to local customs.[43] Despite such changes, at least some Swahili merchants and city-states (including Pate) may well have benefitted from the new trading opportunities with the Portuguese and the Hadramawt that emerged,[44] and Portugal's grip on Indian Ocean trade may well have been weaker than was once believed.[45]

The expansion of Omani Arab authority and political sovereignty over the eastern African coast from Barawa and Socotra in the north to Cape Delgado in the south[46] that began during the mid-seventeenth century under the Yaʿrubī Imamate and was consolidated under the Albusaidi dynasty following Seyyid Sa'îd bin Sultan's relocation of the Omani court to Zanzibar between 1828 and 1832, also introduced social and political changes. Omani Arabs were particularly active in the regional slave trade that was already well established prior to the arrival of the Portuguese and involved Swahili merchants, especially from Pate and other towns in the Lamu archipelago, along with Yemeni and Hadrami traders.[47] The Omanis vigorously defended their growing commercial interests, sometimes with the help of Baluch mercenaries,[48] and by the late seventeenth century Oman was a major naval power in its own right in the western Indian Ocean and Persian Gulf.[49]

Colonialism and colonial rule by different powers (Portuguese, Omani, British, and German), in other words, were important aspects of the histories and lived realities of East Africa's coastal communities for roughly five hundred years, and any attempt to understand the archaeology of colonial encounters on the East African coast, therefore, must contend from the outset with pluralities and multivocality. While all colonial powers could be said to share certain elements of practice, and thus might generate rather similar material expressions and legacies of their colonialism, there can also be significant contrasts. Chris

Gosden's distinctions between "colonialism within a shared milieu," "middle ground colonialism," and "terra nullius" models offer one possible set of heuristic guidelines as to how expressions of colonial power might be manifested materially by different colonial regimes.[50] However, other promising models and perspectives could also be drawn upon.[51] What is important is that archaeologists working on East Africa's coast make a more concerted effort to document and understand the distinctive characteristics of these different encounters.

Material Manifestations of Colonial Encounters on the East African Coast

One of the most obvious expressions of these new systems of governance and trade along the coast was the construction of fortifications and the associated militarization of the sea. Warfare between the different Swahili city-states and between these communities and inland groups had been a recurrent feature of coastal life in the preceding centuries[52] and continued after the arrival of the Portuguese. The arrival of Portuguese carracks, caravels (*naus*), galleys, galleons, and frigates, armed with different calibre cannons, lighter, swivel-mounted breech-loaders (like the *verso*), and crews equipped with matchlock muskets, nonetheless marked a greater militarization of the sea than had been the case in earlier centuries.[53] Forts, gun batteries, redoubts (fig. 6.1), watch-towers, barracks, and related structures were added to the landscapes of a number of Swahili settlements, and preexisting defensive features, including encircling town walls, were modified. New styles of military architecture were introduced and subsequently added to as power shifted from one colonial power to another.

These military monuments span several centuries and range widely in type from substantial well-armed structures built with clear military objectives in mind and manned by a garrison of regular troops to much more modest buildings, possibly constructed more as an architectural expression of political authority, Islamic purity, and/or urbanity than with any attainable defensive goals in mind.[54] The earliest examples at Kilwa, on Mafia Island, and at Zanzibar and Mombasa are associated with Portuguese efforts to protect their enclaves and wider strategic interests. The best known of these structures, and the only example to have been the focus of extensive archaeological investigations, is Fort Jesus in Mombasa (fig. 6.2).[55] Designed by the Milanese engineer-architect

FIGURE 6.1. Small, fortified redoubt known as Fort St. George on a rock promontory overlooking Tudor Creek, Mombasa, Kenya. (*Photograph by the author, 2002.*)

Giovanni Battista Cairati,[56] the fort was initially built between 1593 and 1596, but underwent several subsequent modifications and was not completed until the 1630s.

Aside from these military structures, archaeological study of other aspects of Portuguese colonialism remain poorly developed, in part because Portuguese settlements were confined to a few points along the coast and had a rather different form than the feudal estates (*prazos*) and trading markets (*feiras*) the Portuguese created in Mozambique and the Zambezi valley (fig. 6.3).[57] Consequently, the material traces of a Portuguese presence on the East African coast are more limited. On Zanzibar, trading posts (*feitorias*) that were simultaneously warehouses, markets, and customs offices were established during the sixteenth century at Mvuleni, Fukuchani, and at the Gereza in Stone Town, where a cruciform church was built. Another church, reputedly built by Vasco de Gama's men in 1498 and the oldest Christian building in East Africa, survives almost intact in Malindi, which was closely allied to the Portuguese, who also established an unfortified *feitoria* here and erected a stone cross (*padrao*) to commemorate their landfall.[58]

FIGURE 6.2. Ramparts and cannon on the seaward side of Fort Jesus, Mombasa, Kenya. (*Photograph by the author, 2002.*)

By far the greatest concentration of Portuguese activity, however, was on Mombasa Island, which became their center of political authority and commercial operations after 1590. The results of periodic rescue excavations undertaken on Mombasa Island and more recent maritime landscape and underwater surveys,[59] coupled with careful analysis of available cartographic sources, provide an impression of the island's social and economic organization during the seventeenth century.[60] The remains of the *Santo António de Tanná*, a Portuguese frigate that sank at the entrance to Tudor Creek during the siege of Mombasa in 1697, together with its cargo and artifactual assemblages, provide additional insights into contemporary Portuguese life along the coast, including military capabilities, trading practices, and shipboard life.[61] Nonetheless, as Rosemary McConkey and Tom McErlean have observed, we know little about the colony settlement known as "Gavana" that the Portuguese established just north of Fort Jesus, the Makupa Forts built to protect access to the island via the causeway that connected it to the mainland, or the six churches known to have been established on

FIGURE 6.3. The main entrance to the historical fortress of Sena, Zambezi Delta, Mozambique. (*Photograph by Hilario Madiquida, 2007, reproduced with permission.*)

the island.[62] Little is also known about the local town of Tuaca, on the southwestern tip of the island, which was occupied from at least the twelfth century and is believed to have been abandoned in the sixteenth century after the arrival of the Portuguese.[63] However, unlike many of the areas known to have been the site of Portuguese activities and now almost entirely obscured by modern buildings, a significant section of Tuaca has not been built over, thereby offering the greatest possibility to investigate the ways Portuguese colonialism influenced the everyday lives of the town's inhabitants.

Omani-Era and Later Monuments

A rather similar pattern of research characterized by a focus on the more obvious monuments can be discerned for the Omani period. Specifically, after assuming control of the coast north of Cape Delgado in the later seventeenth century, the Omani built forts in Zanzibar Town, at Chake Chake on Pemba, and at Siyu and Lamu, and modified Portuguese forts such as those at Kilwa and Fort Jesus.[64] Archaeological study of these monuments has been limited to Mark Horton and Kate Clark's

work on the Old Fort in Zanzibar Town during the 1980s, and Stéphane Pradines's survey a decade and a half later.[65]

Later military structures associated with the German and British colonial eras—such as World War II gun emplacements and pillboxes—also survive, especially near the waterfront of major commercial ports and at the sites of former colonial administrative centres. These have been the focus of even less archaeological interest and study than Omani-era structures. Daniel Rhodes has documented the most prominent of these German and British colonial buildings and port structures, work that provides a theoretically informed overview of their important role as symbolic expressions of colonial power and the spatial logics of its implementation.[66] As his studies show, under both colonial powers widespread restructuring of the social zoning of settlements resulted in greater conformity of spatial layouts and a proliferation of shared architectural forms. Waterfronts became more formalized, new administrative centers were imposed, hospital sites were established, military infrastructure expanded, and residential areas became largely racially segregated. Cumulatively, these architectural strategies all worked to underpin and reinforce the centralization of political control, greater facilitation of economic extraction, and enhanced surveillance of the colonial state's populace.[67]

COLONIZING SPACE AND PLACE

Aside from the growing militarization of the sea and coastline, other arguably more dramatic and certainly more imposing architectural changes were introduced. These became especially apparent on Zanzibar during the nineteenth century, following Seyyid Sa'îd's relocation of his court to the island. In particular, several palaces were added to the landscape, notably the Beit al-Sahel, the slightly later Beit al-Hukm, and the Beit al-Ajaib (House of Wonders; constructed in 1883) in Zanzibar town, and the Mtoni palace (fig. 6.4) a few kilometers to the north for use by the Sultan as a private retreat. The earlier of these palaces, built between 1826 and the late 1830s, had "plain exterior façades hiding an inner courtyard containing decorative tile work and wall niches housing glassware and ceramics," while internal space was stratified on gender lines and social position. Slaves occupied the ground floor, while the "uppermost internal room, the *ndani*, was for the sole use of the owner

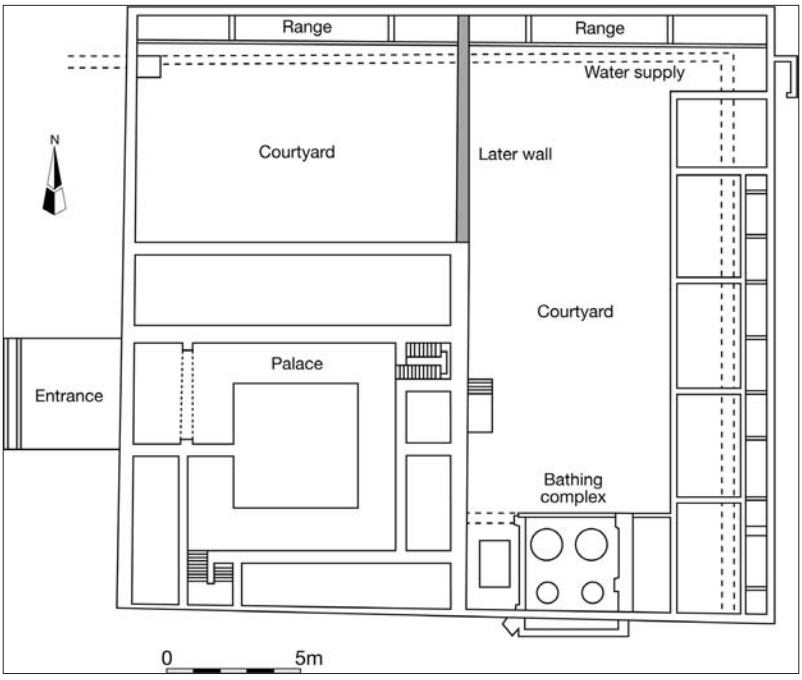

FIGURE 6.4. Ground plan of Mtoni Palace, Zanzibar. (*Drawn by Colin Breen, reproduced with permission.*)

of the house."[68] Balconies were added to some later structures, such as the Beit al-Ajaib, an addition that reflected an increasing absorption of European and Indian influences especially as British colonial power grew in significance.[69] Although far less ostentatious, new, culturally hybrid architectural styles are also evident at a number of coastal towns on the mainland, especially in Lamu, where a distinctive form of elite dwelling emerged probably in the eighteenth century. These incorporated some of the older principles of social space and material expressions of distinction found in Swahili-era stonetown architecture,[70] but are best understood as architectural hybrids specific to their time. Elsewhere, coastal towns, such as Pangani in northern Tanzania, although no less socially stratified, exhibit considerable architectural diversity, with a blend of Indian, Arab, and European influences coexisting alongside older African styles (fig. 6.5).[71]

Of far greater consequence in terms of both the scale of landscape reorganization and the effects on the lives of ordinary men and women

FIGURE 6.5. Diverse architectural styles along India Street, Pangani, Tanzania. (*Photograph by the author, 2009.*)

on the coast and further into the interior (although initially only indirectly related to the growing presence of Europeans in the Indian Ocean sphere[72]) was the development of plantation agriculture (notably for cloves on Unguja/Zanzibar and Pemba and sugar on the mainland) and the associated transformations in the nature and extent of slavery and slave raiding. During the German and British colonial eras, plantation agriculture was extended still further, especially as sisal and cotton were added to the mix of commercial crops being cultivated. Yet, despite the acknowledged importance and impact of plantation agriculture, Sarah Croucher's study of the different materialities of plantation life on nineteenth-century Pemba and how these materialities effected transformations in ethnic identities, gender relations, and sexuality among the enslaved and the elite plantation owners[73] remains the only archaeological study of these systems. Historical archaeologists working elsewhere in the world, including parts of the Indian Ocean, by way of comparison, have paid considerable attention to plantation life.[74]

As Croucher reminds us, the growth of plantation agriculture was intimately related to the rise of a mercantile and capitalist economy that was supported by transformations in slave trade economies around the western Indian Ocean as a consequence of abolition movements.

A further and related factor for the expansion of plantations was the growth and transformations in the nineteenth-century caravan trade and increased demand in Europe and North America for elephant ivory to feed newly emergent marks of social distinction among the burgeoning middle class. Recent archaeological studies have documented some of the sites along these mainland caravan routes and explored some of the material consequences of the trade for local communities.[75] There have also been several archaeological studies of the changing manifestations of enslavement on the coast and its hinterland, including sites associated with fugitive slaves.[76] These have yet to be articulated with the issue of colonial encounters, however, except in the fairly loose sense that the escalation in slave raiding in the nineteenth century can be attributed, in part, to the expansion of Omani Arab authority along the coast and their increased influence over coastal economies.[77]

COMPLICATING ARCHAEOLOGIES OF COLONIALISM ON THE EAST AFRICAN LITTORAL

After decades of virtually ignoring the archaeological record of the last five hundred years, archaeologists working in eastern Africa are starting to pay greater heed. The archaeological manifestations of the caravan trade, enslavement, Omani Arab elites, and British and German political authority have all received attention, and in some cases, have explicitly explored the "differential power of material culture" that colonial encounters bring with them "to galvanise and move people."[78] In this regard, it is perhaps telling that the two archaeologists who have engaged explicitly with the issues of colonial encounters on the coast, Sarah Croucher and Daniel Rhodes, have consciously sought to situate their studies in wider disciplinary discourses. Thus, Croucher's study of the interplay of slavery and capitalism on Omani-owned clove plantations on Pemba is intended specifically to offer postcolonial and feminist perspectives on the historical archaeology of slave plantations as an alternative to the models developed for Atlantic world plantations in the Caribbean and United States.[79] Daniel Rhodes's study of nineteenth-century colonial architecture and settlement layout on the coast, especially in what was German East Africa, with its initial focus on maritime landscapes and its subsequent reliance on using historical geographical ideas about urbanism and port formation, was similarly

developed as a project distinct from traditional notions of what Swahili archaeology entailed.[80]

Recognizing that neither colonialism nor globalization was a new phenomenon even in 1500 CE, neither author adopts wholesale the conventional wisdom that historical archaeology is all about the origins and spread of "modernity," capitalism, the rise of the West, and indigenous, non-European responses to the creation of the Atlantic world-system.[81] Instead, both treat Omani and European colonial rule as adding layers of complexity to an already "complicated"[82] Indian Ocean world that required both local and foreign actors to learn how to negotiate and manipulate new materialities, ways of placemaking and belonging, and forms of habituated practice, alongside enhanced levels of resource extraction, violence, dislocation, and ecological disturbance.

Important though these developments have been, there is still a common tendency in the archaeological literature to treat the last five hundred years of Swahili Coast history as one of relative sociocultural stasis coupled with economic decline. While the Portuguese realignment of transoceanic trade may have initiated a marked fall in the prosperity of some Swahili city-states after 1500 and possibly contributed to the abandonment of many the stonetowns, this was not the only factor that shaped their later history. Portuguese impact also needs to be understood against wider historical currents and changing environmental conditions across the region.[83] Considerable scope exists, therefore, for a comparative analysis of those towns that continued to be occupied after 1500 CE, some of which prospered either as a consequence of their rulers allying themselves with the Portuguese or Omani Arabs, or precisely because they resisted these colonizing powers. Others went into decline but continued to be occupied, including the towns of Ungwana/Osha and Shaka.[84] We know comparatively little about how these towns' inhabitants fared under these different political and economic conditions; the prevailing regional sociopolitical and cultural landscapes in which they were embedded; the full extent of their transoceanic connections; or, whether those that prospered were in a position to forge new constructions of identity and/or a new social habitus of urban dwelling that were then taken up elsewhere on the coast as the political context changed. Likewise, we know comparatively little about how those differently situated in terms of economic status, political authority, and social distinction were (or were not) able to advance their position and

that of their families through constructive engagement with colonial authorities. These are precisely the kinds of issues that the historical archaeological study of colonial encounters elsewhere has been able to resolve.

Mention has also been made of the large number of rural sites about which virtually nothing is known. "Colonialism," as Gosden notes, "brings a new quality (or rather inequality) to human relations,"[85] and this would have been as true for the occupants of fishing and farming villages along the coast as for those who occupied the stonetowns. Archaeological study of such settlements has the potential to offer new insights into how the development of extractive economies, the introduction of new subsistence crops such as maize and commercial crops such as sugar, cloves, tobacco, and sisal under Portuguese, Omani, British, and German colonialism altered labor and gender relations, influenced local populations' health, and introduced new diseases—all topics that have received considerable archaeological attention elsewhere.[86] The waning of both Portuguese and Omani colonial authority and the uneven distribution and intensity of their activities also allowed several communities to retain high degrees of autonomy. Some of these, such as Pate in the Lamu archipelago, are well-known to have been at times centers of resistance and as a consequence also a focus of military attacks and destruction, and at other times centers of cooperation. Yet, to date, there has been no attempt made to investigate archaeologically any of the known episodes of resistance and revolt[87] that occurred during the Portuguese and Omani Arab eras or those that took place on the coast in response to the imposition of German or British colonial rule, events that form key components of local historiography and notions of local identity.

Colonial encounters on the coast certainly took different forms that could encompass symmetrical patterns of exchange between foreign and indigenous inhabitants as well as more asymmetrical interactions often predicated on violence and the use of force. An obvious interpretative challenge, therefore, is to determine how to differentiate social and material changes directly associated with colonialism from those initiated by other social processes and structural conditions. An equally important challenge is determining the particular agents of colonially induced material change. Specifically, there is often an unexamined assumption that colonial authorities, because of their greater political, military, and possibly economic power, determined the direction and form of change.

This was certainly so in the case of major construction projects (both urban and agricultural) that involved forced or compulsory labor. In many other contexts, however, the diverse colonial powers were often heavily dependent on local African agents, resident and visiting Arab and Asian merchants, and Indian mercantile capital to accomplish their goals, the consequences of which could extend beyond the East African coast and interior to the other side of the Indian Ocean and even Europe and North America.[88]

If archaeologists genuinely want to contribute to decolonial historical narratives of East Africa, they must engage with the legacies of colonialism in all its dimensions and especially with its material expressions and the consequences of that materiality, something that has often been neglected by historians, who usually lack the necessary skills and sensibilities to interpret such evidence. Doing so will require the development of multisited, collaborative research teams operating simultaneously on different continents, closer involvement with local communities aimed at a coproduction of knowledge about different episodes and kinds of colonial encounters and evaluations of heritage legacies, and a willingness to explore, both theoretically and substantively, the complexities of these encounters and their lived reality for the coast's diverse populations over the last five hundred years.[89]

NOTES

1. Gervase Mathew, "The Culture of the East African Coast in the Seventeenth and Eighteenth Centuries in the Light of Recent Archaeological Discoveries," *Man* 61 (1956): 68.

2. William C. Bissell, "From Dhow Culture to the Diaspora: ZIFF, Film, and the Framing of Transnational Imaginaries in the Western Indian Ocean," *Social Dynamics* 38, no. 3 (2012): 488.

3. I use "East Africa" in its strictest sense to refer to the areas encompassed by the modern nation-states of Kenya, Tanzania, and Uganda, and "coastal East Africa" to refer to the seaboard, coastal littoral, and offshore islands (including Pemba and Zanzibar) of Kenya and Tanzania. I recognize that "Swahili" archaeology extends well beyond these modern national boundaries both to the north and south, to more distant islands in the western Indian Ocean, such as the Comoros and northern Madagascar, and even into the interior.

4. For broader discussion, see Stahl, "Archaeology of African History"; Christopher R. DeCorse, "Historical Archaeology: Methods, Meanings,

and Ambiguities,' in *Current Perspectives in the Archaeology of Ghana*, ed. James Anquandah, Benjamin Kankpeyeng, and Wazi Apoh (Legon-Accra: Sub-Saharan Publishers on behalf of University of Ghana, 2014), 139–63; Joanna Behrens and Natalie Swanepoel, "Historical Archaeologies of Southern Africa: Precedents and Prospects," in *Five Hundred Years Rediscovered: Southern African Precedents and Perspectives*, ed. Natalie Swanepoel, Amanda Esterhuysen, and Philip Bonner (Johannesburg: Wits University Press, 2008), 23–39; Natalie Swanepoel, "Contexts of Interaction: The Archaeology of European Exploration and Expansion in Western and Southern Africa in Comparative Perspective," in *The Oxford Handbook of African Archaeology*, ed. Peter J. Mitchell and Paul J. Lane (Oxford: Oxford University Press, 2013), 967–78.

5. For further elaboration of this point, see Lane, "New Directions"; and Reid, "Constructing History in Uganda."

6. The concept of "historical archaeology" is a deeply contested one, as some of the following sections elaborate. Space precludes a detailed review of all these debates, especially as they pertain to the use of the term with reference to Sub-Saharan Africa; see, however, Seetah and Allen, this volume. For the purposes of this essay, I use the term simply to imply the archaeological study of *any* period for which oral and/or documentary sources that supplement material evidence are available.

7. See, for instance: Posnansky and DeCorse, "Historical Archaeology in Sub-Saharan Africa"; Carmel Schrire, "The Historical Archaeology of the Impact of Colonialism in 17th Century South Africa," *Antiquity* 62 (1988): 214–25; Martin Hall, "The Archaeology of Colonial Settlement in Southern Africa," *Annual Review of Anthropology* 22 (1993): 177–200; Ann B. Stahl, *Making History in Banda: Anthropological Visions of Africa's Past* (Cambridge: Cambridge University Press, 2001); Cameron J. Monroe and Akinwumi Ogundiran, eds., *Power and Landscape in Atlantic West Africa: Archaeological Perspectives* (Cambridge: Cambridge University Press, 2012); and Carmel Schrire, *Historical Archaeology in South Africa* (Walnut Creek, CA: Altamira Press, 2014).

8. For reviews and more detailed coverage, see, inter alia, Chapurukha M. Kusimba, *The Rise and Fall of Swahili States* (Walnut Creek, CA: Altamira, 1999); Horton and Middleton, *The Swahili*; Adria LaViolette, "The Swahili World," in Mitchell and Lane, *Oxford Handbook of African Archaeology*, 897–910; and Stephanie Wynne-Jones, *A Material Culture: Consumption and Materiality on the Coast of Precolonial East Africa* (Oxford: Oxford University Press, 2016).

9. For an insightful discussion on this point, with reference to the history of West African Sahelian societies, see Thomas Vernet, "Des empires de l'âge d'or à la délicate mécanique des sociétés: Histoire et archéologie du Sahel medieval," *Afriques* 4 (2013), http://afriques.revues.org/1283.

10. Pedro P. A. Funari, Siân Jones, and Martin Hall, "Introduction: Archaeology in History," in *Historical Archaeology: Back from the Edge*, ed. Funari, Jones, and Hall (London: Routledge, 1999), 8.

11. Kirkman, "Historical Archaeology in Kenya."

12. For discussion of the latter, see, inter alia, Seetah and Allen, this volume; and Lane, "New Directions."

13. Many of the key sources are those included in Freeman-Grenville, *East African Coast*.

14. The concept of "triangulating" different types of historical sources, such as oral, documentary, and material, has become commonplace. In this kind of usage, the term refers to the iterative process of comparing the content of different types of sources concerning a particular subject so as to check the perspective, biases, and omissions of each, thereby adding breadth and depth to the interpretation of an event or process. See, for example, Jeasik Cho and Allen Trent, "Validity in Qualitative Research Revisited," *Qualitative Research* 6, no. 3 (2006): 319–40.

15. For example: James S. Kirkman, *The Arab City of Gedi: Excavations at the Great Mosque, Architecture and Finds* (London: Oxford University Press, 1954); and Kirkman, *Ungwana on the Tana* (The Hague: Mouton, 1966).

16. By designating a particular interpretive framing of archaeological evidence as "colonial" in nature, what is implied is that interpretive priority is given to external forces, population migration, cultural diffusion, and foreign settlers or visitors as the primary drivers of technological innovation and social change, over independent invention and indigenous populations. For further discussion, see the definitions offered by Bruce G. Trigger, "Alternative Archaeologies: Nationalist, Colonialist, Imperialist," *Man* 19 (1984): 355–70.

17. Kirkman was highly critical of the suggestion that there had been an Arab-Persian empire along the coast, but did express the view that "the historical monuments of East Africa" nonetheless belonged "not to the Africans but to the Arabs and Arabized Persians, mixed in blood with the African but in culture utterly apart from the Africans who surrounded them." Kirkman, *Men and Monuments of the East African Coast* (London: Lutterworth Press, 1964), 22.

18. For a review of these trends and supporting evidence, see Kusimba, *Rise and Fall of Swahili States*, 43–66.

19. Derek Nurse and Thomas Spear, *The Swahili: Reconstructing the History and Language of an African Society, 800–1500* (Philadelphia: University of Pennsylvania Press, 1985).

20. Helm, "Conflicting Histories."

21. Jonathan R. Walz, "Route to a Regional Past: An Archaeology of the Lower Pangani (Ruvu) Basin, Tanzania, 500–1900 C.E." (PhD diss., University of Florida, 2010).

22. Stephanie Wynne-Jones, "Urbanisation at Kilwa, Tanzania, AD 800–1400" (PhD diss., University of Cambridge, 2005).

23. Jeffrey Fleisher, "Viewing Stonetowns from the Countryside: An Archaeological Approach to Swahili Regional Systems, AD800–1500" (PhD diss., University of Virginia, 2003); and Emanuel Kessy, "Iron Age Settlement Patterns and Economic Change on Zanzibar and Pemba Islands," in *East African Archaeology: Foragers, Potters, Smiths, and Traders*, ed. Chapurukha M. Kusimba and Sibel B. Kusimba (Philadelphia: University of Pennsylvania Museum Press, 2003), 117–31.

24. This term is most commonly used as a catch-all categorization for the final phase in coastal ceramic typologies, variously defined as spanning from the sixteenth century to the end of the eighteenth or nineteenth century, or even the formal commencement of either British or German colonial rule.

25. For important exceptions, see Sarah Croucher and Stephanie Wynne-Jones, "People, Not Pots: Locally Produced Ceramics and Identity on the Nineteenth-Century East African Coast," *International Journal of African Historical Studies* 39, no. 1 (2006): 107–24; and Matthew C. Pawlowicz, "Competition and Ceramics on the East African Coast: Long-Term Perspectives on Nineteenth-Century History at the Swahili Port Town of Mikindani, Tanzania," *History in Africa* 42, no. 1 (2015): 335–55.

26. An important exception to this is the research by Adria LaViolette on the site of Pujini (Pemba) which, although it emerged as a small fortified Swahili settlement in the eleventh century, was under the control of Mkame Ndume around 1450 and was subsequently abandoned around 1520, although it is not clear if the Portuguese were instrumental in this or not. See: LaViolette, "Swahili Archaeology and History on Pemba, Tanzania: A Critique and Case Study of the Use of Written and Oral Sources in Archaeology," in Reid and Lane, *African Historical Archaeologies*, 125–62; and LaViolette, "Swahili Cosmopolitanism in Africa and the Indian Ocean World, AD 600–1500," *Archaeologies* 4, no. 1 (2008): 24–49.

27. Thomas H. Wilson and Athman Lali Omar, "Archaeological Investigations at Pate," *Azania* 32 (1997): 31–76. See also Thomas Vernet, "Les cités-États swahili de l'archipel de Lamu, 1585–1810. Dynamiques endogènes, dynamiques exogènes" (PhD diss., Université Paris 1 Panthéon-Sorbonne, 2005).

28. Thomas H. Wilson, "Spatial Analysis and Settlement Patterns on the East African Coast," *Paideuma* 28 (1982): 203–9.

29. For example, J. Allen, "Swahili Culture Reconsidered"; and Howard Brown, "Siyu: Town of the Craftsmen; A Swahili Cultural Centre in the Eighteenth and Nineteenth Centuries," *Azania* 23 (1988): 101–13.

30. See, especially, Kusimba, *Rise and Fall of Swahili States*, 155–77; and Horton and Middleton, *The Swahili*, 82–88.

31. The division is often placed around 1750 or 1800 CE; however, Justin Willis's book *Mombasa and the Making of the Swahili* (Oxford: Clarendon Press, 1990), which covers the nineteenth and early twentieth centuries, implies that the key temporal fracture line is more recent. Much the same can be said for most histories of the wider Indian Ocean: Bose, *A Hundred Horizons*, 15–22. Important exceptions include Alpers, *Indian Ocean in World History*; and Vernet, "Les cités-États Swahili."

32. For an extended discussion of many of these other factors, see, inter alia, Vernet, "Les cités-États Swahili."

33. For example: Claire L. Lyons and John K. Papadopoulos, eds., *The Archaeology of Colonialism* (Oxford: Oxford University Press, 2002); Dilip K. Chakrabathi, *The Archaeology of European Expansion in India: Gujarat, c. 16th–18th Centuries* (New Delhi: Aryan Books International, 2003); Michael Given, *The Archaeology of the Colonized* (London: Routledge, 2004); Chris Gosden, *Archaeology and Colonialism: Cultural Contact from 5000 BC to the Present* (Cambridge: Cambridge University Press, 2004); Gil J. Stein, ed., *Archaeology of Colonial Encounters: Comparative Perspectives* (Santa Fe, NM: School of American Research Press, 2005); and Michael Dietler, *Archaeologies of Colonialism: Consumption, Entanglement, and Violence in Ancient Mediterranean France* (Berkeley: University of California Press, 2010).

34. Jeffrey Fleisher, "Behind the Sultan of Kilwa's 'Rebellious Conduct': Local Perspectives on an International East African Town," in Reid and Lane, *African Historical Archaeologies*, 91–124.

35. Bill Ashcroft, Gareth Griffiths and Helen Tiffin, eds., *Post-colonial Studies: The Key Concepts*, 3rd ed. (Abingdon, UK: Routledge, 2013).

36. For example: Peter R. Schmidt and Thomas C. Patterson, eds., *Making Alternative Histories: The Practice of Archaeology and History* (Santa Fe, NM: School of American Research, 1995); Chris Gosden, "Postcolonial Archaeology: Issues of Culture, Identity, and Knowledge," in *Archaeological Theory Today*, ed. Ian Hodder (Cambridge: Polity Press, 2001), 241–61; and Peter van Dommelen, "Colonial Matters: Material Culture and Postcolonial Theory in Colonial Situations," in *Handbook of Material Culture*, ed. Chris Tilley et al. (London: Sage, 2006), 108–10.

37. See, for example, Greg Woolf, "Beyond Romans and Natives," *World Archaeology* 28 (1997): 339–50; Stephen Silliman, "Culture Contact or Colonialism? Challenges in the Archaeology of Native North America,"

American Antiquity 70, no. 1 (2005): 55–75; and Barbara L. Voss, "What's New? Rethinking Ethnogenesis in the Archaeology of Colonialism," *American Antiquity* 80, no. 4 (2015): 655–70.

38. "Hybridity is the sign of the productivity of colonial power, its shifting forces and fixities; it is the name for the strategic reversal of the process of domination through disavowal (that is, the production of discriminatory identities that secure the 'pure' and original identity of authority)." Homi K. Bhabha, *The Location of Culture* (London: Routledge, 1994), 159.

39. Stephen Silliman, "A Requiem for Hybridity? The Problem with Frankensteins, Purées, and Mules," *Journal of Social Archaeology* 15, no. 3 (2015): 277–98.

40. On this point, with particular reference to the East African coast, see LaViolette, "Swahili Cosmopolitanism."

41. To which list we must also add the French and Germans.

42. Ho, *Graves of Tarim*, xxi.

43. Ho, xxi.

44. Thomas Vernet, "East African Travellers and Traders in the Indian Ocean: Swahili Ships, Swahili Mobilities *ca*. 1500–1800," in *Trade, Circulation and Flow in the Indian Ocean World*, ed. M. Pearson (New York: Palgrave-Macmillan, 2015), 167–202.

45. Anthony R. Disney, *History of Portugal and the Portuguese Empire*, vol. 2 (Cambridge: Cambridge University Press, 2009).

46. This was formally restricted to a narrow strip just 10 nautical miles (18.5 km) wide after the Berlin Conference of 1884.

47. Thomas Vernet, "Slave Trade and Slavery on the Swahili Coast (1500–1750)," in *Slavery, Islam and Diaspora*, ed. Behnaz A. Mirzai, Ismael M. Montana, and Paul Lovejoy (Trenton, NJ: Africa World Press, 2009), 54–58.

48. Beatrice Nicolini, "The Makran-Baluch-African Network in Zanzibar and East Africa during the XIXth Century," *African and Asian Studies* 5, no. 3 (2006): 347–70.

49. M. Reda Bhacker, *Trade and Empires in Muscat and Zanzibar: The Roots of British Domination* (London: Routledge, 1994), 3–38.

50. Gosden, *Archaeology and Colonialism*, 26.

51. See, inter alia, Gil J. Stein, "The Archaeology of Colonial Encounters," in Stein, *Archaeology of Colonial Encounters*, 1–29; Neal Ferris, *The Archaeology of Native-Lived Colonialism: Challenging History in the Great Lakes* (Tucson: University of Arizona Press, 2009), 9–32; and Dietler, *Archaeologies of Colonialism*, 27–53.

52. Stéphane Pradines, "L'art de la guerre chez les Swahili: Les premiers forts d'Afrique orientale," *Journal des Africanistes* 72, no. 2 (2002): 71–87.

53. The great Chinese treasure fleet under the command of Admiral Zheng He, which arrived off the East African coast for the first time around 1418, was also heavily armed, but seemingly had none of the lasting consequences of militarization in East Africa that followed the arrival of the Portuguese, although whether these were truly "voyages of friendship," as many have argued, or an early example of protocolonialism is a moot point. See Geoff Wade, "The Zheng He Voyages: A Reassessment," *JMBRAS* 78, no. 1 (2005): 37–58.

54. Thomas Vernet, "Le territoire hors les murs des cités-États swahili de l'archipel de Lamu, 1600–1800," *Journal des Africanistes* 74, nos. 1–2 (2004): 381–411.

55. James S. Kirkman, *Fort Jesus: A Portuguese Fortress on the East African Coast*, Memoir 4 (Oxford: Clarendon Press, 1974).

56. Known in Portuguese sources as João Baptista Cairato or Carrato.

57. Innocent Pikirayi, "Palaces, Feiras and Prazos: An Historical Archaeological Perspective of African–Portuguese Contact in Northern Zimbabwe," *African Archaeological Review* 26, no. 3 (2009): 163–85.

58. For summary descriptions of early Portuguese churches in eastern Africa, see Niall Finneran, *The Archaeology of Christianity in Africa* (Stroud, UK: Tempus, 2002), 157–61.

59. Rory Quinn et al., "Process-Based Models for Port Evolution and Wreck Site Formation at Mombasa, Kenya," *Journal of Archaeological Science* 34 (2007): 1449–60.

60. Rosemary McConkey and Thomas McErlean, "Coastal Survey on Mombasa Island: A Preliminary Report," *International Journal of Historical Archaeology* 11 (2007): 99–121.

61. For a synopsis of what is known about the vessel and its contents, its history, and its excavation, see Paul J. Lane, "Maritime and Shipwreck Archaeology in the Western Indian Ocean and Southern Red Sea: An Overview of Past and Current Research," *Journal of Maritime Archaeology* 7 (2012): 10–14 and references therein. This also summarizes the current state of shipwreck and maritime archaeology in the region and the potential for new studies.

62. McConkey and McErlean, "Coastal Survey," 111–15; and Hans-Martin Sommer, "The Rediscovery of the Makupa Fort," *Kenya Past and Present* 41 (2014): 34–41.

63. McConkey and McErlean, "Coastal Survey," 107–9.

64. Stéphane Pradines, *Fortifications et urbanisation en Afrique Orientale*, BAR International Series 1216 (Oxford:Tempus Reparatum, 2004); and Pradines, "Des forts omanais en Afrique orientale: Une protection des intérêts économiques du sultanat de Zanzibar," in *La défense des côtes et cartographie historique*, ed. Jean-Piere Bois (Paris: Comité des travaux historiques et scientifiques, 2002), 163–80.

65. Mark Horton and Catherine Clark, "Archaeological Survey of Zanzibar," *Azania* 20 (1985): 167–71; and Pradines, *Fortifications et urbanisation*.

66. Daniel Rhodes, *Historical Archaeologies of Nineteenth-Century Colonial Tanzania: A Comparative Study*, BAR International Series 2075 (Oxford: Archaeopress, 2010); and Rhodes, *Building Colonialism*.

67. Rhodes, *Historical Archaeologies*, 195–203.

68. Daniel Rhodes, Colin Breen, and Wes Forsythe, "Zanzibar: A Nineteenth-Century Landscape of the Omani Elite," *International Journal of Historical Archaeology* 19, no. 2 (2015): 344–45.

69. Rhodes, Breen, and Forsythe, 345–51.

70. As discussed in particular by Linda Donley-Reid, "Life in the Swahili Town House Reveals the Symbolic Meaning of Spaces and Artifact Assemblages," *African Archaeological Review* 5 (1987): 181–92; Donley-Reid, "A Structuring Structure: The Swahili House," in *Domestic Architecture and the Use of Space: An Interdisciplinary Cross-Cultural Study*, ed. Susan Kent (Cambridge: Cambridge University Press, 1990), 114–26.

71. Rhodes, *Historical Archaeologies*, 80–90.

72. Frederick Cooper, *Plantation Slavery on the East Coast of Africa* (New Haven: Yale University Press, 1977); and Thomas Vernet, "Avant le giroflier. Esclavage et agriculture sur la côte swahili, 1590–1812," in Médard et al., *Traites et esclavages*, 244–306.

73. Sarah Croucher, *Capitalism and Cloves: An Archaeology of Plantation Life on Nineteenth-Century Zanzibar* (New York: Springer, 2014).

74. For example: Leland Ferguson, *Uncommon Ground: Archaeology and Early African America, 1650–1800* (Washington, DC: Smithsonian Institution Press, 1992); Theresa A Singleton, ed., *The Archaeology of Slavery and Plantation Life* (New York: Academic Press, 1985); James A. Delle, *An Archaeology of Social Space: Analyzing Coffee Plantations in Jamaica's Blue Mountains* (New York: Springer Science and Business Media, 1998); Theresa A. Singleton, "Slavery and Spatial Dialectics on Cuban Coffee Plantations," *World Archaeology* 33, no. 1 (2001): 98–114; Kenneth Kelly and Benoit Bérard, eds., *Bitasion: Archéologie des habitations-plantations des Petites Antilles/Lesser Antilles Plantation Archaeology* (Leiden: Sidestone Press, 2014); and Seetah, "Objects Past, Objects Present."

75. Thomas J. Biginagwa, "Historical Archaeology of the 19th Century Caravan Trade in North-Eastern Tanzania: A Zooarchaeological Perspective" (PhD diss., University of York, 2012); and Stephanie Wynne-Jones, "Lines of Desire: Power and Materiality along a Tanzanian Caravan Route," *Journal of World Prehistory* 23, no. 4 (2010): 219–37.

76. See, especially, Marshall, "Interpretation of Identity Formation"; and Marshall, "Politics of Memory." For a wider landscape perspective and additional sources, see Paul J. Lane, "Slavery and Slave Trading in Eastern

Africa: Exploring the Intersections of Historical Sources and Archaeological Evidence," in *Slavery in Africa: Archaeology and Memory*, ed. Paul J. Lane and Kevin C. MacDonald (Oxford: Oxford University Press, 2011), 281–314.

77. Kusimba, "Archaeology of Slavery"; and Chapurukha M. Kusimba, "The Impact of Slavery on the East African Political Economy and Gender Relationships," in Marshall, *Archaeology of Slavery*, 230–54.

78. Gosden, *Archaeology of Colonialism*, 4.

79. Croucher, *Capitalism and Cloves*.

80. Rhodes, *Historical Archaeologies*.

81. As argued by, inter alia, Orser, *Historical Archaeology*, 1–22; and Martin Hall and Stephen Silliman, "Introduction: Archaeology of the Modern World," in Hall and Silliman, *Historical Archaeology*, 1–19.

82. Isabel Hoffmeyer, "The Complicating Sea: The Indian Ocean as Method," *Comparative Studies of South Asia, Africa and the Middle East* 32, no. 3 (2012): 584–90.

83. For a useful synopsis of these trends, see Paul Sinclair and Thomas Håkansson, "The Swahili City-State Culture," in *A Comparative Study of Thirty City-State Cultures*: *An Investigation*, ed. Mogens H. Hansen, Historisk-filosofiske Skrifter 21 (Copenhagen: Royal Danish Academy of Sciences, 2000), 463–82.

84. For a sense of the range of "Swahili" settlements and their approximate periods of occupation after 1500 CE on the northern Swahili Coast, see Wilson, "Spatial Analysis."

85. Gosden, *Archaeology of Colonialism*, 5.

86. On the scope (and challenges) for reconstructing changing labour relations archaeologically, see Lane, "Archaeological Potential."

87. Or other, less overt forms of defiance, as explored elsewhere. For example, Given, *Archaeology of the Colonized*; and Matthew Liebmann and Melissa S. Murphy, eds., *Enduring Conquests: Rethinking the Archaeology of Resistance to Spanish Colonialism in the Americas* (Santa Fe, NM: School for Advanced Research Press, 2010).

88. Prestholdt, *Domesticating the World*.

89. I would like to acknowledge the editors for their patience and many helpful suggestions that greatly improved this chapter, and Karin Pallaver and Thomas Vernet for their very helpful comments on previous drafts, and Colin Breen and Hilario Madiquida for kind permission to reproduce some of their illustrations. I remain solely responsible for any errors and shortcomings. My participation in the Stanford conference was supported by the Morgan Family Foundation, and I am grateful to Professor Lynn Meskell for enabling a visit to Stanford to coincide with the dates of the conference.

SEVEN

Historical Archaeology of Pearling in the Indian Ocean

Through the Lens of North West Australia

ALISTAIR PATERSON

A RECOLLECTION OF PEARLING IN 1880 IN NORTH WEST AUSTRALIA

In 1907, acting Australian prime minister Sir John Forrest wrote to a Mrs. Cornish in response to her request for a reference for her husband, Hamlet, a man who had assisted Forrest some years earlier during an expedition to North West Australia. The prime minister assured her that he remembered her husband "very well" and had even presented him with a gun.[1] While Forrest may have remembered Cornish, historians have largely ignored him even though he left behind a rare account of late nineteenth-century North West Australia, a manuscript that is all that much more unique because it provides rare insights into the region's

pearling industry, including how pearlers operated beyond colonial authority and how whites thought about and treated local Aboriginal populations (map 7.1).[2]

Northern Australia, where the last major phase in the history of pearling in the Indian Ocean occurred, encompasses some three thousand miles of discontinuous pearl fisheries that reached from Cooktown in northern Queensland to Shark Bay in Western Australia (map 7.1).[3] Commercial pearling began along the Western Australian coast during the 1850s with pearling ports subsequently developing at Cossack (1860s) and Broome (1884). The industry became increasingly profitable

MAP 7.1. Western Australia and key locations referred to in chapter 7.

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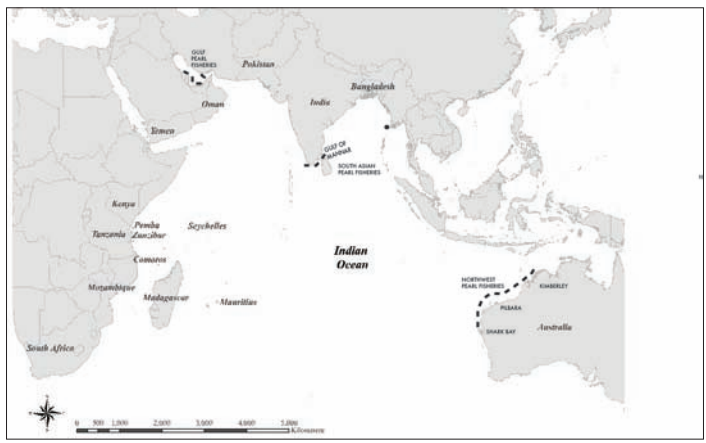
and, together with the Torres Strait and Queensland fisheries, was for a time perhaps the most lucrative export industry in the Australian colonies (map 7.2). The Northern Australian industry became enmeshed with the Southeast Asian pearl fisheries in the Aru Islands, the Moluccas, and the Sulu Archipelago.[4] Asian workers were brought to Australia to work as pearl divers alongside Aboriginal and white divers, a practice which led to the creation of diverse communities in places such as Thursday Island, Cooktown, Darwin, Broome, and Cossack.

By 1880, the year in which Hamlet Cornish first travelled to North West Australia,[5] pearling luggers had long functioned beyond the colonial administration's control. The pearling vessels that operated along the coast were often owned by white pastoralists and crewed by Aboriginal people. By 1880, the demand for labor in both the local pastoral and pearling economies was very high, so much so that "it became difficult to procure divers.... The pearlers...[resorted] to impressing the blacks into service [and] skilled fishermen were brought in from the Malay Archipelago, and in some cases the methods used in securing them were by no means regular."[6] Cornish's manuscript provides us with rare account of the hostility and forced mobility to which these Aboriginal pearling laborers were subjected. Shortly after arriving on the coast, Cornish reported that "Just as we are about to camp a native comes towards us.... I recognize him as one who had been pearling; he gives us to understand that the natives are not afraid of the white fellow, and that they were going to kill us.... We told him to tell the native we would fight them."[7]



MAP 7.2. Indian Ocean and Southeast Asia showing centers for pearling.

Unfortunately, it is unclear how Cornish recognized that this Aboriginal man was a pearlshell diver. He probably spoke at least some English or the patois that was spoken by the mixed Aboriginal, Asian, and European crews that manned pearling luggers, or he may have worn some articles of European clothing. Months later, Cornish reported that he had encountered a party of whites searching "for their natives that [had] run away from the pearling grounds."[8] Accompanying this group was an Aboriginal man, Neah, who had apparently also once been Cornish's employee. These reports suggest that parties of pearlers regularly operated "beyond the frontier" to secure needed Aboriginal labor by force. His account reveals that the principal pearling fleet during the 1880s operated in the general vicinity of the Dampier Archipelago and other offshore islands of the Pilbara. He also reports that Aboriginal divers were highly valued, and that they could "free dive" to a depth of ten fathoms.[9] The hazards that impinged on these divers' lives included the threat of sharks, poor treatment by whites, diseases associated with a poor diet while at sea, and the risk of cyclones.

Cornish's account raises a number of questions about how the history of pearling in North West Australia fits into the history of pearling in the wider Indian Ocean world. The paucity of historical documentation about the kind of colonial frontier he describes, coupled with the existence of a significant number of sites known to be associated with pearling, makes historical archaeology an ideal vehicle to expand our knowledge and understanding of this otherwise "hidden history."[10] Historical archaeology also promises to deepen our understanding of how the Australian pearl fisheries compared with those in other parts of the Indian Ocean. Historical archaeological research elsewhere in the world, and especially in the Americas and Africa, provides a substantial body of work on topics such as labor and labor relations, ethnogenesis, creolization, and other cultural developments with which North West Australia can be compared. This chapter seeks accordingly to examine the Australian experience with pearling from a broader, multidisciplinary perspective, with a particular focus on a number of key themes: the ways in which humans have valued pearl products; human mobility across economic "frontiers"; the role that race and ethnicity played in how this industry was structured; and the connections between people, commodities, and markets that characterized the human story of the Indian Ocean from prehistory into the colonial era.

PEARL FISHERIES OF THE INDIAN OCEAN

Although pearl and pearl shell are among the most popularly traded animal products in the Indian Ocean since prehistory, there have been no substantive attempts to synthesize archaeological and historical information about these fisheries. Doing so requires us to remember that natural or wild pearls are rare and that acquiring even one necessitates the collection of many hundreds of pearl oysters or, in the case of freshwater pearls, mussels. In the Indian Ocean world, mother-of-pearl from the shell of the oyster has long been valued for decorative and functional objects, while pearls were highly valued luxury items of trade and consumption from the earliest recorded times to the modern age. Pearls and pearl shell produced by mollusks were valued because of their rarity and exoticness, values that were subsequently eroded with the invention of the "cultured" or "artificial" pearl in the twentieth century.

Major pearling industries have existed in at least three zones in the wider Indian Ocean world: the Persian Gulf, the waters between India and Sri Lanka, and an area extending from Northern Australia into the Indonesia archipelago (map 7.2). As noted earlier, significant pearling industries existed during the latter part of the nineteenth century along the vast Western Australian coast from Shark Bay in the south to the Kimberley in the north.[11] Other significant pre-1900 colonial-era pearling fields existed in the Torres Strait between the tip of Cape York in Queensland and Papua New Guinea, as well as around the island of Aru in eastern Indonesia.[12] Other areas such as the Mergui Islands south of Myanmar (Burma) were also investigated as potential commercial pearling fields during the late nineteenth century.[13] Other noteworthy pearl fisheries, which are beyond the scope of this chapter, include those in Japan and the Sulu Sea adjacent to the Philippines.

While we usually think about the importance of pearls only during the modern era, the economic and noneconomic value placed on pearl shell has a much richer prehistory. The oldest evidence in the Indian Ocean for human exploitation of pearl shell comes from the Widgingarri rockshelter in North West Australia, a site which contains evidence of Kimberley pearl shell brought from the Pleistocene coast three hundred kilometers away. The evidence from this site confirms that Australian Aboriginal people used marine shell during the Pleistocene for both utilitarian and decorative purposes and that some of the world's oldest

known body ornaments are necklaces made from shell taken along Australia's Indian Ocean coast.[14] The oldest known pearl from an Australian site comes from the Kimberley coastal site of Brremangurey where it was found in an oyster-shell midden formed two thousand years ago.[15]

Pearl shell continued to be valued by Aboriginal societies in more recent times (figs. 7.1 and 7.2). It was transported from the coast to communities thousands of kilometers away in central Australia by exchange networks.[16] In the Kimberley region today undecorated pearl shell is called *guwan* and shell that has been decorated with engraving and pigment is called *riji*. Guwan and riji play an important role in Aboriginal ceremonies and dances that are performed to maintain complex indigenous social relationships. Aboriginal people value the brilliance and shimmer of mother-of-pearl (nacre), which symbolizes water and life. When used correctly, riji are believed to be capable of bringing rain, healing and attracting other people, and determining guilt.

The Australian evidence reminds us that pearls and pearl shell have no intrinsic shared universal value, and that humans are attracted to its aesthetic attributes in culturally defined ways. On the other side of

FIGURE 7.1. Aboriginal men wearing pearl shell, NorthvWest Western Australia, late nineteenth / early twentieth century. (*State Library of Western Australia, BA888/2, sourced from the collections of the State Library of Western Australia and reproduced with the permission of the Library Board of Western Australia.*)

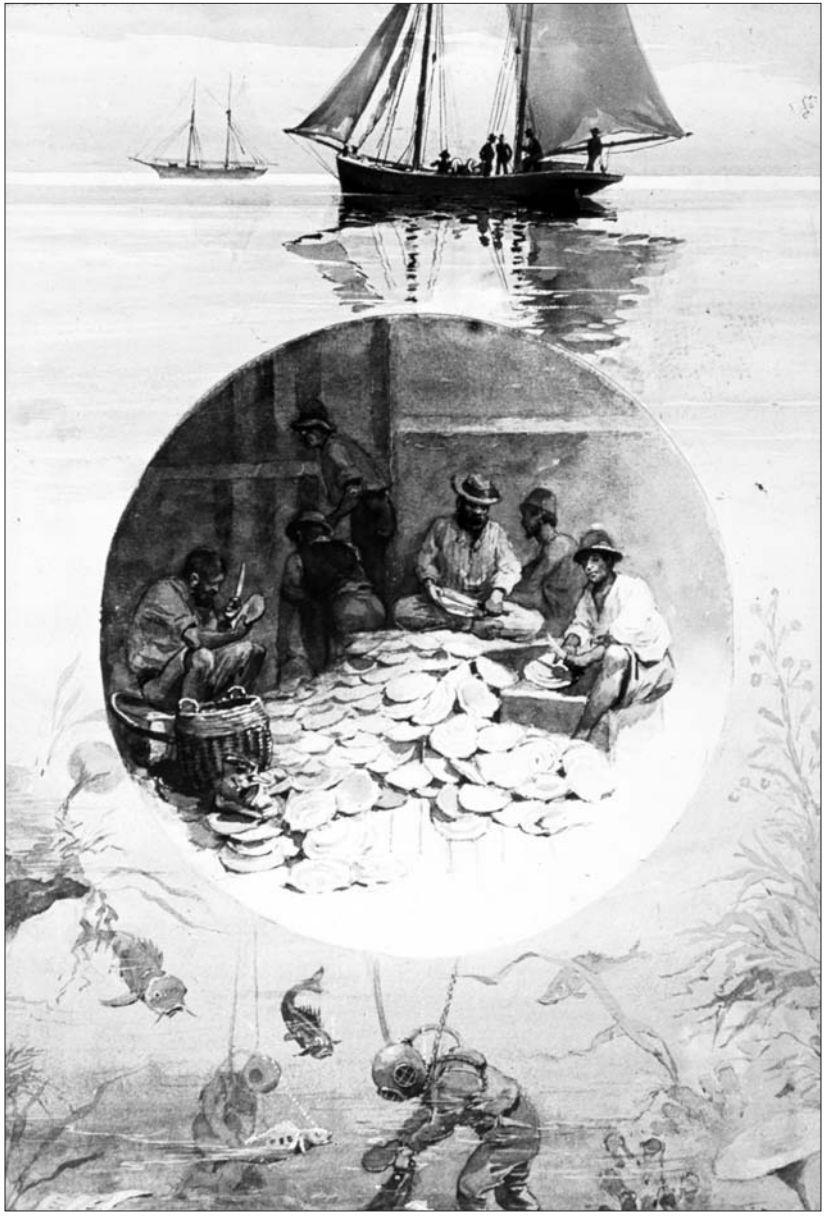


FIGURE 7.2. Montage of three images portraying the pearling industry, Australia, c. 1887. (*Courtesy of the National Library of Australia, PIC/11565/104 LOC COLD STORE PIC KER BOX 6.*)

the Indian Ocean, the oldest known pearls occur in sites in the Persian Gulf, where they have been collected for thousands of years.[17] The oldest archaeological example of a pearl in the Indian Ocean, a pierced pearl bead dating to 5300 BCE, comes from the site of As-Sabiyah in northern Kuwait.[18] Archaeological excavations at As-Sabiyah have revealed a small coastal community of herders, fishers, and traders who used shell to make jewelry, including mother-of-pearl decorative plaques. The discovery of pearls and mother-of-pearl ornaments at various sites indicate that pearl fishing was practiced throughout the Neolithic.[19] As burials at the coastal sites of Umm al-Quwain and in the graveyard at Suwayh on the Oman Peninsula reveal, pearls were used in funerary settings. The existence of coastal middens highlight the wider economic value of shellfish such as oysters and clams, while the excavation of various artifacts demonstrates that mother-of-pearl shell was important in the production of implements such as fish hooks and buttons.[20]

As a mid-fifth-millennium BCE cemetery at Jebel al-Buhais, Sharjah, reveals, Arabian Neolithic communities transported large numbers of pearls inland from the coast: sixty-two pearls were found at the site along with other valuable products, such as carnelian beads.[21] The distribution pattern of Neolithic sites that contain pearls and economic pearl shell in the southern Gulf and Oman suggest the existence of widely distributed pearl fisheries in the Persian Gulf, the Gulf of Oman, and the Arabian Sea. Similar sites probably also existed along the Iranian coast on the Persian Gulf's northern shore. It is possible that pearls were traded beyond the Gulf into Mesopotamia by a commercial network that provided a large number of coastal and inland locations in northern Arabia with access to Mesopotamian al-Ubaid ceramics.

Less evidence exists for pearl fisheries during the later Neolithic, perhaps because a period of greater aridity reduced the intensity of human settlement in the region. However, by the early fourth millennium BCE, there is evidence that pearling was again linked to the emerging city-states in the region. The discovery of a string of pearls at the city of Uruk (Warka) in southern Iraq indicates as much,[22] while mother-of-pearl shell is associated with inlaid objects from the Royal Cemetery at Ur (mid-third millennium BCE).[23] In his overview of the history of Gulf pearl fisheries, Robert Carter concludes that despite the importance of luxury goods in Bronze Age regional trade, pearls and pearl shell were not especially important trade items at that time.

However, archaeological materials from the Gulf, and especially from burials, indicate that this situation changed during the first millennium BCE. The *Epic of Gilgamesh*, for example, contains an early account of Gulf pearl diving: "Heavy stones he tied to his feet / and they pulled him down to the Ocean below / He took the plant, and pulled it up, and lifted it / the heavy stones he cut loose from his feet / and the sea cast him up on the shore."[24]

The trade in pearls and pearl shell from the Gulf to elite markets in Mesopotamia and further afield continued during the Greek and Roman periods. Historical accounts speak, for example, of the importance of the Bahrain fisheries. The Greek author Theophrastus (371–287 BCE), for one, reports that "the dimensions of the pearl are those of a fish's eye of large size, and is produced off the coast of India and certain islands in the Red Sea [meaning western Indian Ocean]."[25] Pliny's *Natural History* reports that Gulf pearls were considered the most valuable in the ancient world:

> The first place therefore and the topmost rank among all things of price is held by pearls. These are sent chiefly by the Indian Ocean, among the huge and curious animals that we have described as coming across all those seas over that wide expanse of lands from those burning heats of the sun. And to procure them for the Indians as well, men go to the islands—and those quite few in number: the most productive is Ceylon, and also Stoidis, as we said in our circuit of the world, and also the Indian promontory of Perimula; but those round Arabia on the Persian Gulf of the Red Sea are specially praised.[26]

Archaeological evidence from the Mediterranean, the Gulf, and West Asia support these ancient accounts. When viewed together, the epigraphic, archaeological, and documentary evidence at our disposal points to the existence of an extensive trade network centered on the Indian Ocean, in which, from the first millennium BCE onward, pearls were an important luxury item directed to elites in the Mediterranean world and Asia.

The advent of Islam in the seventh century does not seem to have disrupted the pearl fisheries in the western Indian Ocean. Islamic texts reveal the popularity of pearls as high-status and revered objects.[27]

Medieval authors writing between the tenth and thirteenth centuries, such as the geographers al-Mas'udi and al-Idrisi and the Persian writer Al-Biruni, describe the Gulf fishery.[28] Their accounts reveal that many elements of this fishery remained essentially unchanged from the medieval period until the nineteenth century. Medieval texts describe, for instance, the existence of two parallel extractive systems whereby individual fishermen working as independent divers competed with boat owners who employed paid divers. This was equally true centuries later. Al-Idrisi's mid-twelfth-century account lists the principal pearl fields and reports that the center of the industry was on the island of Awal (Bahrain), which drew merchants seeking pearls from all parts of the world.[29] Other important pearl fishing areas in the Gulf at that time included Sohar, Damar, Muscat, Al-Jabal, and Julfar.[30] Al-Idrisi refers to three hundred fisheries in the Gulf and notes that these fisheries are "more productive than the seas of India and Yemen."[31] This industry was also reported to have a fleet of two hundred vessels manned by as many as 2,400 divers and haulers along with merchants and crew.

In the later medieval period the pearl trade was integrated into intercontinental trade routes that linked markets from China to Byzantium.[32] Chinese sources attest to pearls being traded from the early Islamic period onward, not only from the Gulf but also from South Asia. Marco Polo's purported account of Tabriz suggests that Indian pearls were brought to Hormuz and then Baghdad.[33] Pearls also reached other markets such as Fatimid Egypt and the Byzantine Empire.[34]

The arrival of the Portuguese in the Indian Ocean and the establishment of the Estado da Índia early in the sixteenth century had a direct impact on the pearl industry. Portuguese efforts to dominate existing trade routes led them to target Hormuz, which had controlled the lucrative pearl fisheries in the Gulf during the fourteenth and fifteenth centuries. Following the Portuguese capture of Hormuz in 1507, Gulf pearls were transported to Goa, from whence they were shipped, along with pearls from South India and Sri Lanka, to Europe, where the demand for pearl and pearl shell steadily increased.

The arrival of the Dutch and the English in the Indian Ocean early in the seventeenth century led to a steady erosion of Portuguese power, one consequence of which was that control of pearling in the Gulf passed to the Persians. The key fisheries at Bahrain, Qatar, and Julfar accordingly exported the majority of their pearls to Surat in India rather than Goa.[35]

Numerous European historical accounts describe the significance of the pearl fisheries, which still used boat-based pearl divers who descended using stone weights. Archaeological work on Al Khor Island has uncovered what have been interpreted as stone diving weights and stone-lined pits used to hold rotting oyster shells; the site, which was first occupied possibly around 1400 CE, was used for many years.[36]

The Gulf fishery came increasingly under Arab control after the seventeenth century. The centers that emerged were the same as the now-familiar modern pearling centers in the Gulf. These centers brought together Arab and Indian workers as well as African slaves who created a distinctive ethnic, linguistic, and religious community that cannot be considered as a mere annex of either the Iranian or Arab world.[37] These developments heralded a shift in how the fisheries were organized, from a system of more centralized control to one composed of segmented fisheries linked to the tribal structures of Arab society. While Gulf pearls were still exported globally, control of the industry remained regional, even as British military and commercial power in the western Indian Ocean grew during the nineteenth century. One consequence of the establishment of this Pax Britannica[38] was ever-greater Indian merchant involvement in shipping Gulf pearls to India for global distribution. Indians also played an important role as regional bankers beginning in the eighteenth century and Indian rupees circulated regularly in pearling ports.[39]

Pearls and pearling remained a central feature of social and economic life in the Gulf into the twentieth century.[40] Many khaliji were involved in pearling and the industry produced much of the Gulf's wealth. Pearling was, however, physically punishing and pearl divers' lives were short.[41] This reality encouraged the development after the eighteenth century of the kind of multiethnic workforce and hybrid society not found in many other parts of the Middle East. Nelida Faccaro, for example, describes two axes of urban life in the Gulf during the nineteenth century: the shantytowns (*barasti*) that were home to often destitute immigrants who supplied the labor needed by the pearling industry, and upper-class neighborhoods in cities such as Dubai where the merchants who marketed pearls were based.[42] In addition to Indian laborers who performed many different roles and founded dozens of endogamous communities,[43] communities in the Gulf included Africans, some of whom reached the region as slaves.[44] The British

struggled during the nineteenth century to reconcile the practices of debt-driven slavery in the Gulf pearling industry with the growing antislavery movement in Europe.[45] While the opening of the Suez Canal in 1869 and the rise of steam navigation in the 1860s heralded a realignment of international maritime trade patterns, pearls remained a significant commodity in the Gulf until the Great Depression suppressed demand for them.

Southern India and the Bay of Bengal have been other important centers for Indian Ocean pearling since antiquity. The pearl fisheries in the Gulf of Mannar off Puttalam in Sri Lanka were particularly important.[46] The ancient Roman geographer Pliny described what he knew as the Taprobane pearl fishery and asserted that Sri Lanka produced more gold and large pearls than the Indians.[47] Sri Lankan accounts describe a high demand for pearls by the kingdom's nobility as gifts and to adorn clothes and other furnishings.[48] Sri Lankan pearls, together with other luxury items such as gemstones,[49] were probably traded in south Indian ports via intermediaries.[50] Pearls were closely associated with royalty: the king owned the pearling fields, which provided an important source of income to the royal court. Pearls were also highly valued items, along with textiles, ivory, and gold, in the island's trade with China from the fifth to eighth centuries.[51] The rise of the Srivijaya Empire in Sumatra from the seventh to the thirteenth centuries disrupted Chinese access to the Sri Lankan pearl market. Chinese trade with Sri Lanka was revived, however, during the Ming dynasty (1368–1644), a revival personified by the Chinese admiral Zheng He's expeditions into the Indian Ocean between 1405 and 1432, expeditions that included a visit to Sri Lanka.[52] Another famous medieval visitor to the region, Ibn Battuta, provided an account of pearling at Mannar; his description highlights the similarities between the pearling industry at Mannar and those in Arabia.[53]

It appears that Muslim merchants in Sri Lanka played an important role from a relatively early date in organizing the island's pearling industry and export trade in other precious commodities such as gems. The presence of Gulf Arabs among Muslim traders and possibly pearl divers in late medieval Sri Lanka points to the existence of a vast network of mobile merchants and workers.[54] The Portuguese and subsequently the Dutch presence in Sri Lanka did not disrupt the pearl trade and, in fact, facilitated greater access to European markets. Pearl

products grew in popularity in Europe as the demand for Asian luxuries and luxury materials increased in places such as Holland during the seventeenth century.

European sources reveal that the Sri Lankan pearling industry was rather conservatively organized. Francis Xavier, for one, visited the pearl fisheries in the early 1540s and observed local Pavara fishermen working for Arab overlords. The next documented shift in the industry occurred three centuries later after Sri Lanka became a British colony. In 1831, a commission recommended the abolition of existing monopolies in order to allow foreigners to play a greater role in the industry. The commissioners also note that pearl fishing techniques remained, as one official puts it, "antediluvian [and] primordial."[55] Some seventy years later, the colony's superintendent of the pearl fisheries reported that the pearling camp at Marichchukaddi housed 20,000–30,000 people who came from all over Asia.[56] Pearl fishing itself, he notes, was actually done by 4,090 Gulf Arab and 4,577 Tamil or Arab divers. Sri Lankan yields declined during the early twentieth century, with the industry's last profitable years being between 1903 and 1907.[57] As in the Gulf, the extraction of natural pearls in Sri Lanka nevertheless continued well into the twentieth century.

As this overview indicates, the extraction, commodification, and movement of pearl and pearl shell in the Indian Ocean world is of considerable antiquity. The rise of complex states and societies in Asia and the Mediterranean triggered a demand for luxury products, including pearl and pearl shell, which moved through complex long-distance trading networks. Major historical developments such as the rise of Islam did little to reduce the international movement of pearls, while the arrival of Europeans in the Indian Ocean probably only increased the market for pearls. Although the Industrial Revolution brought about a multitude of technological changes that revolutionized the production of many consumer goods, the pearling industry itself remained largely unchanged by these innovations. The industry likewise remained dependent on various forms of often highly mobile free and unfree labor. Labor and labor migration are topics of particular interest to both archaeologists and historians, and it is these topics that invite us to compare the pearl fisheries in the Persian Gulf and South Asia with those in North West Australia.

THE HISTORICAL ARCHAEOLOGY OF AUSTRALIA'S NORTH WEST PEARL FISHERY

The lack of comparative studies of the pearling industry in the Indian Ocean underscores the need to examine the Australian pearl fisheries in light of pearling elsewhere in the Indian Ocean.[58] A number of topics and issues are of particular comparative importance, including the ways in which labor systems differed between these geographically dispersed industries, how multiethnic settlements developed, and whether new, distinctive, hybrid sociocultural identities arose as a consequence of this interaction between different peoples. Other lines of inquiry include determining what kind of new material goods, cultural practices, and so on pearl trading networks introduced into local or regional communities, and assessing the impact of these introductions. Last, but far from least, is the question at the heart of this volume: How can archaeology deepen our knowledge and understanding of historical developments upon which the archival record may shed little or no light?

Pearling was a significant industry in Australia whose potential was recognized well before the country was colonized by the British in 1788. William Dampier, the first Englishman to explore parts of the Australian coast, reported the presence of pearl shell when he landed at Shark Bay in 1699. Other explorers likewise noted the existence of pearl shell and contemplated its commercial value. Maritime archaeology has yielded evidence of pearl shell extraction during the early nineteenth century that apparently occurred without the knowledge of colonial administrators. The cargo of the wrecked American vessel *Cervantes* (1840), for example, included pearl shell, presumably extracted from North West Australia[59] a decade before the area's settlement by Europeans. *Pinctada albina* shells were harvested by entrepreneurs at Shark Bay in 1850, but it was the larger *Pinctada maxima* shells found farther north along the coast, initially at Nickol Bay, that subsequently drove the industry's growth. Beginning in the 1860s and for three decades thereafter, the port of Cossack was home to the region's pearling fleet. By the 1880s, however, interest was focused increasingly even farther north to Roebuck Bay (Broome) in the west Kimberley (map 7.2). By the early twentieth century, Broome had the largest pearling fleet in the world. As noted earlier, this industry experienced a significant downturn in the 1920s following the Japanese invention of cultured pearls and suffered even

more when the Great Depression of the 1930s diminished the value of natural pearls still further.

Australia's early colonies had relied heavily on convict labor, mostly from Britain. The transportation of convicts to Australia, however, basically ceased during the mid-nineteenth century.[60] Although convicts had been sent to Western Australia, they were not allowed to work in the remote regions of the north, and thus did not play a role in the history of Australian pearling. As elsewhere in colonial Australia, Aboriginal people were seen as a potential source of cheap labor. The ways in which these peoples were dispossessed have been a subject of considerable historical interest, as have colonial attitudes about race and the ways in which cheap labor contributed to the nation's development.[61] Aboriginal peoples have also been the subject of historical archaeological research.[62]

Historical accounts suggest that the frontier created by pearling and white settlement was sometimes characterized by poor treatment of Aboriginal people who were found to be excellent divers. Aboriginal men, women, and children who had been driven from their land worked in colonial fisheries during the early years of their operation. Government officials charged with upholding law and order in the North West often had a personal investment in the nascent pearling industry, and magistrates and justices of the peace used Aboriginal people deemed to have committed a crime, such as breaking the Master and Servant Act, as forced laborers in colonial towns such as Roebourne. The violence that often characterized life on the North West frontier is best illustrated by the massacre that took place at the Flying Foam Passage, the most famous pearling fishery in the north. There, local Yaburara people retaliated against sexual assaults by pearlers by killing two white settlers and a policeman. Several days of mayhem ensued across the Dampier Archipelago after these murders, resulting in the death of between five (according to contemporary colonial accounts) and sixty individuals (according to accounts twenty years later).[63] As Ann Curthoys has noted, events at Flying Foam Passage illustrate how frontier violence, labor exploitation, and the use of imprisonment could be closely intertwined in the North West Coast's pearling districts.[64]

As elsewhere in the British Empire, racial difference in colonial Australia was enshrined in law. Aboriginal people were not viewed as the same type of colonial subject as the Europeans and were accorded none of the rights of citizenship.[65] Laws enacted in 1871 and 1873 to regulate

labor practices in the North West pearl fisheries and prevent abuse of Aboriginal workers were often ignored by pearlers. Aboriginal people were frequently coerced into signing contracts they did not understand, while any offences they committed were handled by authorities whose interests were invariably aligned with those of local settlers.

There were, however, at least a few outraged voices over how Europeans treated their fellow human beings. In 1885, Reverend J. Gribble, a missionary stationed in the North West, reported on Aboriginal people being held in chains, the mistreatment of Aboriginal women by whites, and a system for allocating Aboriginal workers to pastoralist farmers that Gribble characterized as akin to slavery. Subsequent reports in the media, including the *New York Times*,[66] and discussions in the wider colonial society reveal a great reluctance by white colonists to acknowledge that there was a problem.[67] Gribble was vilified in the acrimonious debate that followed his revelations, which did little to change attitudes toward and treatment of Aboriginal and Asian workers in Western Australia. In 1886, the government magistrate in Roebourne also complained to the governor: "I find here in full force a disguised but unquestionable system of slavery carried out under the protection of the British flag. It is impossible for me to battle single-handed against the whole of the white population of the district unless strenuously supported by government."[68]

Asian workers were also an important part of the history of pearling in the North West. Chinese pearlers who owned their own fishing leases dominated the earliest pearling operations at Shark Bay during the 1850s. The colonial government restricted their access to leases in the 1880s after complaints by white colonists.[69] While the pearling fleet apparently relied heavily on Aboriginal divers during the 1860s, high death rates among divers and the growing demand for labor led to the first attempts to introduce Malay divers (1871–75). The pearling industry attracted increasing numbers of Asian workers through the nineteenth and into the early twentieth century. Many of these individuals were described as "Malays" when, in fact, they came from Kupang, Batavia, Surabaya, Makassar, Singapore, the Sulu Islands, and the Philippines. Other divers came from China, Timor, and Japan.

Recruitment of these migrant workers appears to have been organized by the colonial pearlers, some of whom sailed to Southeast Asia to conscript crews. Reports that Australian pearlers treated Asian divers

poorly prompted Dutch officials at Batavia (Jakarta) to pass legislation to protect their colonial subjects who contracted to work in the Australian fisheries.[70] Aboriginal employment peaked during the 1880s, after which Asians dominated the diving workforce.[71] As a result, pearling settlements in northern Australia, such as Cossack and Broome, were often far more culturally diverse than "typical" Australian settlements of the time, incorporating Aborigines, various Asian and Southeast Asian peoples, and white pearling masters.

The extractive methods and techniques of Australian pearl fisheries changed quickly over time compared to other pearl fisheries in the Indian Ocean. During the Australian industry's first few years, shells were collected easily by simply wading in shallow waters and tidal locations where they were to be found. Collected shells would be piled on the beach or hidden in coastal vegetation to be retrieved later. However, these early deposits were quickly exhausted because *Pinctada maxima*, the pearl oyster found on the North West Coast, takes five years to reach maturity and the colonial government failed to protect what were the world's richest pearling grounds from overexploitation.[72] By the 1880s, the main pearling grounds were already overfished and uneconomic.

The Western Australian pearling fleet often used a larger "mother ship" from which a fleet of smaller boats operated. Pearling luggers tended to be ketch-rigged wooden vessels, approximately 13–19 m long, that collected shell from smaller boats during pearling voyages that lasted several weeks. Most pearl diving during the industry's early decades entailed free diving where divers would "duck dive" and swim to the sea floor to collect shells, which were then hauled to the surface. Free diving dominated the fisheries until the introduction of hardhat-suit diving in the late nineteenth century. With the advent of hardhat diving, ship design changed to accommodate the necessary pumps and hoses, as well as the crew required for voyages that lasted many weeks. This shift to hardhat divers altered the industry in a number of ways. Pearling masters, for example, had to make a greater capital investment in the equipment that allowed divers to stay on the seabed for longer periods of time and harvest oyster beds more meticulously.

The movement of pearling ships and laborers in northern Australia often remained beyond effective colonial government control. Powerful pearling syndicates and companies arose in response to market demand and sought to link Northern Australia with Singapore, South Asia, and

Southeast Asia. The colonial administration struggled to regulate international shipping between Australia and Asia. Western Australia's Pearling Act of 1886 attempted to levy an excise duty on the pearling fleet to combat the problem of ships purchasing supplies and other goods at non-Australian ports. It appears, however, that the act actually encouraged illegal trading and the importation of contraband goods, such as liquor, from Singapore and other Asian ports. Chinese vessels purchased shell directly from pearling ships on the high seas and carried it directly to Singapore, thereby avoiding the colonial export duty on this commodity.[73]

The Network of Pearling Sites in the North West

The North West Australian pearling industry cannot be viewed in isolation since these fisheries were enmeshed in a growing global economy that included the eastern Indian Ocean.[74] North West Australian encounters with this global economy increased after the seventeenth century as the discovery of at least four Dutch East India Company wrecks and that of a British East Indiaman (1622) along this regional coast attest. Other visitors included Southeast Asian (Indonesian) praus on trepang harvesting expeditions,[75] European explorers, American whalers, and colonial ships engaged in coastal trading. The impact of British colonization of the North West after 1861 included boom-and-bust capitalism and the vociferous exploitation of natural resources.

The pearling luggers crewed by Aboriginal and Asian divers that arrived on the scene in the mid-nineteenth century were simply the most recent participants in this region's history of maritime encounters.[76] Archaeological research into historical pearling runs the risk, therefore, of being a palimpsest atop a much earlier Aboriginal history. While we cannot ignore that pearl shell held great value for Aboriginal people and was an essential material in Aboriginal social, economic, and religious life, we must remember that these values are utterly at odds with the commercial value that colonial and Asian pearlers placed on shell. The need to carefully contextualize pearling in North West Australia is underscored by the fact that colonial economic and political power structures shaped Aboriginal and Asian workers' lives. For some Aboriginal people, pearling meant being taken in chains from inland areas by white "blackbirders" to the coast where they were placed on boats, exchanged as commodities, and left on isolated islands or abandoned in

the open ocean.[77] For others, however, pearling may have offered opportunities to improve the quality of their lives in ways they might not have otherwise had.

Archaeological research reveals the existence of pearling sites in the North West across a range of distinct locales along the coast.[78] Field surveys and research on islands in the North West archipelago, such as Barrow Island, and along the coastal Pilbara have begun the task of defining the industry's geographic extent and the types of material evidence on land and underwater that resulted from pearling-era activities. Ballast mounds on the islands of the North West point to the places where vessels were loaded with cargoes of shell, while the excavation of wrecks and associated sites has yielded evidence of where vessels anchored and were repaired. Although pearling occurred mostly on the seabed, the bulk of archaeological evidence for pearling comes from coastal and island sites, some of which derive not just from pearling but from other activities such as food production and storage, ship repair, animal tending, colonial administration and mercantile work, and other important industries like whaling, mining, turtle hunting, and fishing. To distinguish the material remnants of pearling from this historical "noise," it may help to think of the pearling industry not just as distinct sites separate from other locations, but as a set of past activities at places in a network. Some sites reflect fleeting moments, such as the ballast mound of stones substituted for a cargo of collected pearlshell. Other places were important nodes, once presumably well known to those who worked the pearling boats—for example, the rich pearlshell beds of the Flying Foam Passage, or the shores of Butchers Inlet at Cossack where the pearling fleet "laid up" to wait out the off-season. Together, these places, and the material traces of their use, potentially provide important insights into a past social and cross-cultural landscape. Separate places (which we recognize as archaeological sites) reflect past relationships in the social order of the pearling industry, as well as power relationships between people, and finally the economic relationships between North West Australia and distant markets around the world.

After half a century of "life," in the second half of the nineteenth century, the network created by the pearling industry disintegrated, remaining only in people's memories and the material record. This conceptualization of the archaeological record, which envisages a historical set of related activities in a network across a landscape, draws

on Timothy Ingold's concept of "taskscapes." Similar to the idea of a social or cultural landscape,[79] the taskscape is an array of related activities with spatial relationships (connections of varying importance). Very few oral histories of the pearling industry have survived, and the historical accounts from this colonial frontier are particularly rare. This fact makes the archaeological record, and the network of sites, the primary record for the interpretation of historical pearling and the tasks associated with it.[80]

The largest "site type" associated with the pearling industry are ports, which can range from a place such as Cossack, which has extensive remains of occupational settlement, to sites located along the nearby Flying Foam Passage pearling fields, such as the Black Hawke Bay careening site and the Dolphin Island encampment, which, because they contain very little archaeological evidence, were likely used infrequently or for only short periods of time. Ports were essential to this industry, all the more so since the North West Pilbara coast has extreme weather conditions, including a powerful cyclone season. On several occasions, the entire fleet was severely damaged by cyclones. Regional tides often have massive ranges, especially in the Kimberley where macromareal tides occur and the difference between high and low tide can be as much as four meters. Natural harbors and protected anchorages are, moreover, rare along this coast; even the central port of Cossack left much to be desired, as the destruction of much of the pearling fleet there by a cyclone in 1881 attests. Much of the archaeological record of maritime activities at Cossack are found in intertidal contexts: a recent survey of Butchers Inlet at Cossack revealed the remains of many small lighters and luggers, a wrecked ship used as a licensed bar, and piles of ballast dumped along the inlet's mangrove margins.[81]

Cossack, which flourished between 1865 and the early 1900s, was the center of the pearling industry in the Pilbara and the most ethnically diverse settlement on Australia's Indian Ocean seaboard. The port has been the subject of a number of archaeological investigations. Early research focused on the town's built-up areas and wharf, and restoration work during the 1970s focused accordingly on rebuilding the principal elements of the town's law-and-order precinct, which is now at the heart of tourists' experience in this "ghost town."[82] Later research concentrated on ethnic diversity and segregation by examining the area where Asians lived and the Aboriginal camps on the town's fringes. This

work revealed the spatial separation that existed at Cossack, a separation made manifest by the settlement's division into several distinct areas. The central part of the town housed a law-and-order precinct, the main commercial stores (one run by a Japanese merchant family), the main dock, and the Customs House. The town's Asian occupants and businesses occupied a precinct known today as "Jap Town," which was characterized archaeologically by the presence of Asian ceramics and the remains of market gardens. The large quantity of artifacts recovered from this area are indicative of the large-scale importation of Asian goods and commodities into the port. A series of large camps around the town's perimeter housed Aboriginal people, whose presence was revealed by evidence of foodways (shell and faunal remains), glass tool making (through knapping), adopted dress, and new practices such as smoking tobacco. Scattered among these deposits were small huts apparently occupied by Asian market gardeners. Furthest removed from the town's center was a campsite where Afghan herders kept their camels.[83]

Cossack deserves to be considered alongside other Indian Ocean port cities as part of a maritime world that was linked more closely to Dutch Batavia (Jakarta) and British Singapore than Perth. Other coastal ports associated with pearling on the North West Coast include Condon (1880s–c.1900)[84] and Broome (Roebuck Bay), both of which have yet to be studied to the same degree as Cossack.[85] Further north at Camden Harbour on the Kimberley coast is an example of a failed attempt (1864–65) at colonization, a failure that resulted in the deaths of both people and livestock and great financial loss to its investors.[86] Whether pearling was conducted at Camden Harbour remains unknown. Settlements such as these hold out the promise of being sites from which we can compare how they were resourced by the Swan River Colony (Perth) and linked to the wider world via the Indian Ocean. Specific points of comparison between these settlements include their involvement in colonial resource industries (e.g., turtle processing, pearl shell, fishing) and the ways in which these settlements organized themselves spatially along ethnic lines.

Other sites associated with pearl fishing occur both inland away from the coast and in the Dampier Archipelago, the Montebello Islands, and Barrow Island. Archaeological surveys of these areas have led to the discovery of a wide range of historical sites (fig. 7.3). These discoveries

are particularly significant because documentary sources include little information about the use of these islands during the historical period. Materials recovered from the intertidal zone, including boat parts (particularly copper sheathing but also other metal components such as roves and oarlocks as well as capstans and winches), items thrown or lost overboard (typically alcohol bottles), and lost boat equipment (anchors, chain) reveal that the islands contain a mix of sites clearly associated with pearling camps and careening. Small camps adjacent to ship careening locations have been found to contain pearl shell, evidence of consumption (pipes, bottles, cans, food remains), food preparation (hearths, plates, cutlery), shelter (corrugated iron fragments, stone bases for small shelters, copper grommets from canvas sheeting), small docks, and the remains of structures to store supplies and pearl shell. Only a handful of more substantial settlements have been found in the islands: a sheep station on West Lewis Island that also functioned as a pearling base; a large Aboriginal camp at Bandicoot Bay on Barrow Island; two large drystone structures on Barrow Island at a site known as "South End"; and a careening site and seasonal residential settlement on the Flying Foam Passage at Black Hawke Bay.

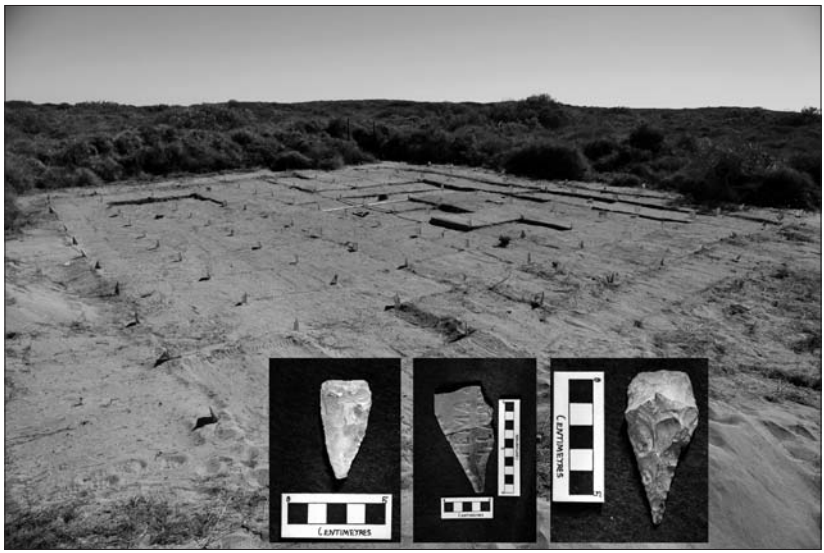


FIGURE 7.3. Barrow Island: aerial of Bandicoot Bay settlement during excavation; inset of flaked glass artifacts (D26-002). (*Photograph by the author.*)

Other types of historical sites include burials[87] and historical engravings by Aboriginal people and ship's crews.[88] Some of the engravings of ships by Aboriginal people actually exist at sheep stations well away from the coast, the best known of which are probably those found on the rock surfaces around the colonial pastoral station at Inthanoona.[89] The boats in these engravings have been interpreted as colonial vessels; one even appears to show a diver under a sailing boat, an image that apparently memorialized sea-based work and was probably made after Aboriginal people returned to the station at the end of the pearling season. These engravings reveal Aboriginal peoples' attempt to communicate information about colonial events, and to construct and maintain identity in a period of great change and increased mobility.

The sites listed briefly above suggest that historical archaeology may be able to shed light on the nature and quality of everyday life along the North West Coast in a way that the traditional historical record cannot. There are few historical accounts of these places, so archaeology has the potential to help redress this documentary deficiency. Archaeology's ability to deepen our knowledge and understanding of life along this coast is also important because, in some places, we cannot expect indigenous oral histories to shed substantive light on local developments, especially in the islands where Yaburara people lived around the pearling grounds before the Flying Foam massacre. Finally, archaeology has the potential to reveal some of the illicit or otherwise "hidden" practices to which Hamlet Cornish refers. The archaeological record provides clear evidence, for example, of the presence of indigenous and Asian peoples at pearling locations. An especially compelling form of such material evidence comes from the manufacture of glass tools from bottle fragments using traditional Aboriginal knapping technology. The assemblage found at the settlement at Bandicoot Bay on Barrow Island, for example, is dominated by evidence of the manufacture of glass tools, many of which are of a distinctive type known as "Kimberley Points," a well-known tool made in stone as well as glass after the nineteenth century. That these artifacts are found at settlements such as Cossack, Shark Bay, and in the Kimberley underscores the need for comparative research across the North West to better understand these distinctive artifacts' range of forms, their stylistic analogues to stone and shell artifacts, and their function. Comparative analysis of these assemblages should also shed light on Aboriginal survival and adaptation strategies

and the maintenance of traditional practices. On Barrow Island, there appears to be archaeological evidence of the substantial mobilization and translocation of Aboriginal people as laborers at pearling sites in the Kimberly about which we currently know very little. Further work in 2014 at the "South End" settlement on Barrow Island revealed two stone buildings with massive stone walls. One of these buildings contained the remains of chain links, which suggests that the structure was used to incarcerate workers. There were rumors that illicit pearlers used Barrow Island as a barracoon during the 1870s, rumors that historical and archaeological analyses are attempting to confirm.[90]

TOWARD A HISTORICAL ARCHAEOLOGY OF PEARLING

The discussion not only highlights the importance of both archaeological and historical evidence in investigations of Australia's pearling fisheries, but also demonstrates that these pearling sites were not isolated from other parts of the Indian Ocean world. The historical archaeological evidence currently at our disposal reveals how important information from sites and objects can reveal hitherto "hidden histories." Material remains, such as tools made from glass bottles or the images of ships on rock faces, allow us to appreciate that the pearling industry was made up of individual people who gave expression to their lives in various ways. In settlements such as Cossack, the repeated actions of individuals formed assemblages of artifacts that, although large, cannot conceal evidence of these men, women, and children's ethnicity and cultural identity. Imported Asian materials such as ceramics and food containers attest to the maintenance of various forms of Asian ethnic identity as well as the continuing maritime connections between North West Australia and ports elsewhere in Asia. As excavations of camps on Barrow Island and around Cossack confirm, the maintenance of Aboriginal ethnicity and identity in colonial contexts likewise left a clear archaeological signature. Further research will only deepen our understanding of how these various places differed from one another and the ways in which different Aboriginal peoples reflected their experiences through material culture.

What do the historical sources at our disposal reveal? Surviving documentary sources can shed at least some light on various aspects of people's lives in the past. The records of government magistrates and the

colonial secretary's office can allow us to map who was present in the North West and discern the pattern and general structure of colonial settlement as it unfolded. Without such records, we would not have any sense of the strong relationship that existed between pastoral farmers and the pearling industry, the depth of which is illustrated by archival and other reports that Aboriginal people who worked on sheep stations often entered into contracts that required them to work on pearling vessels. While firsthand accounts like Hamlet Cornish's are rare, they nevertheless provide crucial insights into how the colonial frontier operated and how the pearling and pastoral industries came into existence and functioned. In short, understanding this complex history depends on the complementarity of history and historical archaeology. When used in tandem, these disciplines can enhance our knowledge and understanding of these colonial events in ways that would otherwise be impossible.[91]

Comparing the Indian Ocean pearling fisheries over deep time suggests that the situation in North West Australia was similar in some ways to that in the Persian Gulf. Archaeological evidence from the Gulf highlights human uses of pearl shell and pearls for both utilitarian and economic purposes over millennia. In both Northern Australia and the Gulf, local peoples were the first to transport shell products along their own trade networks, networks that presaged the global networks that characterize the present day and age. Future examination of the archaeological record in southern India and Sri Lanka will undoubtedly uncover similar prehistoric networks, especially since the epigraphic record reveals the high value that South Asian elites placed on pearls over time.

While there are clear similarities between the Indian Ocean's pearl fisheries, there are also important differences that must be acknowledged. In the Gulf, and presumably in South Asia as well, pearling and the trade networks that supplied this prized commodity to various parts of the world developed gradually over several thousand years. Major changes in and around the Gulf, such as the advent of Islam, apparently did little to change the basic structure and operation of the long-distance trade in pearls even though the composition of the industry's workforce and the management of the pearl trade did change with the passage of time. In Northern Australia, the shift from the indigenous procurement of shell to a commercial industry geared toward supplying a global

market occurred rapidly, and was also intimately bound up with the suite of changes brought about by colonialism. Archaeological work in Australia suggests that a useful avenue for future research would be to compare pearling settlements such as Cossack with communities such as Marichchukaddi in Sri Lanka or some of the shantytowns and urban settlements associated with pearl fisheries in the Gulf, all of which housed ethnically and culturally diverse populations. Historical archaeological models that have been used to examine ethnic and cultural identity in the Americas[92] can provide a starting point from which to explore hybrid forms of cultural expression in the Indian Ocean, where transregional labor migration as well as complex long-distance trade networks were integral components of this oceanic basin's history. Examining the Australian pearling industry in such contexts can also challenge the prevailing perception that Australia was essentially a product of Eric Hobsbawm's "long nineteenth century"[93] and was a world unto itself, separate from the larger Indian Ocean world of which it was an integral part.

Because it is a heritage landscape unique to the northern parts of their country, Australians continue to be interested in the history of pearling. However, while this history remains a popular topic, modern accounts of pearling are often romanticized and perpetuated by communities and companies for the purposes of tourism and revenue. Broome, for instance, remains renowned for pearls and its diverse cultural history. Beyond Broome, however, the early colonial-era pearling industries in the Torres Strait and the Pilbara are less well known. Two signs that stand in the center of the historical ghost town of Cossack graphically illustrate pearling's mixed legacy in the early twenty-first century. The first sign, erected by the local council, reflects common tropes about the colonial era and the pearling industry, the essence of which is that Cossack was the industry's center during the nineteenth century before being eclipsed by Broome. The second sign, erected by the local Aboriginal community, focuses on the negative impact that the pearling industry had on Aboriginal people. As these conflicting tropes attest, the history of the Indian Ocean's pearl fisheries must encompass not only pearls, but also the tens of thousands of Africans, Arabs, Indians, Sri Lankans, Southeast Asians, and Aboriginal Australians whose lives were intimately bound up with the extraction and marketing of these lustrous precious objects.

NOTES

1. Hamlet Cornish, *Pioneering in the Kimberley* (Perth: Hesperian Press, 2011).

2. This manuscript is held in the State Library of Western Australia, Perth (MN110, ACC7511A).

3. George Frederick Kunz and Charles Hugh Stevenson, *The Book of the Pearl: The History, Art, Science, and Industry of the Queen of Gems* (London: Macmillan and Co., 1908), 199–212.

4. Julia Martinez and Adrian Vickers, *The Pearl Frontier: Indonesian Labor and Indigenous Encounters in Australia's Northern Trading Network* (Honolulu: University of Hawai'i Press, 2015).

5. Cornish, *Pioneering in the Kimberley*, 5.

6. Kunz and Stevenson, *Book of the Pearl*, 201.

7. Cornish, *Pioneering in the Kimberley*, 7.

8. Cornish, 11.

9. Cornish, 24.

10. Barbara J. Little, "People with History: An Update on Historical Archaeology in the United States," *Journal of Archaeological Method and Theory* 1, no. 1 (1994): 5–40.

11. Ronald Moore, "The Management of the Western Australian Pearling Industry, 1860–1930s," *Great Circle* 16, no. 2 (1994): 121–38.

12. Steve Mullins, *Torres Strait: A History of Colonial Occupation and Culture Contact, 1864–1897* (Rockhampton: Central Queensland University Press, 1995).

13. Martinez and Vickers, *Pearl Frontier*, 30.

14. Evidence for the movement of marine shell along Australia's Indian Ocean coast during the Pleistocene comes from: Widgingarri, where baler shell was brought in thirty-two thousand years BP; Riwi, where tusk shells occurred thirty thousand years BP; Mandu Mandu Creek at Northwest Cape, where cone shells occur at thirty-two thousand years BP; and on Barrow Island, where recent excavation demonstrates the Pleistocene nonutilitarian use of shells. See Jane Balme and Kate Morse, "Shell Beads and Social Behavior in Pleistocene Australia," *Antiquity* 80, no. 310 (2006): 799–811.

15. Katherine Szabo et al., "The Brremangurey Pearl: A 2000-Year-Old Archaeological Find from the Coastal Kimberley, Western Australia," *Australian Archaeology* 80 (2015): 112–15.

16. Kim Akerman and John Stanton, *Riji and Jakuli: Kimberley Pearl Shell in Aboriginal Australia*, Monograph Series No. 4 (Darwin, Australia: Northern Territory Museum of Arts and Sciences, 1994).

17. Robert A. Carter, *Sea of Pearls: Seven Thousand Years of the Industry that Shaped the Gulf* (London: Arabian, 2012).

18. Vincent Charpentier, Carl S. Phillips, and Sophie Méry, "Pearl Fishing in the Ancient World: 7500 BP," *Arabian Archaeology and Epigraphy* 23, no. 1 (2012): 1–6.

19. Robert Carter, "The History and Prehistory of Pearling in the Persian Gulf," *Journal of the Economic and Social History of the Orient* 48, no. 2 (2005): 139–209.

20. Sophie Méry, Vincent Charpentier, and Mark Beech, "First Evidence of Shell Fish-Hook Technology in the Gulf," *Arabian Archaeology and Epigraphy* 19, no. 1 (2008): 15–21.

21. R. Carter, "History and Prehistory of Pearling," 4.

22. Robert Arthur Donkin, *Beyond Price: Pearls and Pearl-Fishing: Origins to the Age of Discoveries* (Philadelphia: American Philosophical Society, 1998). See also R. Carter, "History and Prehistory of Pearling," 5. For a general overview of the archaeology, see Daniel T. Potts, "The Archaeology and Early History of the Persian Gulf," in *The Persian Gulf in History*, ed. Lawrence G. Potter (New York: Palgrave Macmillan, 2009), 27–56.

23. R. Carter, "History and Prehistory of Pearling," 8.

24. R. Carter, 9, citing tablet 11, lines 288–92.

25. Donkin, *Beyond Price*, 49.

26. Pliny, *Natural History*, book 9, chs. 54–58, http://www.perseus.tufts.edu/hopper/text?doc=Perseus%3Atext%3A1999.02.0137%3Abook%3D9%3Achapter%3D54. For a summary of the Persian Gulf in antiquity, see Touraj Daryaee, "The Persian Gulf in Late Antiquity: The Sasanian Era (200–700 C.E.)," in Potter, *Persian Gulf in History*, 57–70.

27. For an archaeological overview of this period, see Donald Whitcomb, "The Gulf in the Early Islamic Period: The Contribution of Archaeology to Regional History," in Potter, *Persian Gulf in History*, 71–88.

28. R. Carter, *Sea of Pearls*, chap. 2.

29. R. Carter, 45.

30. R. Carter, 45, citing al-Idrisi. Julfar would become Ras al-Khaimah, a major modern center for pearling.

31. R. Carter, 45, citing al-Idrisi.

32. R. Carter, 58.

33. Mohammad Bagher Vosoughi, "The Kings of Hormuz: From the Beginning until the Arrival of the Portuguese," in Potter, *Persian Gulf in History*, 89–104.

34. R. Carter, *Sea of Pearls*, 55–57.

35. R. Carter, 91.

36. Robert Carter and Robert G. Killick, *Al-Khor Island: Investigating Coastal Exploitation in Bronze Age Qatar* (Ludlow, UK: Moonrise Press, 2014). Also cited in R. Carter, *Sea of Pearls*, 97.

37. Lawrence G. Potter, introduction to Potter, *Persian Gulf in History*, 14.

38. Nelida Faccaro, "Rethinking the History of Port Cities in the Gulf," in *The Persian Gulf in Modern Times: People, Ports and History*, ed. Lawrence G. Potter (Basingstoke, UK: Palgrave Macmillan, 2014), 29.

39. James Onley, "Indian Communities in the Persian Gulf, c. 1500–1947," in Potter, *Persian Gulf in Modern Times*, 233.

40. Potter, introduction, 2.

41. Potter, 9.

42. Potter, 31.

43. Onley, "Indian Communities in the Persian Gulf," 258.

44. Matthew S. Hopper, "The African Presence in Eastern Arabia," in Potter, *Persian Gulf in Modern Times*, 327–50; and Hopper, *Slaves of One Master: Globalization and Slavery in Arabia in the Age of Empire* (New Haven: Yale University Press, 2015).

45. Matthew S. Hopper, "Debt and Slavery among Arabian Gulf Pearl Divers," in Campbell and Stanziani, *Bonded Labour and Debt*, 103–18.

46. M. M. M. Mahroof, "Pearls in Sri Lankan History," *South Asian Studies* 8, no. 1 (1992): 109–14.

47. Pliny, *Natural History*, book 9, ch. 54.

48. James Hornell, *The Indian Pearl Fisheries of the Gulf of Mannar and Palk Bay*, Madras Fisheries Department Bulletin (Madras: Government Press, 1922). King Viyaja sent his father-in-law a pearl shell every year. Mahroof, "Pearls in Sri Lankan History," 110.

49. D. P. M. Weerakkody, *Taprobanê: Ancient Sri Lanka as Known to Greeks and Romans*, Indicopleustoi: Archaeologies of the Indian Ocean (Turnhout, Belgium: Brepols, 1997).

50. Osmund Bopearachchi, foreword to Weerakkody, *Taprobanê*, xix.

51. Mahroof, "Pearls in Sri Lankan History," 110.

52. Mahroof, 110–11. Trade included coconut, sandalwood, gems, and pearls. See also Senake Bandaranayake, Yuneskō Jātika Maṇḍalaya, and Madhyama Saṃskr̥tika Aramudala, *Sri Lanka and the Silk Road of the Sea* (Colombo: Sri Lanka National Commission for UNESCO and the Central Cultural Fund, 1990).

53. Mahroof, "Pearls in Sri Lankan History," 111.

54. Mahroof, 111.

55. Leonard Woolf, *Growing: An Autobiography of the Years 1904–1911* (London: Hogarth Press, 1961), 88.

56. Woolf, 88–89.

57. Lewis James Barnetson Turner, *Handbook of Commercial and General Information for Ceylon* (Colombo, Sri Lanka: H. R. Cottle, 1922).

58. In 2015 a research project was funded by the Australian Research Council to conduct a comparative study of pearling in the Indian Ocean World. The project, Pearls, People, and Power: Global Commodity History and Material Culture in the Transformation of the Indian Ocean World,

16th–20th Centuries, is led by Professor James Warren at Murdoch University. For an overview, see Donkin, *Beyond Price*. A useful timeline for the Gulf is presented in R. Carter, "History and Prehistory of Pearling."

59. Michael McCarthy, "Naked Diving for Mother-of-Pearl," *Early Days* 13, no. 2 (2008): 243–62.

60. Some Aboriginal people were convicts. See Kristyn Harman, *Aboriginal Convicts: Australian, Khoisan, and Māori Exiles* (Sydney: University of New South Wales Press, 2012).

61. The literature on this topic has become quite vast. A key work is Henry Reynolds, ed., *Aborigines and Settlers: The Australian Experience 1788–1939* (North Melbourne: Cassell, 1972). Other important studies by historians, economists, and anthropologists include: Dawn May, *Aboriginal Labour in the Cattle Industry: Queensland from White Settlement to the Present* (Cambridge: Cambridge University Press, 1994); Ann McGrath, *"Born in the Cattle": Aborigines in Cattle Country* (Sydney: Allen and Unwin, 1987); Charles Rowley, *Outcasts in White Australia: Aboriginal Policy and Practice*, vol. 2 (Canberra: Australian National University Press, 1971); Tim Rowse, "'Were You Ever Savages?' The Aboriginal Insiders and Pastoralists' Patronage," *Oceania* 58, no. 1(1987): 81–99; Rowse, *White Flour, White Power: From Rations to Citizenship in Central Australia* (Cambridge: Cambridge University Press, 1998); Richard Baker, "Coming In? The Yanyuwa as a Case Study in the Geography of Contact History," *Aboriginal History* 14 (1990): 25–60; Baker, *Land Is Life: From Bush to Town; The Story of the Yanyuwa People* (Sydney: Allen and Unwin, 1999); and Deborah Bird Rose, *Hidden Histories: Black Stories from Victoria River Downs, Humbert River and Wave Hill Stations* (Canberra: Aboriginal Studies Press, 1991). On the legal status of Australian Aborigines, see Ann McGrath, *Contested Ground: Australian Aborigines under the British Crown* (Sydney: Allen and Unwin, 1995). See also recent work by Jane Lydon into visual cultures and the history of human rights, humanitarianism, and empire in Lydon, *Flash of Recognition: Photography and the Emergence of Indigenous Rights* (Sydney: NewSouth Books, 2012).

62. For an overview, see Alistair Paterson, "The Archaeology of Historical Indigenous Australia," in *The Handbook of Postcolonialism and Archaeology*, ed. Jane Lydon and Uzma Rizvi (Walnut Creek, CA: Left Coast Press, 2010), 165–84.

63. Summarized in Alistair Paterson and Kate Gregory, "Commemorating the Colonial Pilbara: Beyond Memorials into Difficult History," *National Identities* 17, no. 2 (2015): 137–53. Gribble estimates that 60 people died. Gribble, *Dark Deeds in a Sunny Land or Blacks and Whites in North-West Australia* (Nedlands, Australia: UWA Press, 1987). See also Tom Gara, "The Flying Foam Massacre: An Incident on the North-West Frontier Western Australia," in *Archaeology at ANZAAS 1983*, ed. Moya Smith (Perth: Anthropology Dept., Western Australian Museum, 1983).

64. Ann Curthoys, "Indigenous Dispossession and Pastoral Employment in Western Australia during the Nineteenth Century: Implications for Understanding Colonial Forms of Genocide," in *Genocide on Settler Frontiers: When Hunter-Gatherers and Commercial Stock Farmers Clash*, ed. Mohamed Adhikari (Oxford: Berghahn, 2015), 218. See also Christine Choo and Chris Owen, "Deafening Silences: Understanding Frontier Relations and the Discourse of Police Files through the Kimberley Police Records," *Studies in Western Australian History* 23 (2003): 129–30.

65. Ann Hunter, *A Different Kind of 'Subject': Colonial Law in Aboriginal-European Relations in Early 19th Century Western Australia, 1829–61* (Melbourne: Australian Scholarly Publishing, 2012).

66. "Slavery in Western Australia," *New York Times*, 19 September 1886,http://query.nytimes.com/gst/abstract.html?res=9A06E2DD1E30E533A2575AC1A96F9C94679FD7CF&legacy=true. This article states, "The English Government, which has always stood as the foremost power in demanding the abolition of slavery and the slave trade, is now brought face to face with the fact that the natives of Western Australia are subjected by the Queen's subjects to a system in involuntary servitude, which is characterized by all the horrors of slavery as practiced in barbarous countries."

67. Gribble, *Dark Deeds*. See also Su-Jane Hunt, "The Gribble Affair: A Study in Colonial Politics," in "Colonial Politics in European-Aboriginal Relations in Western Australian History," ed. Bob Reece and Tom Stannage, special issue, *Studies in Western Australian History*, no. 8 (1984).

68. Colonel Angelo, "Governors' Confidential Dispatches, Colonel Angelo to Broome, 10 April 1886," State Records Office of WA, Acc. 391, cited in Neville Green, "From Princes to Paupers: The Struggle for Control of Aborigines in Western Australia 1887–1898," *Early Days* 11, no. 4 (1998): 446–62.

69. Curthoys, "Indigenous Dispossession," 220–31.

70. Green, "Princes to Paupers."

71. Curthoys, "Indigenous Dispossession," 219.

72. Myra Stanbury, "Mother-of-Pearl Shell Cultivation: An Early 20th Century Experiment in the Montebello Islands, Western Australia," *Great Circle* 16, no. 2 (1994): 90–120. This shift from exploiting coastal pearl banks to deeper waters had occurred many centuries earlier elsewhere in the Indian Ocean. See: Michael McCarthy, "Charles Edward Broadhurst (1826–1905): A Remarkable Nineteenth Century Failure" (PhD diss., Murdoch University, 1989); and McCarthy, "Naked Diving."

73. Stanbury, "Mother-of-Pearl Shell Cultivation," 95–96.

74. M. Pearson, *Indian Ocean*; and Peter Reeves, Frank Broeze, and Kenneth McPherson, "The Maritime Peoples of the Indian Ocean Region since 1800," *Mariner's Mirror* 74, no. 3 (1988): 241–54.

75. The earliest external encounters in northern Australia involved visiting Makassan traders, best known for establishing trepang processing

across Northern Australia and initiating important cross-cultural encounters before and during European colonization. Trepang processing has been described as Australia's "first industry" and it is likely that pearl shell was a commodity exported and exchanged along with trepang, minerals, timber, and animal products.

76. Alan Powell, *Northern Voyagers: Australia's Monsoon Coast in Maritime History* (North Melbourne: Australian Scholarly Publishing, 2010).

77. John Durlacher describes how an Aboriginal man named "Cockroach" and his two wives swam to East Lewis Island from the mainland in the 1870s to avoid retribution. Durlacher, *Landlords of the Iron Shore* (Western Australia: Hesperian Books, 2013).

78. Alistair Paterson, "Towards a Historical Archaeology of Western Australia's Northwest," *Australasian Historical Archaeology* 24 (2006): 99–111; and Corioli Souter, Alistair Paterson, and Fiona Hook, "The Assessment of Archaeological Sites on Barrow Island and the Dampier Archipelago, Pilbara, Western Australia: A Collaborative Approach," *Bulletin of the Australasian Institute of Maritime Archaeology* 30 (2006): 85–92. The thesis by McCarthy ("Charles Edward Broadhurst") is an exception. For earlier accounts, see: Arthur C. Bligh, *The Golden Quest: The Roaring Days of West Australian Gold Rushes and Life in the Pearling Industry* (Carlisle, Australia: Hesperian Press, 1984); Kathy De La Rue, *Pearl Shell and Pastures: The Story of Cossack and Roebourne, and Their Place in the History of the North West, from the Earliest Explorations* (Cossack, Australia: Cossack Project Committee, 1979); Kay Forrest, *The Challenge and the Chance: The Colonization and Settlement of North West Australia 1861–1914* (Victoria Park, Australia: Hesperian Press, 1996); and Mary Albertus Bain, *Full Fathom Five* (Perth: Artlook Books, 1982).

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85. Garrat, McCarthy, and Shaw.

86. Scott Sledge, *Wreck Inspection North Coast (WINC) Expedition 1978*, Report 11 (Fremantle: Western Australian Museum, 1979); and Corioli Souter, "Camden Harbour Reconsidered," *Bulletin of the Australasian Institute of Maritime Archaeology* 37 (2013): 85–95.

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88. Detailed in Paterson, "Towards a Historical Archaeology."

89. Alistair Paterson and Wendy van Duivenvoorde, "The Sea, Inland: Aboriginal Rock Art Depictions of Boats from the Western Pilbara," *Great Circle* 35, no. 2 (2013): 30–54; and Alistair Paterson and Andrew Wilson, "Indigenous Perceptions of Contact at Inthanoona, Northwest Western Australia," in "Pilbara Archaeology," suppl., *Archaeology in Oceania* 44, no. S1 (2009): 98–110.

90. Results of the Barrow Island archaeology project will be published when analyses are completed.

91. For example: Regina Ganter, *Mixed Relations: Asian-Aboriginal Contact in North Australia* (Crawley, Australia: UWA Press, 2006); Neville Green, *The Forrest River Massacres* (Fremantle, Australia: Fremantle Arts Centre Press, 1995); John Host and Jill Milroy, "Towards an Aboriginal Labour History," *Studies in Western Australian History* 22 (2001): 3–22; Howard Pederson and Banjo Woorunmurra, *Jandamarra and the Bunuba Resistance* (Broome, Australia: Magabala Books, 2000); and Tiffany Shellam, *Shaking Hands on the Fringe: Negotiating the Aboriginal World at King George's Sound* (Perth: UWA Press, 2009).

92. I am thinking here of work by Kent Lightfoot and Matthew Leibmann, and on Spanish sites in the Caribbean rim. Much of this work is summarized in Alistair Paterson, *A Millennium of Cultural Contact* (New York: Routledge, 2016).

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EIGHT

Interdisciplinarity as Image

At the Intersections of Historical, Heritage, and Media Approaches in the Indian Ocean World

DIANA HEISE AND MARTIN MHANDO

IN KEEPING WITH THIS volume's emphasis on interdisciplinarity, this chapter explores how the use of "image-aided" forms of knowledge production can intersect with archaeology, history, and cultural heritage preservation in Mauritius and Zanzibar. While archaeology allows us to analyze the material and immaterial past and historians can reconstruct earlier times using documentary sources, image-based methods can offer an important counterpoint to these research methodologies to expand our understanding of peoples, their cultures, and their histories. Filmmaking connects the perceptual abilities of the audience to the material and nonmaterial aspects of the culture being represented. Using media this way can also play an important role in filling the lacunae that traditional history may be unable to close because it highlights oral culture's ability to hold onto objects of significant tangible and intangible heritage. The current democratization of film and video production and

the attendant increasing opportunities for image-based research open a space for experts who come from outside of traditional academic frameworks to operate, and allows for the development of a more diverse vision of the past and present. Such interdisciplinary methodologies can advance historical archaeological agendas in the Indian Ocean world precisely because they permit us to envision new modes of conceptualizing the region and the historical experience of its diverse populations.

Approaching research in this way is particularly important, as has already been noted elsewhere in this volume, because a well-developed "image" of this region and its past has yet to be produced. As authors, we are particularly interested in questioning the disciplinary particularism that characterizes existing research. We are especially sensitive to how narrow research agendas can exclude or misrepresent topics that are already underrepresented in the existing scholarship on the Indian Ocean. Examples are communities that are vulnerable to marginalization and how their use of cultural heritage generates stability in times of change. Accordingly, we seek to lay out a new interdisciplinary research methodology with the belief that such an approach can provide a more complete picture of this vibrant region while respecting the role that cultural heritage plays in these communities.

In pursuit of this objective, we focus on two significant objects of cultural heritage from the IOW: the *ravann*, a traditional drum, in Mauritius, and the *Mtepe*, a traditional boat, in Zanzibar, through the lens of film and art. The chapter begins by considering the ways in which different disciplines do and do not intersect and how film can be used to explore heritage and historical topics, including the risks of doing so. We then examine how the ravann and the Mtepe are fabricated and their cultural significance in both the past and present. Doing so includes describing the production of two films that focus on the construction of these objects, and especially on the way in which each object has been (re)created through lost or little-known methods and their attendant cultural heritage value. Both the ravann and the Mtepe act as agents of cultural identity and, in so doing, speak to the archaeological notion of the importance of the "social life of things."[1]

These films likewise emphasize and valorize intangible heritage in their respective locations. Local experts, who are featured in these films, conducted historical research to unearth the lost techniques used to fabricate these objects. The films reveal not only how these objects

were made, but also how the fabrication process was conceptualized. Lastly, we consider the importance of local communities' engagement in their own history-making and the "growing recognition of the need for and importance of community-oriented archaeology."[2] Image-based methods of research offer new possibilities for local community collaboration with historians, archaeologists, and other researchers. Such an approach means that community members cease being merely research subjects. The knowledge produced by such collaborative approaches can in turn be put to more holistic use by the people in question, a result of particular importance for many contemporary communities, including those in the Indian Ocean world, whose ancestral ties have been sundered over the course to time.

In adopting this interdisciplinary approach, we draw on the vocabularies of multiple disciplines, including media studies, contemporary art theory, visual anthropology, and the conceptual considerations of nonfiction and ethnographic film production. This multidisciplinary approach, coupled with the fact that the chapter was written by two authors who are also the directors of the films described, underscores its multivocal and dialogical approach to knowledge production. Such an approach is all that much more important since men and women in the contemporary world lead multifaceted lives that intersect in various ways and at various levels. As Maria Reimondez has argued, "intersections are…the places where integrity is debated and exercised. No story, no history, no film, no article can be written without an overt and covert explanation of what that place is."[3] Given the complexities inherent in all such intersections, the only way we can hope to understand them more fully is through interdisciplinary collaboration.

THE CONTEXT OF HISTORY

Using film as a research tool requires us to think of this media form not just as a historical source or a kind of popularized presentation of history, but also as a form of knowledge production that can provide us with unique insights into a people's history. Although some scholars regard film as a legitimate source material for historical scholarship and a powerful tool for analyzing the past, it has seldom been employed as such.[4] Filmmakers often find themselves in a conundrum when faced with historical content or material artifacts that they do not always

understand fully but need to reproduce creatively. Since they are not historians or archaeologists themselves, they invariably find themselves at the kind of intersection that Reimondez has described.

As Olaf Berg warns, "history is not about some truth hidden in historic facts, but about a *relation* we establish with the past events based on the present-day material and immaterial artifacts."[5] He sees film accordingly as a presentation of "the multiplicity of forms in which history appears."[6] Through film, historical testimonies are recounted as versions of what happened in ways that leave the viewer to "build their own opinion…. In other words, film is a dynamic structure that mediates the social relation between those who are filming, that which is being filmed and those who are viewing the film. Like history, film exists only as a theoretically and socially constituted entity."[7] Film directors share with historians a desire to examine historical materials to uncover hidden insights or heretofore unknown aspects of the past. At the core of this mutual desire is the systematic investigation of a question, problem, or phenomenon. In such cases, filmmaking has little to do with the emotional and rational dimensions of human experience but everything to do with knowledge and creativity. Approached in this way, filmmaking resembles an act of historical archaeological reconstruction that can illuminate the past in the present.

CONTESTING THE "DOCUMENTARY"

There is a yawning gap between the theory and practice of the "documentary." Theories of the documentary emphasize the fallacies that surround notions of objectivity, reality, and truth. The practice of documentary thrives, however, on the notion that documentary films communicate objective facts. In this context, mediated images or textual accounts are treated as indisputably impartial evidence despite clear indications that such "documents" are biased because they ultimately reflect the author's viewpoint. Similar problems plague ethnography, which is frequently viewed as entailing the transparent reporting of "real" social and cultural events, of "people in their everyday contexts."[8] However, as philosopher and social critic Michel Foucault has argued, documentary is a battle about the status of truth and the economic and political role it plays.[9] Media provides a platform for the interpretation of such truths or "power-knowledge." Since it remains one of the

principal means of imparting knowledge in contemporary visual culture, the credibility and believability of documentary must accordingly be subject to continual assessment.

The two films under consideration provide examples of how research programs that draw on different academic disciplines can be used to encourage cross-disciplinary knowledge production and the methodological challenges that such interdisciplinary undertakings may face, not only while researching the subject under consideration, but also during the production and subsequent presentation of such films. Once again, emphasis is placed on using the medium of filmmaking as an act of historical and archaeological reconstruction of objects whose means of fabrication are little known or lost. The next sections of the chapter will discuss how each film specifically uses the attributes of filmmaking to illuminate this performance of reconstruction.

LAME LA KONE: THE HAND THAT KNOWS

Lame La Kone explores the cultural significance of the Mauritian frame drum called the ravann by focusing on how this instrument is made. The film, produced by Diana Heise in collaboration with a Mauritian development organization called ABAIM, focuses on the use of traditional techniques, now little known, that harken back to the slave era (1721–1835) in Mauritius.[10] To examine this fabrication process, the filmmaker was required to devise an ethical manner of approaching the subject matter, which included asking questions about how images are used and represent others and how knowledge is transmitted in the postcolonial era. The filmmaker also considered the ways in which contemporary art can be an important method of research that counters some of the conundrums found in traditional documentary filmmaking.

History of the Ravann

The ravann (see drum in fig. 8.1) is one of the three principal instruments in Sega Tipik (traditional Sega), the lament music of Mauritius that traces its origins back to the island's African and Malagasy slave population during the colonial period. The drum's origins are unknown, but its form is similar to drums found in continental Africa. The instrument is round in shape and constructed from a circular piece of wood. This turned wood is attached to a piece of stiffened goatskin to create a

FIGURE 8.1. At ABAIM. (*Photograph by Diana Heise.*)

percussive surface. A ravann's diameter generally varies from twenty-five to seventy-five centimeters. The methods of playing the ravann in Mauritius are thought to be similar to those found in Madagascar that are closely associated with a musical form known as Saleg.[11]

There can be little doubt that this instrument was created in Mauritius as a source of support and solace for those trapped in a slave system known for its harshness.[12] The object itself can be viewed as a symbolic cultural connection to slaves' diasporic homelands. The rhythmic structure of the music played on the ravann reflects feelings of suffering, lament, and anxiety. This music begins with a slow, melancholy vocal introduction known as an *apelasion*, which allows for stories to be recounted, usually in a somber tone.[13] Silences during the apelasion are also significant, expressing sentiments that cannot be articulated in words. This music's second section, the *roule*, has a faster tempo and inspires movement, especially dance. In religious settings, participants dance themselves into states of trance, while high- to low-pitched female voices express the anxiety of their environment.[14] According to Mauritian elders, the ravann was also used as a form of medicine to correct imbalances in the brain.[15]

The use of call-and-response methods of playing indicate that the ravann was also used as a communication device.[16] As slaves lost their

ability to use and preserve their native languages, the drum became a site for new types of communication that included the development of the Kreol language. There is an intrinsic link between the musical form, Sega, its drum, the ravann, and Mauritian oral culture.[17]

Following the abolition of slavery on the island in 1835, attitudes toward Sega began to change.[18] This musical form, which had once been considered barbaric, gradually became a more "acceptable" cultural practice. As early as the 1850s,[19] large estate owners organized Sega nights that encouraged less radical forms of the music as a way of maintaining control over local freed slave populations.[20] In the post–World War II era and particularly during the 1950s, Sega increasingly became a form of popular entertainment, and was played out of a home setting for the first time.[21] As Sega's popularity grew, use of the ravann declined because of the increased interest in using Western instruments, especially the drum kit,[22] and production of the ravann ceased almost completely. However, after independence in 1968, cultural movements began to revalorize this instrument as part of their search for a symbol of identity in postcolonial Mauritius.[23] The social development organization and musical atelier ABAIM was particularly active in doing so.

ABAIM

ABAIM began as a band in the 1980s that performed protest music. Their work belongs to a form of Sega known as Sega Engagé, or engaged Sega, known for its politicized lyrics and use of traditional instruments such as the ravann, the maravann (a rattle made of sugarcane stems and filled with seeds), and the triangle. During the 1990s, ABAIM focused on the status and position of children in Mauritian society. The organization set up its headquarters in Cité Barkly, an area known for high drug use, gang violence, high poverty rates, and low education levels. The area's children are particularly vulnerable to these social ills. During the early 1990s, ABAIM started teaching children to play traditional instruments and games as well as learn to read and write the Kreol language.[24] By teaching younger generations to play traditional instruments, such as the ravann, ABAIM not only provides a positive outlet for children to avoid the gangs and endemic violence of Cité Barkly, but also functions as a cultural heritage organization that helps to foster family relations and create a broader sense of community identity. Today, ABAIM is a

nationally known organization that has produced five books that collect traditional stories and songs and eleven albums of music.

The Ravann's Contemporary Status

Despite ABAIM's efforts, the ravann remains marginalized as a cultural emblem. Many young professional musicians play the Western drum kit or the cajón, a box-shaped percussive instrument originally from Peru. Since the ravann is still strongly associated with the legacy of slavery, the instrument is stigmatized, a fact that some drummers use to reject it.[25] Ravann players are associated largely with staged performances put on by the local tourist industry. In these performances, which feature sanitized forms of this powerful music of lament and suffering, the ravann becomes little more than a detached symbol of Mauritian culture.[26]

One goal of postindependence cultural movements in Mauritius has been to identify objects that can be deemed truly "Mauritian." The goal of such searches is to transcend the sense of communal identity that is fostered by groups that cling to their ancestors' territory of origin and cultural practices.[27] Mauritian political life reinforces these forms of ethnic communalism, a major consequence of which has been to marginalize those Mauritians of African and Malagasy descent whose ancestors reached the island as slaves during the eighteenth and early nineteenth centuries.[28] This forced labor diaspora system destroyed enslaved peoples' connections to their homelands as well as many of their cultural practices and linguistic traditions. As a result, their descendants do not have the luxury of knowing much, if anything, about their ancestral ties.[29] Like the dodo, which has become very much a national rather than communal symbol of Mauritian identity, the ravann has the potential to become a unifying object of national heritage since its methods of fabrication and the manner in which it is played is wholly Mauritian. In 2012, Diana Heise and ABAIM set out to produce a film to explore the ravann's cultural heritage significance.

Methodology for Lame La Kone

Lame La Kone uses still and moving images to examine the ravann and its role in contemporary Mauritian cultural heritage. The film documents preindustrial methods of fabrication that would have been used during the slave era. These methods were recovered by research that included the collection of oral accounts of the ravann by Alain Muneean,

one of the founders of ABAIM; these methods were subsequently employed by the artisan James Gurbhoo, the father of two ABAIM children. It is important to note that employing these methods was very much an experiment during which it was not clear whether each stage in the fabrication process would succeed.

Conceptualizing and producing *Lame La Kone* entailed drawing on ideas of what constitutes "representation" in contemporary art. This approach has three basic components, the first of which is appreciating the value of contemporary art practice as a form of research. Secondly, it relies on principles enunciated by the noted cultural theorist and philosopher Jacques Rancière to create a working definition of what constitutes an "image." Finally, this approach builds on Maya Deren's methodology to use the formal considerations of art practice to understand the rituals and mythology of Haitian Vodoun.

Understanding contemporary art practice involves coming to terms with the precepts of modernism that emerged during the late nineteenth and early twentieth century. This artistic and philosophical movement glorified the power of humans to shape and generate their own environments through the implementation of scientific inquiry and technology.[30] Fueled by a belief in the power of industrial machinery and bureaucratic organization, modernism espoused the pursuit of "progress"[31] and the bounties that such advancement could bring. Casting off the traditions of previous movements, modern artists sought to emphasize attributes specific to each medium of art production as a method to advance their practice. One prevalent method was to use technology to find new ways of looking and thinking about the world. Modernist ideals and perceptions affected not only artistic practice and visual culture, but also most systems of daily life, economic production, and intellectual inquiry, including the practice of anthropology, ethnography, and archaeology.

As the twentieth century unfolded, events including war, genocide, colonialism, and global ecological devastation undermined this belief in the inherent promise of progress.[32] Those who had once celebrated the overthrow of established social, economic, and political systems as cleansing rites witnessed and experienced the misery of violence and questioned how modernism could be so wrong. The quest of modernism lost its unifying abilities, all the more so as its supporters found that the modernist narrative implicitly excluded the history and culture of many non-Western peoples.[33] Contemporary artists responded to this

anxiety by moving away from a reliance on a single medium to develop works that were interdisciplinary and intermedia[34] (art activities that exist between established genres) as a way to avoid Western cultural hegemony and give voice to more diverse perspectives.

This expansion of contemporary art practice resulted in the development of more nuanced considerations of how "images" are produced, a process that Jacques Rancière has discussed at some length. His notion reiterates another break with modernist thought. The dominant function of Western art since Aristotle has been to imitate and reproduce the experience of human vision. Rancière asserts that contemporary art (art produced since the collapse of modernism) has striven to not mimic the working of the human eye. Instead, he argues, these new ideas of "image" have a quality that allows them to simultaneously make meaning of the past and the present in some ways, yet remain inexplicable in other ways.[35] To clarify, he does not define "image" as only that which is visual; collections of words can also create an image that is blindingly clear.[36] The practitioners of such "images" are not rejecting the visible; instead, their goal is to find new methods of making art that are "capable of dispelling the simulacra of resemblance, the artifices of art and the tyranny of the letter."[37] In short, these artists seek to make an art with the promise of freedom from the maze of endless simulations that do not reach an understanding about the past, an art that does not support the broken promises of monument (envision "heroic" public sculptures of colonial subjugators), and an art that challenges the oppression of proscribed thought, such as philosophic positions used to justify horrors such as the Holocaust (consider Nazi propaganda films). These artists are instead looking for a type of art that can represent a direct understanding of the human condition while allowing for the complexities of this experience from diverse perspectives.

The result is an idea of images that have the ability to be simultaneously transparent in some areas and opaque in others, leaving an opening that can allow for those aspects of experience that do not fit neatly into a dominant or overarching narrative. If we take the example of a photograph, there may be areas in the image that are completely black or completely white. There may not be details in these areas, yet the areas are still holding space. We can apply the same concept to history as containing areas of considerable detailed knowledge and others about which little or nothing is known. The ability to think about images in

this way is particularly important in the representation of marginalized or undervalued aspects of cultural heritage, such as the ravann. Most people descended from slaves (in this case in Mauritius) have no substantive way to know about their ancestral lineage. Their connections to their homelands were purposefully broken by the colonial system, which justified its actions with the proscribed and accepted attitude of the time (think of Rancière's idea of the "tyranny of the letter"). Such a lack of information creates a hole or blank area in the past, an area with no detail, which in turn affects the construction of such individuals' identities. These blank areas are frequently overlooked, ignored, or considered to be of little value or consequence when reconstructions of the past are made. Rancière's idea of image can be used to acknowledge this missing information, consider the reasons why such information is lacking, and give space for the unknown aspects of these human experiences in the form of opacity or silence. The production of *Lame La Kone* uses this expanded notion of image to conceptualize the ravann and its community.

The third influence on the film's conceptualization and production is Maya Deren's work on Haitian Vodoun. In the preface to her book *The Divine Horsemen*, Deren writes that she intended originally to produce creative films about the dances found in Vodoun rituals. Once she began studying these dances, however, she found that the premise upon which her project was originally based was untenable since there was no way she could distill the significance of these dances from the dance movements themselves. In short, she was left without a methodology to collect data or a way to categorize it.[38] At the same time, she recognized a connection between how "native" cultures were studied in the 1940s and how artists were treated in modern industrial society: "We too are exhibited as touristic curiosities on Monday, extolled as culture on Tuesday, denounced as immoral and unsanitary on Wednesday, reinstated for scientific study on Thursday, feasted for some obscurely stylish reason Friday, forgotten Saturday and revisited as picturesque Sunday."[39]

This insight, coupled with her strong aversion to making aggressive inquiries, led Deren to develop another research methodology—subjective formal analysis. More specifically, her approach emphasizes the need to respond intuitively to the "form" of the visual and sonic environment being studied.[40] Form is the one of the principal characteristics that an artist uses to assess a work of art. For example, the inclusion of

an apple in a painting by Paul Cezanne is not its primary connotation; meaning is made by the manner in which the apple is rendered.[41] In the case of Haitian Vodoun ceremonies, Deren saw the movements that occurred during these rituals not as abstracted dances, but as visual configurations molded by the community members' bodies, which renders meaning in Vodoun culture. Her approach affords us an opportunity to better understand the diverse ways in which people can ascribe and interpret cultural value.

The methodology employed in producing *Lame La Kone* builds on Deren's approach by paying attention to the formal attributes of the medium used, including sound, mise-en-scène, cinematography, and montage. To update her approach, formal aspects from a poststructuralist standpoint are also considered, including performance, the camera as participant, collaboration and shared authorship, and self-reflexivity (aspects of the film that reference its own making).

Lame La Kone is a film that was shot almost completely in close-up; the focus remains constantly on the ravann (see example in fig. 8.2). This cinematographic technique seeks to make watching the film an act of engaged viewing, not emotional manipulation. This intent is emphasized by the inclusion of still images in the montage to reengage the audience's attention by means of stopped movement. The film is shot on James Gurbhoo's farm and emphasizes the source of the preindustrial materials used in making the ravann. The sound was recorded with two microphones, a technique that permits much of this environment's "wild sound," which includes the nearby Cité Barkly, to be captured.

This act of cultural heritage preservation was performed for the film. The fabrication process was staged with Gurbhoo's active participation and that of ABAIM members. To draw attention to this fabrication process as performance, the camera itself is an active participant, moving self-reflexively from subject to subject at the direction of both Gurbhoo and Alain Muneean. The director's voice can likewise be heard, as can Gurbhoo's comments to the director. These activities point to the film as a cinematic construction, not naturalistic reportage. As noted earlier, it is important to remember that the film is a collaborative undertaking between Diana Heise and ABAIM. Muneean and Gurbhoo conducted the research on which the film is based and organized the location and materials used during it, while Heise handled all aspects of production.

FIGURE 8.2. Removing interior armature to finish the ravann. (*From* Lame La Kone.)

These three individuals, as well as other community members, participated in the final editing process to ensure cultural accuracy.

Approaching Representation

In the production of *Lame La Kone*, the director/cinematographer was acutely aware of her presence as an invited outsider. The methods of depicting Gurbhoo maintained the film's focus on the "image" of the drum itself; this work was not intended to be a portrait of this individual. Because the ravann is not part of the director's ancestral tradition, it was important that the film did not become the voice for another person or historical tradition. In short, the film seeks, to quote filmmaker and postcolonial theorist Trinh T. Minh-ha, "to speak nearby."[42]

To more fully understand what the film sought to do, it is important to know something about how Gurbhoo would be typically viewed in Mauritian society and culture. He is a farmer from Cité Barkly. He attended school until the third grade and earns his living as a day laborer. He speaks the kind of Kreol that is considered "low" or "crude" by many of those who completed higher forms of education. Because of his limited educational background and language skills, many would not consider him very knowledgeable, much less an authority. However,

the film clearly treats Gurbhoo as an expert. At various points during the film, disembodied voices enter the filmic environment to ask him questions. He is, at all times, the stable, visible source of knowledge, contrary to the stereotype propagated by societal judgments of him based on his educational background and economic livelihood. The film works accordingly to dislodge common assumptions about those living in the margins of Mauritian society. It should be noted that *Lame La Kone* is the first film to be produced that includes use of this particular form of the Kreol language.

Gurbhoo, via the film's "image," speaks of traditional knowledge and, in so doing, reveals a previously little known or understood history. He describes the tools that he uses and their historical significance, as well as the various ways in which the materials he uses are employed (fig. 8.3). Rarely, however, does he speak of how he acquired this knowledge. Although the film works to solidify Gurbhoo's potential role as a cultural expert in Mauritian society, it does not describe his life story or attempt to manipulate the viewer's emotions as many traditional documentary film narratives do. Instead, these aspects of Gurbhoo's life remain opaque. To use Rancière's terms, the "image" operates on the level of sheer presence to convey its potency by purposely giving space to Gurbhoo's past through his references to his own family and the slave history of Mauritius yet not treating this lack of information as a deficit. Instead, this aspect of Gurbhoo's representation in the film functions as an embodied void, giving space where historical knowledge would be if it were known (fig. 8.4).

This representational approach includes the ravann itself. The same strategies of image production apply to the drum as it rhythmically speaks through its players. Its goatskin cover attests to the craftsmanship that making this instrument requires. The film makes clear that the process of fabricating this ravann took five weeks, reflecting the community's deep desire to make this kind of music. Despite its ability to speak for and to this community, the ravann also remains mute since it does not tell what its ancestors witnessed or speak of its close proximity to cultural extinction. However, the drum's sheer presence can still help fill in the lacunae that the historical record cannot. As such, this image has the potential to let that historical past and heritage exist in the present and persist.

In 2008, anthropologist Rosabelle Boswell noted the lack of attention paid to the preservation of cultural heritage, and especially to intangible

FIGURE 8.3. Collection of James's tools. (*From* Lame La Kone.)

FIGURE 8.4. James with completed ravann. (*From* Lame La Kone.)

cultural heritage, in Mauritius.[43] Six years later, however, Mauritian attitudes about cultural heritage were clearly changing.[44] In February 2014, an application was made to UNESCO to safeguard Sega Tipik, an application which, incidentally, included images from *Lame La Kone*. The application was approved in November of the same year. Although the country already housed two UNESCO WHSs (the Aapravasi Ghat, which commemorates indentured labor migration during the nineteenth and early twentieth centuries, and the Le Morne Cultural Landscape, which commemorates slave resistance to oppression), Sega Tipik is the first form of intangible cultural heritage in Mauritius to be accorded such international protection. This form of intangible heritage is also beginning to be acknowledged in other ways. Information about the ravann and its fabrication, which included images from *Lame La Kone*, and the instrument's significance was included in elementary school textbooks for the first time in 2014. ABAIM completed its first book on the ravann and its history in 2016. As these developments attest, pursuing research methodologies that engage archaeology, heritage studies, history, and art can contribute to a more inclusive understanding of the human experience in Mauritius.

SAILS OF HISTORY: THE PROFESSOR AND THE FUNDI

In 1991, film critic and theoretician Bill Nichols warned that the ethnographic film was in trouble because shifts in the discourse about documentary studies were altering accepted academic ideas of representation. He also observed that ethnographic film no longer occupied a single niche within the narrow boundaries of anthropological studies, but a variety of niches, including those of history and memorialization.[45] Rosabelle Boswell notes a similar trend in how people think about cultural heritage, observing that there is a consensus among heritage scholars that tangible and intangible heritage are no longer seen as being mutually exclusive.[46] The distinguished anthropologist Clifford Geertz subscribes to the same basic premise when he argues that exploring the skill of craftmaking offers historians, ethnographers, and cultural enthusiasts an opportunity to have at least a subtle view of the "other" side(s) of life.[47] These ideas about the value of interdisciplinary study are at the heart of *Sails of History*.

Relatively little is known about shipbuilding and the details of seafaring in the Indian Ocean before c. 1600. Studying the ships that plied

this oceanic world is frequently a difficult task given the limited information we have about these vessels, especially the dhow, which, more than any other boat, symbolizes the linkages between and communication among the diverse cultures that are a hallmark of life in the Indian Ocean world over the *longue durée*. Recounting the story of the Mtepe, a boat closely associated with Zanzibar, on the basis of the memory of those who have seen, built, or otherwise have knowledge about this vessel, however, provides a unique perspective from which to view the cultural world of people in the western reaches of this oceanic world. Doing so through film permits us to explore not only the cultural significance of the Mtepe, but also the conflicts and contradictions that are inherent in memory and knowledge creation. Documentary filmmaking can allow us to analyze the processes that underpin historical events and social action and understand how narrative can generate new meanings of causality.

The history of the Mtepe attests to the ingenuity of the peoples of the East African littoral. Abdul Sheriff's account of the Mtepe *Shungwaya* makes it unnecessary to recount in any detail how these vessels are constructed.[48] Suffice it to say that the Mtepe (fig. 8.5) was a sailing ship made entirely of wood and held together by coir (rope made from the outer husks of coconuts) rather than metal nails. Mtepes plied the Indian Ocean for centuries until they were ultimately supplanted by Arab and European technologies.

As with the ravann, the filmed discussions that occurred between Fundi Mohammed Bwana of Kizingitini, Lamu,[49] and Abdul Sheriff illustrate how film and video can serve as a valuable research tool to deepen our understanding of how lost knowledge can be recovered and transmitted, especially in the postcolonial world. While the ephemeral nature of constructing an object such as the Mtepe may not seem, at first glance, to be all that important because the fabrication process is often seen as marginal to understanding the object itself, examining this process provides a unique opportunity to explore the ways in which notions of sociocultural and aesthetic "acceptability" or "unacceptability" are created and maintained.

Sails of History seeks to connect the different viewpoints about the Mtepe that can be found in both the historical record and contemporary media so the audience can better understand how academic specialists and artisans look at and understand the world in which they live. We

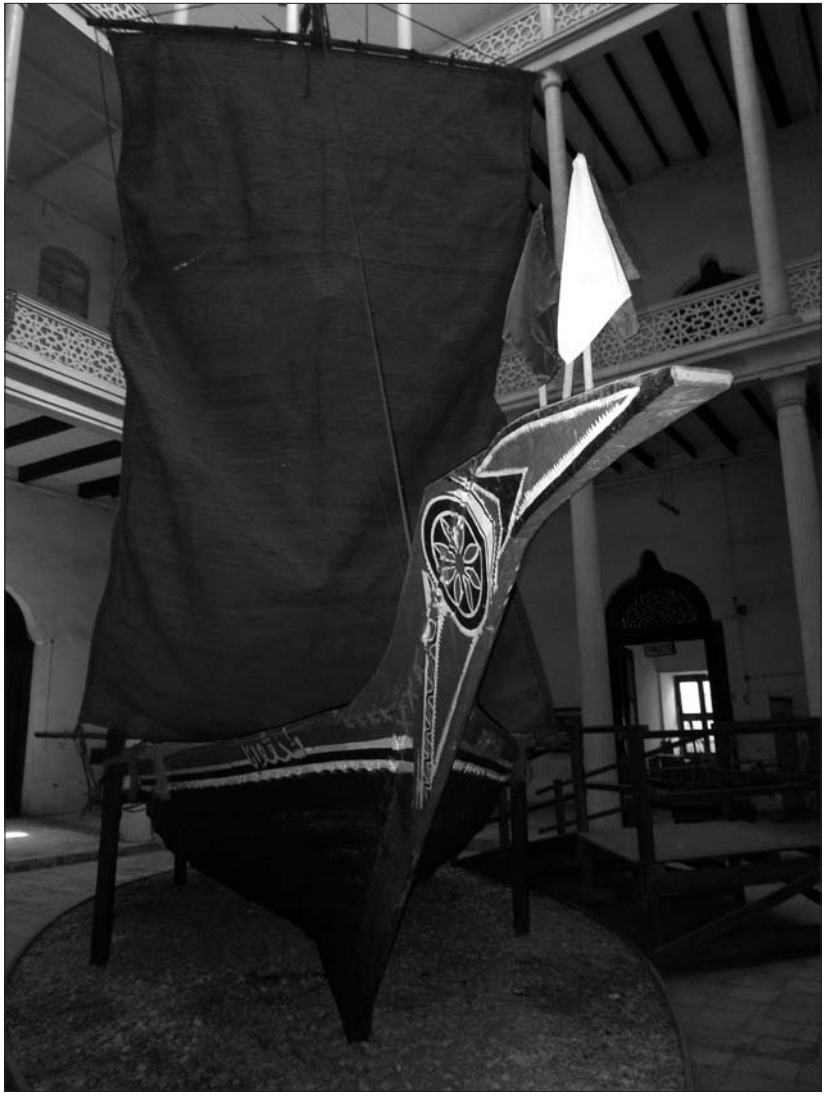

FIGURE 8.5. The Mtepe inside the Zanzibar National Museum, Stonetown, Zanzibar. (*Photograph by Martin Mhando.*)

see, for example, how oceanographers and anthropologists have been trying to prove that sewn boats were more flexible than vessels built within the "Western boat-building tradition." We also witness the differences of opinion between Fundi Mohammed Bwana, the only known

living person to have built a Mtepe, and naval historian Robert Adams, who refers to the craft as an "oddity."[50]

Identity and Memory as Knowledge

Construction of the Mtepe is intimately bound up with questions about how social systems define and construct identity. From Darwin and Freud to structuralist and post-structuralist theorists, inquiries into how the "self" is defined have revealed that group and individual identity are both coherent and constructed. Indeed, a biography can be defined as a discovery of self. In *Sails of History*, reconstruction of the Mtepe illuminates how different constituents conceptualize themselves and reflect larger cultural narratives.

Understanding the director's approach in this film must include comprehending how he conceptualizes the biographical subject. One way to do so is to draw on prosopography, which can be defined as "the idea of collective, but individual, biography." Prosopography provides an approach that permits us to understand a group of people while not having to understand the past of each individual member of that group. This approach can be particularly potent when considering postcolonial contexts, which do not value all individuals' experiences equally. The individuals in *Sails of History* accordingly not only explain specific cause-and-effect relationships when they discuss the Mtepe's fabrication, but also speak for the group to which they belong. More specifically, the prosopography in *Sails of History* aims to show how the impact of social or economic change differs according to the unique qualities of individual men and women by exploring the relationship between these individuals' ability to take action (exercise agency) and the economic, social, and political structures that surround them. These subjects explain their life through culturally available stories, which allows the audience to hear how the individual participates in such activity.

One example of this relationship between the individual and the impact of social change is during the construction of the Mtepe when Abdul Sheriff states,

> That is why when we wanted to have an exhibition on the dhow culture, we decided to construct a boat not the kind that you can see everywhere which have modern influences in them, but to try to construct an old one using the old methods. Now

> that [is] easier said than done. Because there was nobody who had any experience in building it. Eventually we found somebody, in Lamu, whose grandfather used to build not real boats but the models, and therefore we were relying to some extent on the memory of this *fundi* from what his grandfather told him when he was a young boy. But we were also able to collect information from written sources to find out how it was built, what was the shape like, and also what were the traditions that went with it. And it was quite interesting that when we began to build the boat, the fundi was quite particular that certain things you cannot do. Now some of these would be considered very sexist now. For example a woman was not expected to go on the boat while it was being built. We never got the full explanation why but that this is part of the tradition.[51]

Looking at his arguments with the fundi, we see the fundi's belief that "an object is defined by the effects of its use: a definition that works well is a good definition. An object is an experience. Objects do not exist apart from a subject that thinks them."[52] Here we find the link between belief and truth: the fundi believed in what he was doing and arguing for, while the professor was concerned with finding the truth.

This disagreement demonstrates that to some people, truth can be a form of knowledge that does not necessarily have an impact on daily life. Here we see how the person, the collective group to which that person belongs, and the idiosyncratic stories that are being told differ yet still relate to the larger cultural narrative. As Robert Marshall Adams warns, "Although the references allow an accurate description of the sewn boat, a quantifiable analysis of the boat is not possible due to lack of accurate dimensions."[53] Indeed, there can be many inaccuracies in the descriptions provided by various people.[54] This reality prompted a qualitative interpretation of the hull's construction during the Mtepe *Shungwaya* Project of 2003, an undertaking that included an assessment of the participants' belief systems, in this case the fundi and the professor, and how these belief systems came into existence. As qualitative researchers involved with human beings, we are searching for meaning from the perspective of those being studied.

Coming to terms with the various viewpoints and belief systems that surround the Mtepe required gathering information from multiple

sources, beginning with firsthand literary accounts and observations and academic studies that draw on secondary source materials. Visual sources included drawings, photographs, and models. Other sources of information included the results of archaeological excavations and research and reports generated from careful studies of the remains of old vessels. The film asserts, however, that the most important source of information is the attempted reconstruction of the vessel by a living person trained in the seafaring skills and traditions of a living culture.

Horst Ruthrof provided important insights into some of the issues raised in both the film and this chapter.[55] He took particular interest in Fundi Haji Gora Haji's statement that "the skill no longer exists, it is only in our mouths!" This statement acknowledges that while the kind of skills needed to build a Mtepe still exist, the community no longer possesses the details of how to do so, hence such knowledge can be found only "in our mouths." Ruthrof would argue the essence of "technique" involves highly refined sets of technical skills assembled over thousands of years by a community, and the Mtepe *Shungwaya* Project illustrates as much. Using coir rope to hold the ship together and fire to shape its timbers, for example, reflect ancient skills and techniques that, like family recipes, remain only in people's memory or imagination unless they are used and passed on to succeeding generations.

HISTORY, HISTORICAL ARCHAEOLOGY, AND FILMMAKING IN PERSPECTIVE

Both *Lame La Kone* and *Sails of History* focus on past forms of material culture whose process of construction has been lost and use filmmaking as a method of historical archaeological reconstruction to understand these objects' social and cultural significance. By intermingling intangible knowledge, artisans' material understanding of contemporary construction, older men's memories, and information from the archival record, these projects represent attempts to (re)create important markers of the past in the Indian Ocean world. The act of filmmaking allows mute materials to speak by taking "skills out of our mouths" and reconstructing culturally valued objects using techniques lost during the nineteenth and twentieth centuries as Western cultural hegemony became increasingly pronounced. These attempts to reenvision construction of the ravann and Mtepe can, in essence, be seen as acts of resistance

against the loss of indigenous cultural heritage and identity and a desire to reassert the value of that heritage and identity.

In addition to reasserting the cultural value of the ravann and Mtepe, these films offer members of marginalized communities the kind of window onto their past that can play an important role in asserting their identity in the postcolonial era. First, the films elevate aspects of their cultural heritage and valorize them as significant objects. Secondly, the films offer individuals and communities a space in which to consider their ancestral past and validate their own experiences. In *Lame La Kone*, for example, Gurbhoo says, "We are returning to two hundred years ago. It is like I am seeing my great-grandfather.… As for me, my name…I don't know my origin, for sure." This kind of self-reflection demonstrates that he is able to connect with his past and make space in the present for his ancestors even if he does not know where they were born or what language they spoke. Gurbhoo's observations in turn aid others in his community to connect with their own individual and collective past. When the film was shown at large-scale screenings and the ABAIM center, it was clear that his knowledge was valued and he became a respected cultural expert. His presence accordingly holds out the promise that other people's experiences may also be seen as valuable. This use of cinema can thus contribute to the creation of a new sense of identity, one that permits people to disassociate themselves from the negative consequences of social and cultural marginalization.

These films also demonstrate that this medium can generate more diverse and nuanced voices than would normally be found in the creations of authors and filmmakers such as Joseph Conrad and Walt Disney.[56] Anthropologist Faye Ginsburg notes as much in her discussion about indigenous media-makers and ethnographic filmmaking.[57] More specifically, Ginsburg argues that the clearest understanding of the past and present is produced by conversations between members of a community and an outside participant, such as an ethnographic filmmaker, both of whom contribute their perspectives and expertise in ways that allow a sharper picture of a people's past and the legacy of that past to emerge.

Both *Lame La Kone* and *Sails of History* adopt a modified version of this approach that includes not only the knowledgeable artisan and the filmmaker, but also an outside expert (the professor). Because they generate alternative forms of portrayal in a space between biography

and self-representation, the films legitimize multiple perspectives about the past and the present that emerge from a dialogue that takes into account both the known and the inexplicable, the clear and the opaque, that which can be talked about openly and that which can never be discussed publicly, and the revelations and silences that exist in the archival record. In essence, this process permits the filmmaker to combine the insights generated by historical analysis and archaeological evaluation of material culture with the local community's intangible knowledge to create a deeper understanding of the human experience and the heritage of that experience.

In 2001, film critic and theoretician Bill Nichols wrote of "cinema's primal love for the surface of things, its uncanny ability to capture life as it is."[58] Such is especially true of the branch of filmmaking we call documentary, which combines photographic realism, narrative structure, and time-based montage in ways that can create an immersive experience full of meaning. As we noted at the beginning of this chapter, the kind of encompassing experience that cinema can generate when combined with the insights provided by historians and archaeologists can not only facilitate historical and archaeological reconstruction, but also provide communities, especially marginalized ones in the postcolonial era, with a way to reconnect with their past and value their cultural heritage. There are, of course, potential pitfalls to such an approach. The seamless nature of cinematic storytelling can easily result in a linear narrative story that fails to acknowledge the complexity of the human experience and the different ways in which that experience may be perceived and understood. However, as we have sought to demonstrate, such problems can be avoided. Doing so requires us to embrace, rather than deny, the messiness of memory, heritage, and the creation of identity and meaning that are central to capturing and savoring the richness of life in the Indian Ocean world.

NOTES

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2. See Krish Seetah, this volume.
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4. Olaf Berg, "The Challenge of Film Considered as Historical Research: Claude Lanzmann's Approach to the Shoah-Constructing History in Dialectical Time-Images," *Cultural Studies Review* 14 (2008): 1, 124.

5. Berg, 127.

6. Berg, 128.

7. Berg, 128–29.

8. Kirsty Williamson, "Research in Constructivist Frameworks Using Ethnographic Techniques," *Library Trends* 55, no. 1 (2006): 83.

9. Michel Foucault, *The Foucault Reader*, ed. P. Rabinow (London: Penguin, 1984), 84.

10. Major studies of slavery in Mauritius include: Teelock, *Bitter Sugar*; R. Allen, *Slaves, Freedmen, and Indentured Laborers*; and Vaughan, *Creating the Creole Island*.

11. Marclaine Antoine, "Rakont Mwa, Rakont Nou, Marclaine Antoine," interview by Diana Heise, 11 November 2012.

12. Rosabelle Boswell, *Le malaise créole: Ethnic Identity in Mauritius* (New York: Berghahn Books, 2006), 61; and ABAIM and Diana Heise, *O Ti Le La La E, Ravann* (Beau Bassin, Mauritius: Self-published book manuscript, 2016), 2.

13. ABAIM and Heise, *O Ti Le La E*, 2.

14. ABAIM and Heise, 2.

15. Antoine, "Rakont Mwa."

16. Alain Muneean, "Interview on the History of Sega," interview by Diana Heise, 28 June 2013.

17. Muneean.

18. Muneean.

19. Boswell, *Le malaise créole*, 63.

20. ABAIM and Heise, *O Ti Le La E*, 3.

21. Boswell, *Le malaise créole*, 61.

22. Boswell, 61.

23. Boswell, 61.

24. Kreol, which did not have an official orthography until 2011, was the primary household language of 84 percent of all Mauritians in 2012 ("84% of Mauritians, Census Says, Speak Only Kreol at Home," *Lalit Mauritius*, 3 July 2012, http://www.lalitmauritius.org/en/newsarticle/1407/84-of-mauritians-census-says-speak-only-kreol-at-home/).

25. Yannick Durhone, "Interview with Local Musician," interview by Diana Heise, 11 September 2012.

26. Boswell, *Le malaise créole*, 63.

27. Muneean, "Interview."

28. On the slave trade to Mauritius, see: R. Allen, "Mascarene Slave-Trade"; and R. Allen, *European Slave Trading*, ch. 3.

29. See Diego Calaon and Corinne Forest, this volume.

30. Thomas Hylland Eriksen, *Us and Them in Modern Societies* (Oslo: Scandinavian University Press, 1992), 2.

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41. Deren, 10.

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44. See Calaon and Forest, this volume.

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46. Boswell, *Challenges to Identifying*, 15.

47. Clifford Geertz, *The Interpretation of Cultures: Selected Essays* (New York: Basic Books, 1973), 3–5.

48. Abdul Sheriff, "The Mtepe *Shungwaya* Sails Again," *ZIFF Journal* no. 3 (2006): 34–44.

49. The title "Fundi" refers to a highly skilled person with technical skills.

50. Robert Marshall Adams, *Construction and Qualitative Analysis of a Sewn Boat of the Western Indian Ocean* (Minneapolis: University of Minnesota, 1985), 12.

51. Sheriff, "The Mtepe *Shungwaya*."

52. Sheriff.

53. Adams, *Construction and Qualitative Analysis*, 8.

54. Sheriff, "The Mtepe *Shungwaya*."

55. Horst Ruthrof, interview by Martin Mhando, 1 July 2013.

56. Hall and Silliman, *Historical Archaeology*, 5.

57. Faye Ginsburg, "The Parallax Effect: The Impact of Aboriginal Media on Ethnographic Film," *Visual Anthropology Review* 11, no. 2 (1995): 65.

58. Bill Nichols, "Documentary Film and the Modernist Avant-Garde," *Critical Inquiry* 27, no. 4 (2001): 583.

NINE

Archaeology and Religious Syncretism in Mauritius

SAŠA ČAVAL

SLAVERY AND INDENTURE ARE central to understanding the Mauritian past. The forced and free labor diasporas that brought hundreds of thousands of men, women, and children from Africa, India, Southeast Asia, and China to the island during the eighteenth, nineteenth, and early twentieth centuries still constitute key elements in shaping modern Mauritian identity.[1] These immigrants also brought their religious beliefs and practices with them, beliefs and practices that included traditional African religions, Buddhism, Christianity, Hinduism, and Islam.[2] Although the Code Noir of 1723 required Mauritian slave owners to instruct their bondmen and bondwomen in Catholicism and have them baptized,[3] the conversion attempts remained sporadic and, at best, half-hearted before slave emancipation in 1835. It was only because of the efforts of Père Jacques-Désiré Laval, a French missionary who resided on the island from 1841 until his death in 1864, that tens of thousands of the colony's former slaves converted to Catholicism during

the mid-nineteenth century.[4] The indentured immigrants—mostly from India but also from China, the Comoros, Madagascar, Mozambique, Southeast Asia, and Yemen—who reached the island after 1835, on the other hand, were permitted to retain their faith, and the estate owners for whom they labored intruded less into their religious lives.

Mauritian slaves and indentured workers thus seemingly differed from one another in terms of their ability to preserve their original religious beliefs and use various cultural tools to maintain or recreate this important component of personal and community identity.[5] However, as anthropologists and historians have long appreciated, one consequence of various belief systems cohabiting with one another in close proximity is cultural and religious syncretism. Mauritius is no exception. An early example of such activity is the annual festival known as the Yamsé (Yamseh, Yamsey), which was being celebrated in Port Louis, the island's principal city, no later than 1780.[6] Nineteenth-century accounts of Mauritian life note that this festival, the origins of which are to be found in the Shi'ite commemoration of Hussein's death during the month of Muharram, brought together all of the colony's Lascars (Indian sailors) and other Indian and "oriental" residents, many of whom were Christian and Hindu.[7]

The beliefs and practices known as Longanis attest that modern Mauritians, especially those descended from the colony's African and Malagasy slaves, continue to engage in the kind of religious syncretism frequently found in complex multicultural, creolized societies.[8] Information about the religious practices of their slave ancestors is, however, extremely limited in the archival record.[9] Our knowledge about and understanding of Mauritian slave belief systems is further constrained by the nonexistence of religious structures, similar to temples or mosques, that are clearly associated with the indentured Indians who reached the island during the nineteenth century.[10] As other contributors to this volume have observed, archaeology has the potential to open a window onto otherwise opaque elements of a people's past and culture. Because of its focus on recovering and analyzing material remains, archaeological research holds out the promise of not only deepening our knowledge and understanding of religious practices associated with slavery in Mauritius and, by implication, elsewhere in the Indian Ocean, but also permitting us to compare such practices with similar phenomena in the Atlantic.[11]

Although religion has long been inextricably intertwined with seafaring, trade, commerce, and migration in the Indian Ocean,[12] historians have paid much less attention to religious syncretism in this oceanic world than in the Atlantic.[13] However, the fact that the Mascarenes drew slaves from a truly global catchment area requires us to pay due attention to religious syncretism in the islands. Early nineteenth-century sources record the presence in Mauritius of slaves of Comorian, Ethiopian, Indian (Bengal, the Coromandel and Malabar coasts, Orissa), Southeast Asian (Bali, Java, Makassar, Nias, Sumatra, Timor), West African (Bambaras, Guineans, Wolofs), and Chinese origin. Slaves exported from Madagascar, Mozambique, and the Swahili Coast, the most important sources of Mascarene chattel labor, came from diverse ethnocultural populations. Those of Malagasy origin included individuals identified as Ambanivolo, Andrantsay, Antaisaka, Antalaotra, Antanosy, Antateime, Antatsimo, Betanimena, Betsileo, Maninga, Merina, Marvace, and Sakalava. Those from eastern Africa came from at least fourteen populations that can be identified with certainty, including the Bisa, Ekoti, Kamanga, Lolo (Lomwe), Makonde, Makua, Maravi, Mrima, Mujao (probably Yao), Ngindo, Nyambane, Nyamwezi, Sagara, and Sena.[14]

While some slaves of Malagasy / East African and South Indian origin may have been acquainted, respectively, with Islam and Christianity, most of the slaves who reached the Mascarenes did so imbued with traditional African belief systems that included polytheism, various forms of animism and anthropomorphism, and ancestor worship.[15] Contemporary accounts of Mauritian colonial life indicate as much. Eighteenth-century visitors to the island commented, for example, on Malagasy slaves' fondness for amulets, objects the French called gris-gris.[16] Early nineteenth-century observers of Mauritian life made similar observations. Jacques Milbert notes that the colony's Malagasy slaves exhibited knowledge and interest in magic and "all things uncanny" and believed that "their talismans … protected [them] against every kind of accident and attributed to them the power to obtain any desired object, the preservation of a good master, or a favorable change in their state."[17] Almost fifty years later, the British missionary Patrick Beaton likewise observes that the colony's slaves had "retained the superstitions and practiced the idolatrous rites peculiar to their native

[67.248.25.248] Project MUSE (2025-07-11 01:44 GMT)

land" including "a peculiar and extravagant feeling of respect for their ancestors," the practice of casting lots to predict the future, and the wearing of amulets. Many of the colony's emancipated slaves, he continues, still wore gris-gris even though they were nominally Christian.[18] Beaton also notes that slaves' attachment to their native land was an integral component of their religious belief system, so much so that the desire to be buried in their homeland was "perhaps as influential as the love of liberty" behind the attempts by some slaves to escape from the island and reach Madagascar in small canoes or open boats.[19]

Beaton's account attests that even though Mauritian slave owners sought to suppress these traditional belief systems, Mauritian slaves, like their counterparts in the Americas,[20] adapted, modified, and recreated traditional religious beliefs and practices in various ways. Evidence of such religious syncretism can also be found on Réunion and in the Seychelles. The practices known as *sorcelrie* (sorcery) on Réunion, for instance, are very similar to those associated with Longanis.[21] A strong belief in *nam* (spirits) and gri-gri (sorcery) exists in the Seychelles where shamans, known as *bonom di bwa* (from the French *bonhomme de bois*, or "man of the woods"), are consulted regularly for supernatural guidance in solving everyday problems in a manner comparable to practices in Haitian Vodou. Echoes of this Seychellois tradition are documented in colonial Mauritius, where people in the southern part of the island believed in a mythical giant known as the *om de bwa* (forest man), a figure who, however, apparently lacked the spiritual qualities of his Seychellois counterpart.[22]

LONGANIS: AN OVERVIEW

Although Longanis is unique to Mauritius, it is not unlike syncretic religions in the Americas such as Candomblé, Obeah, Orisha, and Vodou.[23] While based largely on traditional African beliefs and rituals, it also utilizes Christian and Hindu religious elements, such as crosses and oil lamps. The term Longanis (*longaniste* in French) appears to originate from the French *onguen* (ointment) from which the word *onguenniste* (one who manufactures ointments) was derived. The name is indicative of the therapeutic function that Longanis practitioners are expected to perform.[24] According to Danielle Palmyre, the word means more specifically "a sorcerer who deals with the forces of evil."[25] As such, the

general understanding is that if the Longanis practitioner can handle the evil forces that can possess a person and cause illness or death, then they can also heal the afflicted both spiritually and physically.[26] In Mauritius, as well as Réunion and the Mauritian dependency of Rodrigues, a Longanis religious ritual is called the *servis* (system).[27]

Longanis encompasses a range of practices to control and channel spiritual forces to divine the source(s) of misfortune, to cure and protect against harm, to avenge injustice and offense, and to influence people's character and destiny; in short, Longanis seeks to bring spiritual and earthly forces into proper balance and harmony. It cannot be considered, however, as an organized religion since it lacks a unified system of cosmological beliefs and practices, a divine pantheon, commonly agreed upon communal or public rituals and ceremonies, gathering centers, or spiritual leaders of congregations. Practitioners can be men or women who work individually or in groups and who perform their services either to meet their own needs or on behalf of clients.[28] Practitioners can also come from different ethnoreligious backgrounds. In 1979–80, medical anthropologist Linda Sussman worked with four "sorcerers"—one Hindu, one Tamil, and two Catholic Creoles.[29] During my own fieldwork in 2013, I had access to three Hindu practitioners. These men and women have been influenced by traditions that Sussman characterizes as a combination of "old European sorcery and alchemy, early Freemasonry, Hindu, Tamil and folk Indian beliefs, Mauritian herbalism and folk beliefs, and Christian beliefs and practices."[30] Longanis knowledge and techniques are acquired in various ways: by transmission within families, through apprenticeships, through direct communication with a "higher power" or by receiving an "education" in Madagascar. "African" or Malagasy practitioners are regarded as especially knowledgeable and powerful.[31]

People in Mauritius often associate inexplicable misfortune or illness with an act of witchcraft or supernatural evil. An individual's or community's social and economic success is attributed to positive help from supernatural forces, the strength of their gods and saints, and the fervor of their prayers. Understanding this cultural reliance on supernatural forces such as ancestors, spirits, and gods requires us to understand the relationship between these forces and a community. Traditional African religions do not dichotomize between the body and the soul, and Mauritian Creoles (i.e., those of African and Malagasy descent) share

this belief. When a person dies, his or her soul does not leave the body, but the unity of the soul and body become an immaterial entity called nam. Because the nam possesses the agency associated with a living person and owns the power of the material body, it is more powerful than the soul itself. Death is accordingly viewed not as an end or a separation but as a transformation into immaterial form, a rite of passage par excellence. Funerals prepare the nam for its new role; after a funeral, the nam becomes a vehicle for assuring a family's social future (e.g., marriages, births of children). By transitioning into the spirit world, the recently deceased becomes an ancestor and acquires the power that ancestral spirits possess. This ancestral spiritual power manifests itself among the living and increases or decreases depending on the extent of these spirits' interaction with the living, which is determined by the number and intensity of prayers, rituals, and sacrifices performed by family members.[32]

Such beliefs and practices exist in many cultures where rites involving the ancestors reinforce the links between the living and the dead and, in so doing, provide protection from the kind of disorder than can threaten society. Illness, for example, is often regarded as being caused by ancestors' unhappiness over social conflict or transgression of sociocultural norms.[33] In Mauritius, and especially among Mauritian Creoles, ancestors also serve an important function in establishing the kind of foundation myth that can be important in creating and maintaining personal and group identity. Known ancestors become, in essence, a way of connecting people with their real but unknown ancestors, thereby connecting the living with their ancestral homeland. The Creole mythical ancestor called Gran-dimounn Malgas (lit. "Great Ancestor Malgache") or Papa Malgas ("Father Malgache"), for example, embodies a powerful spirit-protector from Madagascar that people who claim Malagasy heritage often consider as the first of their kind to reach Mauritius.[34]

Mauritian Creoles live in a universe marked by apprehension about the disorder that ancestors can create through witchcraft.[35] Since they do not perceive themselves as masters of their destiny, Creoles refer continuously to their gods/spirits/ancestors to avoid making choices or decisions that might give offence or create disorder. Longanis is used to resist, counter, or retaliate against attack. Such ritual treatments are deemed effective only if the malevolent spell is turned back on the person

who initiated it. In severe cases, the spirit(s) have to be diverted and the interaction between the sacred and the profane must be secured by a sacrifice, such as that known as the *poul nwar* (black hen). Such sacrifices usually occur at night and require "a gift of a life," which can be a chicken or any other small animal or, more recently, a vegetable such as a squash (*courgette chinois*), lemon, or coconut.[36] The black hen service, which is also practiced in Réunion, is often considered to be of South Indian origin given its similarity to the ritual conducted in honor of the Hindu goddess Petiaye. This ritual, however, is associated not just with persons of African or Indian descent. French colonists brought *La poule noire* (black chicken) and *Le petit Albert*, popular eighteenth-century grimoires or books of natural and cabalistic knowledge, with them when they came to the Mascarenes.[37]

In 1928, the widespread belief in "sorcery" prompted the Catholic bishop of Mauritius to complain about its popularity among the island's inhabitants. He associates this belief in sorcery, which he referred to as "that witchcraft or Petit Albert," with the island's uneducated classes who also professed some form of Christianity. The bishop, who compares this activity to the cult of the devil, notes that those who relied on such practices did so for personal gain or to injure their enemies, and describes these practices as having an erotic or obscene character, including using Christian sacred names and phrases and the crucifix in blasphemous ways. The bishop notes that he had also seen pins stuck into various parts of saints' images.[38] The bishop's negative remarks about Longanis echoed early European accounts of Obeah in the Caribbean.[39]

Longanis rituals use personal objects such as clothes or hair associated with the intended victim to channel the spirits into possessing the victim and causing illness or death. To ensure this supernatural intervention's effectiveness, rituals are performed in places that, because they are perceived as being situated between this world and the next, are deemed to be especially powerful because they are where spirits are frequently present. Such locales include cemeteries, crossroads, and places with large, old trees, including forests. Rituals performed in cemeteries or at graves are referred to as "raising the dead."[40] The graves of those who died a violent and/or premature death, including children, are regarded as especially powerful spiritual locations. Longanis is also performed near religious shrines or sacred buildings, such as temples or

mosques, and even in old colonial forts. In addition to being recognized as places of powerful supernatural spirituality, such sites must be remote enough to ensure that practitioners will not be disturbed during the performance of rituals.

Mauritian Creoles commonly associate witchcraft not only with their own community, but also with Indo-Mauritians. While people may consult specialists and visit temples and shrines associated with all of the island's major religions during times of illness or misfortune, they usually deal with specialists from their own religion and/or ethnic group. This practice reflects the fact that those seen by one ethnoreligious community as religious specialists may be regarded by members of other communities as sorcerers. The power attributed to ancestors is also often seen as community specific. Hindu priests, for example, are regarded as the most powerful interlocutors to invoke or remove spells involving Hindu gods and saints, while among Creoles, the power of Malagasy ancestors is seen as surpassing that of any other ethnic ancestors.[41]

ARCHAEOLOGY AND LONGANIS

Excavations at cemeteries near Le Morne Brabant and Bois Marchand and archaeological surveys of two other sites at Bras d'Eau and Mon Loisir sugar estate afford an opportunity to begin exploring this particular manifestation of religious syncretism in the southwestern Indian Ocean in greater detail.

Le Morne Cemetery

Le Morne Brabant and its surrounding landscape are strongly associated with slavery in modern Mauritian consciousness.[42] Le Morne, an imposing inselberg with a flat top situated at the far southwestern corner of the island, is popularly believed to have served as a refuge for fugitive or maroon slaves during the eighteenth and early nineteenth centuries. Stories of these runaways and their creation of a "maroon republic," where those who had been enslaved became free again, have become an integral component of Creole oral history.[43] In 2008, the Le Morne Cultural Landscape was inscribed as a UNESCO WHS to commemorate slave resistance and maroonage around the globe.[44] Located within the WHS's buffer zone is a burial ground that is the only archaeological site

on the island associated with slaves or the island's free(d) population of color (gens de couleur) that has been excavated to date. Documentary information about the cemetery is, unfortunately, almost nonexistent. The first known reference to it comes from an 1880 map of the area. The cemetery is not considered to be consecrated ground; no recognized religious or ethnic entity or group, including the Catholic Church, claims it.

Conditions at the cemetery at the beginning of an initial survey in 2009 can only be characterized as extraordinary. The five readily visible graves were delineated by basalt rock, only two of which had a covering cairn or stone structure.[45] These graves were positioned around the two oldest trees in the area together with the remains of a burned cross at the burial ground's "center."[46] These trees had a number of bottle caps nailed to their trunks, under which were small packets containing pieces of fabric with names written on them. The presence of rusty nails in the tree trunks without attached bottle caps indicates that the cemetery has been a site of ritual activity for some time. West of these five graves was a mound containing various materials, including halved coconuts mixed with fragments of thin red and white candles, empty metal food tins, pieces of red ribbon and black fabric, plastic cups and bottles, glass rum bottles, hundreds of earthenware *diya* (Hindu oil lamps), plastic bags that often contained fruit such as pineapple and papaya, and the remains of small animals such as dogs, birds, and poultry, some of which were decomposed while others were still "fresh." The same kinds of objects were distributed carefully on and around the graves, together with burned cigarettes, incense sticks, and coins, the oldest of which was dated 1955. Three of these five graves also had the remains of sacrificed animals, either on top of the grave itself or nearby. The villagers who assisted us with the survey considered the cemetery to be a place where Longanis was practiced, a view reinforced by their unease about people roaming around a site associated with beliefs they viewed in negative terms.

The excavation of nine of the cemetery's graves in 2010 yielded evidence that point to the existence of African or Malagasy religious beliefs in early nineteenth-century Mauritius.[47] The graves' orientation is perhaps the most obvious evidence supporting such an interpretation: the longitudinal axis of each grave was aligned toward Le Morne Brabant and ultimately toward Madagascar and/or the East African coast.[48] The grave goods found during excavation likewise point to these being

non-Christian burials.[49] The cemetery's long-term association with non-Christian beliefs and practices was reinforced when two dolls made of organic materials including small branches and moss were uncovered about twenty centimeters below the surface of one grave (fig. 9.1). Careful review of the grave's stratigraphy revealed that these dolls, which were similar to those found elsewhere on the cemetery's surface, had been placed on the grave about two decades earlier during a Longanis ceremony.

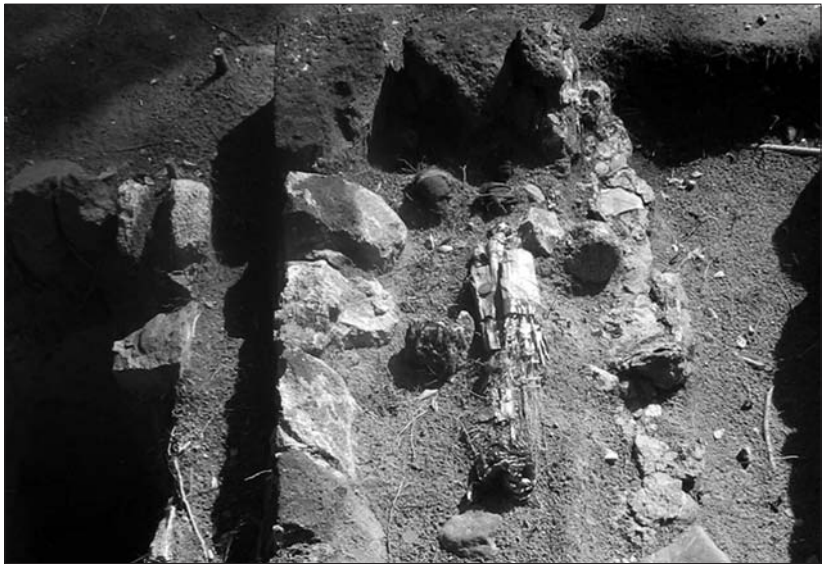

FIGURE 9.1. The two dolls, discovered in the fill of grave seven in Le Morne cemetery. (*Photo by D. Calaon.*)

Bois Marchand Cemetery

The practice of Longanis is not limited just to the southern parts of the island where most Mauritian Creoles live. Bois Marchand cemetery, located approximately twelve kilometers northeast of Port Louis, was the third largest cemetery in the world at the time it was established in 1867 by the colonial government to handle the remains of some of the tens of thousands of men, women, and children who died during the malaria epidemic that ravaged the colony during 1867–68. Bois Marchand

provides a different perspective from which to view Longanis. More specifically, Longanis is practiced at Bois Marchand in both officially sanctioned sacred areas, such as those containing large Christian crosses, and in areas that are not normally considered as sacred, such as the crossroads between the cemetery's different sections.

Does this mean that Longanis as practiced at Bois Marchand differs in any significant way from that practiced at Le Morne? At Bois Marchand, the places where rituals are performed are not secret and, indeed, these rituals can be performed in broad daylight without being apparent even to people who happen to be nearby. On several occasions, for example, Longanis was obviously performed after a funeral while the archaeological team worked less than fifty meters away. Although we saw no one in the area after mourners had departed, we came across evidence of a ritual performance as we left the excavation site. The elements commonly associated with Longanis ritual practice—a cut lemon marked with red powder, flowers, money, cigarettes, and, in one case, a decapitated chicken—were laid out in the center of a crossroad. Our Mauritian colleagues asked us not to drive over these objects, but to avoid them.

Longanis rituals were also performed at a large Christian cross in one of the cemetery's more prominent sections. After this cross was destroyed, these rituals moved to a new location next to a historic stone building, an abandoned railway station that, because it has a little cross at the end of its gabled roof, is often referred to as a church (fig. 9.2). Longanis offerings were placed on the concrete base of the cross next to the building (figs. 9.3a and b) while the two trees closest to the cross have bottle caps, like those found at Le Morne, nailed to their trunks.

Unlike those at Le Morne, the graves excavated at Bois Marchand did not contain any vestigial evidence of Longanis practice in them. This is not unexpected, since the cemetery is not in an isolated location and it has been subject to governmental regulation, since its establishment in 1867. It is worth noting, however, that the cemetery's association with Longanis extends beyond its being a site where rituals such as those described above are performed. More specifically, we were warned at the beginning of our excavations that any human remains we uncovered might be stolen for "sorcery" use (i.e., for Longanis). Therefore, we had the excavation site guarded at all times when the archaeological team was not present.

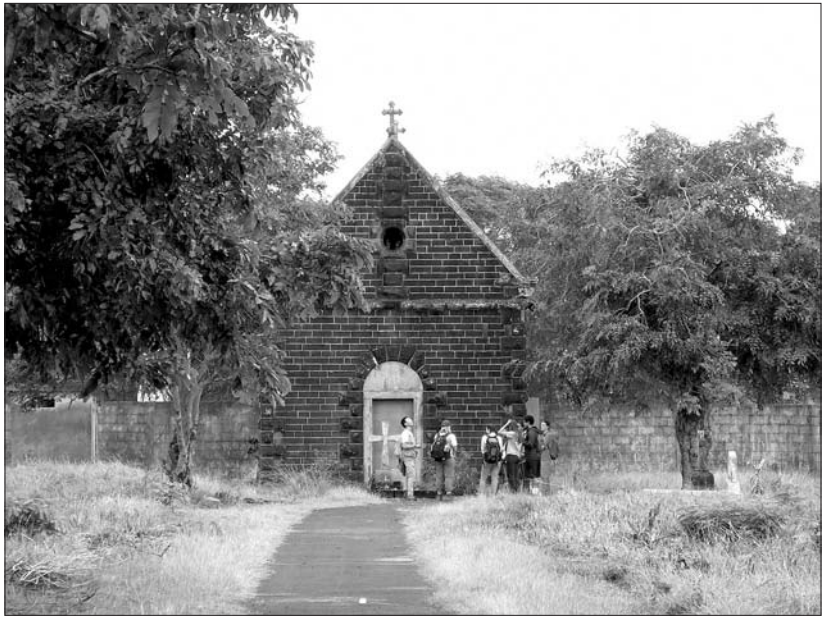

FIGURE 9.2. A view of the former train station at Bois Marchand from the cemetery side. In front of it, in line with the door, is the big Christian cross. The concrete foot of the cross is being used for Longanis practices. (*Photo by the author.*)

Bras d'Eau Cemetery

The cemetery at Bras d'Eau is situated on the island's northeastern coast about five miles from the eponymous sugar estate, which is now protected as a national park. Although a small part of the cemetery is still in use, most of it is abandoned. A large Christian cross has been set up more or less at the center of this burial ground. All the ritual objects associated with Longanis religious practice that we have seen elsewhere were found on the cross's concrete base, the only significant difference being that the earthenware oil lamps at Bras d'Eau were differently shaped and substantially larger than those found elsewhere. A large number of dolls dressed in black clothes were scattered on a heap of ritually used objects that were moved from the central ritual spot. A distinctive feature of Longanis ritual activity at Bras d'Eau was the red thread that was wrapped around the bottom of the cross. The use of the thread in this manner is consistent with Hindu practice in which these are tied to the betel tree, usually found next to Hindu temples or

(a)

(b)

FIGURE 9.3. Remains of Longanis rituals practiced at Bois Marchand cemetery, by the cross at the former train station (a), and in Le Morne cemetery (b). (*Photos by the author.*)

shrines. Since the northern part of the island is home to many more descendants of indentured Indian laborers than African or Malagasy slaves, such activity suggests that the Longanis practitioner or client was Hindu and that this particular practice has been transferred from a Hindu temple to a site that is different but still considered to be ritually very powerful.

Mon Loisir Sugar Estate

The religious syncretism and diversity of ritual practice that is a hallmark of Mauritian Longanis is also illustrated by evidence from a cane field that is part of the Mon Loisir sugar estate near Rivière du Rempart in the northeastern part of the island. Here Longanis is practiced in a crossroad between sections of a cane field next to a *kalimai*, or shrine to Kali, a well-known and widely worshipped Hindu goddess closely identified with empowerment and the destruction of evil forces.[50] As Linda Sussman has noted, a shrine to a goddess such as Kali imbues a site with even greater ritual power than it might otherwise have because it brings worshippers' prayers and invocations directly into the deity's presence. Unfortunately, it is impossible to determine just how old the Mon Loisir shrine is, but the shrine's location, its simple structure and the equally simple form of the goddess's statue housed in it suggest that this kalimai was constructed during the second half of the nineteenth century.

MATERIALITY AND RELIGIOUS SYNCRETISM

Recovering the religious beliefs and practices of Mauritian slaves entails asking the same kind of questions that Charles Orser has posed about African-American slave religions: What did these men and women believe? What components of their original belief system did they retain? How did they negotiate the preservation of their religious beliefs and practices in a multicultural society? What, if any, artifacts or traits of these beliefs and practices survive in the archaeological record? How do we recover and interpret the remains of syncretic belief systems?[51] We will never know with any certainty what religious practices, beliefs, and worldviews slaves brought with them to Mauritius, in part because archival and other contemporary accounts of such beliefs and practices are few and far between and often problematic. Even on those limited

occasions when slaves speak directly to us, as in the complaints they filed with the Protector of Slaves during the late 1820s and early 1830s, their voices were invariably mediated through local whites or colonial officials and tell us little, if anything, about the social, cultural, and religious universe in which these men and women lived.[52]

However, by drawing on the insights provided by anthropology, archaeology, history, and spatial studies, we can begin to tease out a fuller, deeper understanding of slaves' religious attitudes and the roots of Mauritian socioreligious practice. Careful analysis of the material culture recovered from the Le Morne cemetery sheds potential light, for example, on how gens de couleur and/or slaves used burial as a mechanism to maintain links with their ancestral homeland. The ways in which the cemetery's graves are positioned indicate that the people who established and used this burial ground possessed a distinctive sense of the land- and seascape in which they existed. As noted earlier, the graves' longitudinal axes correspond generally with an azimuth toward Madagascar, evidence that suggests the cemetery was essentially a Malagasy burial ground. However, aDNA analysis of the eleven sets of skeletal remains recovered during the 2010 excavation highlights the need to appreciate the complexities of late eighteenth- and early nineteenth-century Mauritian life. While this analysis demonstrated that the Malagasy matrilineal line predominated among those buried in the cemetery, it also revealed that the cemetery housed the remains of people of African descent.[53] Such ethnic admixture is consistent with the fact that slaves and free(d) persons of color from different parts of the globe regularly lived in close proximity with one another. What we know about marriage and residential patterns among Mauritian gens de couleur during the late eighteenth and early nineteenth centuries confirms as much. Almost one-third of all free colored marriages during the 1770s and 1780s, for example, involved partners of different ethnicity, while in 1828, 14.6 percent of the 1,056 persons who resided in Port Louis's western suburb, the site of the old Camp des Noirs Libres that had been reserved for persons of African and Malagasy origin or descent, claimed India as their place of birth.[54]

Although no explicitly "African" artifacts, such as blue beads, cowry shells, pierced coins, or crystals, were found in the Le Morne cemetery,[55] the dolls recovered from one of the graves may be interpreted as illustrating that the cemetery has been and continues to be perceived

as an "African" religious space. Many West and Central African cultures make use of such figures in their religious practices. Among the Fon, for example, people project personal anxieties and emotions on to figures known as *bocio* as one way to resolve problems. Among the Bembe, ancestral figures, which are sometimes clothed and hatted, hold relics of the dead. The use of dolls in Mauritian Longanis is also consistent with the practices of other African diasporic religions such as Candomblé, Regla de Ocha, Shango, and Vodou where dolls and other kinds of handmade figures serve various functions.[56] The use of such figures may also reflect the influence of Hindu religious practice. The Mauritian slave population included significant numbers of men, women, and children from Bengal and South India: in 1806, Indians made up 10.2 percent of the island's 60,646 slaves.[57] Puppet shows, which usually had religious themes and were believed to expel evil spirits and bring rain, were a popular form of cultural performance in medieval India, and such beliefs still persist in some parts of southeastern India.[58]

Two synergetic themes have dominated Mauritian social, cultural, and political life since independence in 1968. The first of these is that the country is a "rainbow" nation in which different communities, like the separate, distinct bands of light that compose a rainbow, live harmoniously together side by side as part of a larger entity. The second such theme is expressed in the slogan *l'unité dans la diversité* (unity in diversity) used regularly by the country's various political parties and the national government as part of its program to foster cultural development. The tensions, if not contradictions, inherent in such themes and public discourse has, as others have noted, complicated attempts to create a distinctly "Mauritian" sense of national heritage and, by implication, national identity.[59]

Longanis, incorporating as it does traditional African religious as well as Christian and Hindu beliefs and practices, illustrates not only the complexity of the Mauritian experience, but also some of the commonalities shared by its different communities, commonalities that have often been ignored or obscured. We are well advised to remember that Mauritian slaves came not just from Africa and Madagascar, but also from India, Southeast Asia, and even China, that the colony's free(d) persons of color came from equally diverse cultural backgrounds, and that religious syncretism was an integral part of eighteenth- and early nineteenth-century Mauritian colonial life. Evidence of such activity is

not hard to find. Long before it became the most sacred Hindu space on the island, for example, the volcanic lake known as Grand Bassin in the southern part of the island was a spiritual focal point for Malagasy slaves who perceived this body of water as being connected with their homeland.[60]

Longanis's intriguing complexity makes it a logical point of departure from which to study religious plurality in Mauritius not only in the present, but also in the past. Reconstructing religious syncretism in slave societies can be a daunting task because of the difficulties that can limit our ability to discern, much less explore, the sociocultural universe in which slaves and gens de couleur lived. However, as excavations at Le Morne and Bois Marchand demonstrate, careful, informed archaeological research and analysis can allow us to surmount at least some of these limitations and peer with greater acuity through the mists of time in ways that allow us to deepen our understanding of the heritage that our ancestors bequeathed to their descendants.

NOTES

1. Major studies of the slave and indentured labor trades to Mauritius include: M. Carter, *Servants, Sirdars and Settlers*; and R. Allen, *European Slave Trading*. On the connection between slavery and modern Mauritian identity, see Edward A. Alpers, "Becoming 'Mozambique': Diaspora and Identity in Mauritius," in *History, Memory and Identity*, ed. Vijayalakshmi Teelock and Edward A. Alpers (Port Louis, Mauritius: Nelson Mandela Centre for African Culture / University of Mauritius, 2001), 117–56. For a preliminary DNA-based study of Mauritian origins, see Fregel et al., "Multiple Ethnic Origins." About modern Mauritian identity, see Diego Calaon and Corinne Forest, this volume.

2. According to the 2011 census, 50.15 percent of Mauritians are Hindu, 30.5 percent are Christian, and 17.85 percent are Muslim, while the remaining 1.5 percent of the population is Buddhist or practice other faiths. Studies that examine religious history and practice on the island include: Moomtaz Emrith, *The Muslims in Mauritius* (Port Louis, Mauritius: Regent Press, 1967); Amédée Nagapen, *Le catholicisme des esclaves à L'Ile Maurice* (Port Louis, Mauritius: Diocèse de Port Louis, 1984); Benjamin Moutou, *Les chrétiens de l'île Maurice* (Port Louis, Mauritius: Best Graphics, 1996); Huguette Ly-Tio-Fane Pineo, *Culte chinois et catholicisme* (Port Louis, Mauritius: Mission Catholique Chinoise / Diocèse de Port Louis, 2002); Jahangeer-Chojoo, *La rose et le henné*; Chazan-Gillig and Ramhota,

L'hindouisme mauricien; and Marina Carter and James Foong Kwong, *Abacus and Mah Jong: Sino-Mauritian Settlement and Economic Consolidation* (Leiden: Brill, 2009).

3. *Ordonnance ou Code Noir: Lettres patentes en forme d'Édit concernant Les Esclaves des Iles de Bourbon et de France, Décembre 1723* (Coromandel, Mauritius: Service des Archives de l'île Maurice, 2000), 21.

4. Père Laval was beatified by Pope John Paul II in 1979. The annual festival held on the anniversary of his death attracts Mauritians of all religious backgrounds to his tomb.

5. Burton Benedict, "Slavery and Indenture in Mauritius and Seychelles," in *Asian and African Systems of Slavery*, ed. James L. Watson (Berkeley: University of California Press, 1980), 135–68.

6. R. Allen, "Marie Rozette," 353.

7. M. J. Milbert, *Voyage pittoresque à l'Ile de France, au Cap de Bonne-Espérance et à Ténériffe*, vol. 2 (Paris: A. Nepveu, 1812), 187–88; James Holman, *A Voyage around the World, including Travels in Africa, Asia, Australasia, America, Etc., Etc.*, vol. 2 (London: Smith, Elder, 1834), 416–18; and Patrick Beaton, *Creoles and Coolies; or, Five Years in Mauritius* (London: James Nisbet, 1859; rpt., Port Washington, NY: Kennikat, 1971), 182–89. For recent scholarship on the festival, see Jahangeer-Chojoo, *La rose et le henné*, 134–45.

8. On Mauritian syncretic practice, see Pierre-Edmond Pulvénis de Séligny, *Vraies et extraordinaires aventures de Pierre-Edmond Pulvénis de Séligny chez des sorciers de l'île Maurice: "Traiteurs" et "Longanistes" au travail et des scènes terrifiantes d'exorcismes* (Port Louis, Mauritius: Stationery Manufacturers Ltd., 1996). On syncretism in the Seychelles, see Marion Benedict, "Fact Versus Fiction: An Ethnographic Paradox Set in the Seychelles," *Anthropology Today* 1, no. 5 (1985): 21–23.

9. See Richard Allen, this volume.

10. The earliest Hindu temple on the island, the Murugun *kovil* at Clémencia in Flacq district, was constructed c. 1846.

11. On archaeology and slave religion in the Americas, see: Samford, "Archaeology of African-American Slavery"; Jerome S. Handler, "An African-Type Healer/Diviner and His Grave Goods: A Burial from a Plantation Slave Cemetery in Barbados, West Indies," *International Journal of Historical Archaeology* 1, no. 2 (1997): 91–130; Joyce Hansen and Gary McGowen, *Breaking Ground, Breaking Silence: The Story of New York's African Burial Ground* (New York: Henry Holt, 1998); and Chris M. Manning, "Magic, Religion, and Ritual in Historical Archaeology," *Historical Archaeology* 48, no. 3 (2014): 1–10.

12. For overviews of religion, especially Islam, and trade in the Indian Ocean, see: M. Pearson, *Indian Ocean*, 62–112; and Alpers, *Indian Ocean in World History*, 40–64. Specialized studies include: Hourani, *Arab*

Seafaring; Chaudhuri, *Trade and Civilisation*; Chaudhuri, *Asia before Europe*; Denys Lombard and Jean Aubin, eds., *Asian Merchants and Businessmen in the Indian Ocean and the China Sea* (New Delhi: Oxford University Press, 2000); Barendse, *Arabian Seas*; Ho, *Graves of Tarim*; Sheriff, *Dhow Cultures*; and Aslanian, *From the Indian Ocean*.

13. For example: Diana De G. Brown and Mario Bick, "Religion, Class, and Context: Continuities and Discontinuities in Brazilian Umbanda," *American Ethnologist* 14, no. 1 (1987): 73–93; John Thornton, "On the Trail of Voodoo: African Christianity in Africa and the Americas," *Americas* 44, no. 3 (1988): 261–78; Jose Canizares, "Santeria: From Afro-Caribbean Cult to World Religion," *Caribbean Quarterly* 40, no. 1 (1994): 59–63; James Houk, *Spirits, Blood and Drums: The Orisha Religion in Trinidad* (Philadelphia: Temple University Press, 1995); João José Reis and Arthur Brakel, *Slave Rebellion in Brazil: The Muslim Uprising of 1835 in Bahia* (Baltimore: Johns Hopkins University Press, 1995); Heywood, *Central Africans and Cultural Transformations*; J. D. Y. Peel, *Religious Encounter and the Making of the Yoruba: African Systems of Thought* (Bloomington: Indiana University Press, 2003); Sweet, *Recreating Africa*; Bilby and Handler, "Obeah"; Lorand J. Matory, *Black Atlantic Religion: Tradition, Transnationalism, and Matriarchy in the Afro-Brazilian Candomblé* (Princeton, NJ: Princeton University Press, 2005); Fandrich, "Yorùbá Influences "; Joel E. Tishken, Toyin Fálolá, and Akintunde Akínyemí, eds., *Sàngó in Africa and the African Diaspora* (Bloomington: Indiana University Press, 2009); Ochoa, *Society of the Dead*; Kate Ramsey, *The Spirits and the Law: Vodou and Power in Haiti* (Chicago: University of Chicago Press, 2011); and Engler, "Umbanda and Africa."

14. R. Allen, *European Slave Trading*, 73–74.

15. For an overview of African traditional religions, see: Aloysius Muzzanganda Lugira, *African Religion: A Prolegomenal Essay on the Emergence and Meaning of African Autochthonous Religions* (Nyangwe, Zaïre: Omenana, 1981); Thomas D. Blakely, Walter E. A. van Beek, and Dennis L. Thomson, eds., *Religion in Africa: Experience and Expression* (London: J. Currey, 1994); Laurenti Magesa, *African Religion: The Moral Traditions of Abundant Life* (Maryknoll, NY: Orbis Books, 1997); Danoye Oguntola-Laguda, "African Traditional Religion," in *Encyclopedia of Psychology and Religion*, ed. David A. Leeming, Kathryn Madden, and Stanton Marlan (New York: Springer US, 2010), 26–31; and Sarwuan Daniel Shishima, *African Religion: A Bird's Eye View* (Makurdi, Nigeria: Obeta Continental Press, 2014). On specific African traditional belief systems, see John Middleton and E. H. Winter, eds., *Witchcraft and Sorcery in East Africa* (London: Routledge and Kegan Paul, 1963).

16. Vaughan, *Creating the Creole Island*, 91–94, 103, 122.

17. Milbert, *Voyage pittoresque*, vol. 2, 164–65.

18. Beaton, *Creoles and Coolies*, 78.

19. Beaton, 80. On maroonage in Mauritius, see R. Allen, *Slaves, Freedmen, and Indentured Laborers*, 35–54.

20. For example: Michael A. Gomez, *Exchanging Our Country Marks: The Transformation of African Identities in the Colonial and Antebellum South* (Chapel Hill: University of North Carolina Press, 1998); John McKivigan and Mitchell Snay, eds., *Religion and the Antebellum Debate over Slavery* (Athens: University of Georgia Press, 1998); David Brion Davis, *In the Image of God: Religion, Moral Values, and Our Heritage of Slavery* (New Haven: Yale University Press, 2001); Albert J. Raboteau, *Slave Religion: The "Invisible Institution" in the Antebellum South* (Oxford: Oxford University Press, 2004); Herman L. Bennet, *Africans in Colonial Mexico: Absolutism, Christianity, and Afro-Creole Consciousness, 1570–1640* (Bloomington: Indiana University Press, 2005); and Jason R. Young, *Rituals of Resistance: African Atlantic Religion in Kongo and the Lowcountry* (Baton Rouge: Louisiana State University Press, 2011).

21. For local religious practice in Réunion, see Christian Ghasarian, "Power and Beliefs in Réunion Island," in *Indian Ocean Studies: Cultural, Social, and Political Perspectives*, ed. Shanti Moorthy and Ashraf Jamal (New York: Routledge, 2010), 360–73; and Jean François Sam Long, *Sorcellerie à la Réunion* (Saint-Denis, Réunion: Anchaing UDIR, 1979).

22. The *om de bwa* no longer figures in the Mauritian popular religious pantheon. Maya de Salle-Essoo and Sophie Le Chartier, *Anthropological Survey of La Gaulette and Coteau Raffin* (Réduit: University of Mauritius Press, 2008), 347.

23. Bilby and Handler, "Obeah"; and Palmyre, *Culture créole*, 96.

24. Longanis practitioners are occasionally referred to as *le dokter san souille* (the doctor without soles [i.e., shoes]), as Mauritian slaves were not allowed to wear shoes. The notion of the Longanis as a "barefoot doctor" is also consistent with slaves having to rely largely on their own medical knowledge and practices, some of which survive in creolized form. Vaughan, *Creating the Creole Island*, 134–35; and Linda K. Sussman, "Herbal Medicine on Mauritius," *Journal of Ethnopharamcology* 2, no. 3 (1980): 259–78.

25. Palmyre, *Culture créole*, 102–3.

26. de Salle-Essoo, "Le profane et le sacré," 117–20.

27. C. Barat, M. Carayol, and R. Chaudenson, *Magie et sorcellerie à La Réunion* (St. Denis: Livres Réunion, 1983).

28. de Salle-Essoo, "Le profane et le sacré"; and Palmyre, *Culture créole*, 85–104.

29. Linda K. Sussman, "Unity in Diversity in a Polyethnic Society: The Maintenance of Medical Pluralism on Mauritius," *Medical Anthropology* 15, no. 3 (1981): 251.

30. Sussman, 252.

31. Sussman, 252.

32. Austine S. O. Okwu, "Life, Death, Reincarnation, and Traditional Healing in Africa," *Journal of Opinion* 9, no. 3 (1979): 19–24; and Palmyre, *Culture créole*, 94–96. On nam among African diasporic communities in the Americas, see: Kamau Brathwaite, *The Development of Creole Society in Jamaica* (Oxford: Clarendon Press, 1971); Grey Gundaker, "Creolization, Nam, Absent Loved Ones, Watchers, and Serious Play with 'Toys,'" in *Creolization as Cultural Creativity*, ed. Robert Baron and Ana C. Cara (Jackson: University Press of Mississippi, 2011), 68–108; Anthony Reed, *Freedom Time: The Poetics and Politics of Black Experimental Writing* (Baltimore: Johns Hopkins University Press, 2014), 66–67; and Jerome C. Branche, *The Poetics and Politics of Diaspora: Transatlantic Musings* (New York: Routledge, 2014), 53–63. On nam in Haitian vodou, see Karen McCarthy Brown, "Afro-Caribbean Spirituality: A Haitian Case Study," in *Vodou in Haitian Life and Culture*, ed. Patrick Bellegarde-Smith and Claudine Michel (New York: Palgrave Macmillan, 2006), 1–26.

33. Innocent Chilaka Onyewuenyi, *African Belief in Reincarnation: A Philosophical Reappraisal* (Enugu, Nigeria: Snaap Press, 1996), 37–42; and Danielle Palmyre-Florigny, "L'identité créole à l'Ile Maurice; Une identité fermée ou ouverte? Réflexions sur le recours à l'ancestralité," *Revi Kiltir Kreol* 2 (2003): 1–6.

34. Colwell-Chanthaphonh and de Salle-Essoo, "Saints and Evil," 270–71.

35. Françoise Dumas-Champion, "Le sang y accorde. La relation culturelle entre vivants et ancêtres chez les Réunionnais d'origine malgache," in *Religions et pratiques de puissance*, ed. Albert de Surgy (Paris: L'Harmattan, 1997), 315–53; and de Salle-Essoo, "Le profane et le sacré," 120–22.

36. It should be noted that Longanis is technically illegal, particularly because of the unregulated animal sacrifice it can entail.

37. On such texts, see: Owen Davies, *Grimoires: A History of Magic Books* (Oxford: Oxford University Press, 2009), 163–64; and Montague Summers, *Witchcraft and Black Magic* (Mineola, NY: Dover Publications, Inc. / Courier Corporation, 2000), 77–79. French grimoires played a significant role in the development of Haitian Vodou. François Regourd, "Mesmerism in Saint-Domingue: Occult Knowledge and Vodou on the Eve of the Haitian Revolution," in *Science and Empire in the Atlantic World*, ed. James Delbourgo and Nicholas Dew (New York: Routledge, 2008), 311–32; LeGrace Benson, "How Houngans Use the Light from Distant Stars," *Journal of Haitian Studies* 7, no. 1 (2001): 106–35; and Alessandra Benedicty-Kokken, *Spirit Possession in French, Haitian, and Vodou Thought: An Intellectual History* (London: Lexington Books, 2015).

38. M. Summers, *Witchcraft and Black Magic*, 188.

39. Bilby and Handler, "Obeah," 157–66.

40. A similar practice in Reunion is known as "disturbing the souls." See: de Salle-Essoo, "Le profane et le sacré," 117; Palmyre, *Culture créole*, 85–104; and Prosper Ève, "Quelques considérations sur le thème du 'grand voyage' à La Réunion: De la veillée mortuaire aux âmes errantes et à leur manipulation," in *L'éternel jamais: Entre le tombeau et l'exil*, ed. Jean-François Reverzy and Christian Barat (Paris: L'Harmattan, 1990), 33–56.

41. Sussman, "Unity in Diversity"; de Salle-Essoo, "Le profane et le sacré"; and Palmyre, *Culture créole*, 85–104.

42. See, for example: Rosabelle Boswell, "Heritage Tourism and Identity in the Mauritian Villages of Chamarel and Le Morne," *Journal of Southern African Studies* 31, no. 2 (2005): 283–95; and Boswell, "Multiple Heritages, Multiple Identities: The Southwest Indian Ocean," in *Heritage, Memory and Identity. Cultures and Globalization*, ed. Helmut Anheier and Yudhishthir Raj Isar, Series 4 (London: Sage Publications, 2011), 169–76.

43. For example, Ramesh Ramdoyal, *Tales from Mauritius* (London: Macmillan Press, 1979), 1–7.

44. See the UNESCO website: http://whc.unesco.org/en/list/1259.

45. The 2009 survey found a total of twenty-one features; subsequent investigations have increased that number to forty-five.

46. Whether the cross had been burned accidentally or intentionally was unclear.

47. This date is suggested by the recovery from one grave of the remains of a fabric purse under the skeleton's head that contained sixteen coins minted in France and Italy between 1812 and 1828.

48. The proper orientation was the result of using major stars and star constellations as points of reference. For further information on the astronomical knowledge in Eastern Africa and Madagascar, especially on stellar navigation, see: Tibbetts, *Arab Navigation*, 420–36; and Keith Snedegar, "Astronomy in Sub-Saharan Africa," in *Encyclopaedia of the History of Science, Technology, and Medicine in Non-Western Cultures*, ed. Helaine Selin (New York: Springer, 2008), 368–75.

49. For a fuller description, see Seetah, "Objects Past, Objects Present."

50. For a fuller discussion of kalimais, see Chazan-Gillig and Ramhota, *L'hindouisme mauricien*.

51. Charles E. Orser Jr., "The Archaeology of African-American Slave Religion," *Cambridge Archaeological Journal* 4, no. 1 (1994): 33–45.

52. See R. Allen, this volume.

53. Fregel et al., "Multiple Ethnic Origins"; and Fregel et al., "Genetic Impact of Slavery Abolition in Mauritius: Ancient DNA Data from Le Morne and Bois Marchand Cemeteries" (paper presented at the 80th

annual meeting of the Society of American Archaeologists, San Francisco, CA, 13–15 April 2015).

54. R. Allen, "Marie Rozette," 354.

55. Ross W. Jamieson, "Material Culture and Social Death: African-American Burial Practices," *Historical Archaeology* 29, no. 4 (1995): 39–58.

56. Gundaker, "Creolization, Nam."

57. Milbert, *Voyage pittoresque*, vol. 2, 233.

58. Victor Babu, *Popular Culture and Religion in Medieval India* (New Delhi: Kaveri Books, 2005), 146–53.

59. See Calaon and Forest, this volume.

60. Anouck Carsignol-Singh, "L'Inde et la production de l'indianité a Maurice," in *Indianité et créolité à l'ile Maurice*, ed. Catherine Servan-Schreiber (Paris: Éditions de l'École des Hautes Études en Sciences Sociales, 2014), 56.

TEN

Archaeology and the Process of Heritage Construction in Mauritius

DIEGO CALAON AND CORINNE FOREST

THE TAMARIN SALTPANS, LOCATED on the west coast of Mauritius, are one of the most iconic of the island's coastal landscapes. The complex still manufactures salt using production techniques that date back to the French colonial period (1721–1810). In addition to manufacturing salt, the site is a popular tourist attraction and historical landmark. Press reports during Summer 2015 that 75 percent of the saltpans were to be destroyed to make space for a shopping mall elicited vigorous protest from the local community even though the pans are not protected either as a national heritage site or because of their environmental value. The popular opposition to this proposed development project, manifested through social media such as Facebook and Change.org, demonstrates that this site and its landscape are now clearly perceived as part of the island's historical legacy. The public desire to protect and preserve this element of the nation's heritage is all that much more noteworthy

since the destruction of historic buildings and other heritage sites in Port Louis some thirty years ago as part of a plan to develop the city prompted little public comment or reaction.[1]

The response to the proposed destruction of the Tamarin salt-pans reveals how much public understanding of the country's heritage has evolved in Mauritius in recent years. Until the beginning of the twenty-first century, Mauritians viewed their history largely through the prism of European, African, Indian, and Chinese migration to the island, migrations that were usually treated as separate and distinct from one another. Mauritian heritage was managed by the island's socioeconomic elite and focused on the French and British colonial eras. Following independence in 1968, the national government continued to pursue heritage management policies that had been established by colonial authorities, including perpetuating a top-down approach to preserving and interpreting the nation's past and maintaining the already existing list of national monuments, structures that invariably dated from the eras of French and British (1810–1968) colonial rule. Museums created by private interests defined the island's past in much the same way. A common feature of these governmental policies and private ventures was their failure to address the interests and concerns of the great majority of Mauritians who are the descendants of the hundreds of thousands of slaves and indentured laborers who reached the island during the eighteenth and nineteenth centuries. It comes as no surprise that many Mauritians had difficulty identifying with this definition of what constituted "national heritage." As a result, local communities did not become involved in protecting historical sites during the three decades after independence because they did not relate to these monuments in any meaningful way.[2] With the advent of the new millennium, however, Mauritians began to demonstrate greater concern about the material heritage associated with their slave and indentured ancestors. This growing public interest has led, in turn, to a new perception of the colonial past and the creation of a new framework of national heritage and memory that Mauritians use to define their identity and affirm their social and ethnic values in a multicultural society.[3]

While the dynamics of why Mauritian attitudes about heritage have changed in recent years remain to be determined, there is good reason to believe that archaeological research has facilitated the development of these new perceptions about the national experience. Because it offers a

distinctly scientific approach to recovering, analyzing, and contextualizing the material past, archaeology can provide individuals and communities in multicultural and postcolonial societies with a culturally neutral vantage point from which to better understand their heritage. In the case of Mauritius, archaeological heritage opens a new door to understanding nation-building in a land of complex, multilayered, and often fragmented memories and the sociopolitical negotiations between different ethnic, linguistic, and religious groups as they seek to construct a shared postcolonial memory.[4] As anthropological fieldwork on the island attests, public discourse about such matters is often a double-edged sword. On the one hand, Mauritians perceive the creation of a shared heritage as a necessary component of nation-building; on the other hand, heritage is also used regularly by different ethnic, religious, or other groups to define and affirm their identity.[5]

To better understand the relationship between heritage construction and social, economic, cultural, and political life in Mauritius, this chapter focuses on the various protagonists in modern Mauritian society and the ways in which they influence or contribute to negotiating a new shared sense of national heritage. Doing so requires us to consider themes such as "heritage and slavery" or "heritage and indenture" in order to put the dynamics of Mauritian multiculturalism in broader local, regional, and global perspectives.[6] Next, we will consider how the notion of "national heritage" has developed on the island. Central to this endeavor is examining how the material approach to cultural landscapes promoted by archaeologists has contributed to the construction of a common past. Lastly, we will consider the role that archaeological research has played in defining sociopolitical perceptions of the island's two UNESCO WHSs and the ways in which materiality can contribute to the elaboration of heritage management policies and serve as a supra-ethnic intermediary in the process of national identity formation.

HERITAGE, IDENTITY, AND ANCESTRY: FROM MULTIPLE COLONIAL PASTS TO BEACHSCAPE PARADISE

The process of defining cultural heritage in Mauritius is inextricably intertwined with individuals' search for their origins. The island is quintessentially a land of immigrants who draw on a rich, multicultural heritage of African, Asian, and European origin. Mauritius remained

uninhabited until 1638 when the Dutch East India Company made the first of two ultimately unsuccessful attempts (1638–58 and 1664–1710) to colonize the island. Following its abandonment by the Dutch, the island was occupied in 1721 by French colonists who imported an estimated 89,000 to 101,000 slaves from West Africa, Mozambique, Madagascar, the Swahili Coast, and India to develop the island's infrastructure and labor on its agricultural estates.[7] The island's eighteenth-century population also included sailors of Indian and Southeast Asian origin, free craftsmen and artisans from South India, and even occasional free colored migrants from the Caribbean. At the time of its conquest by a British expeditionary force in 1810, the island housed some 78,000 men, women, and children, 65,400 of whom were slaves. Following the island's formal inclusion in the British Empire in 1814 and the development of the sugar industry, illegal slave trade introduced an estimated 52,550 African, Malagasy, and Southeast Asian slaves. The abolition of slavery in 1835 and the collapse of the postemancipation "apprenticeship" system in 1838 spurred the introduction of more than 452,000 indentured laborers, mostly from India but also from China, the Comoros, Madagascar, Mozambique, Southeast Asia, and Yemen. Approximately two-thirds of these workers remained permanently on the island. Some 1,500 convicts, mostly from India but also from Ceylon, also reached the colony between the mid-1810s and early 1830s. The nineteenth century likewise witnessed the arrival of "free passengers" from India, many of whom were merchants, as well as Chinese laborers and merchants who also became part of the colony's resident population.[8]

Since no Mauritian can define him- or herself as an autochthon or the descendant of an indigenous aboriginal population, identifying one's place of origin and attendant discourses about homeland affiliation are an essential component in the local process of heritage construction.[9] The island's various ethnocultural communities have sought since independence to establish strong links with the overseas societies and cultures from which their ancestors came. These diasporic points of reference are not limited just to identifying with particular geographical areas, but include supporting the use of specific languages and adopting what are perceived to be the traditional values associated with their ancestors' homeland. The stronger the connection with an ancestral place and culture, the more that link affirms a group's identity; the older the affiliation with the ancestral culture, the more noble that connection

is in the minds of postcolonial Mauritians. Cultivating such a sense of otherness on the basis of immaterial and material links with their ancestral place of origin has played a significant role in helping Mauritians from different ethnocultural backgrounds define themselves in a rapidly changing multicultural society.[10]

As noted earlier, most officially designated heritage sites in Mauritius are associated with the island's French and British colonial past. Although the Dutch were the first to occupy the island, the failure of this Dutch attempt at colonization resonates widely in modern Mauritian collective memory. No contemporary Mauritian communities refer to themselves as a product of this legacy, and the Dutch experience on the island does not figure in discussions about national identity despite the existence of an important archaeological site at Vieux Grand Port associated with Dutch settlement of the island and the fundamental role that the Dutch played in defining the island's geography, including giving it its modern name.[11] The Mauritian "nation" first took shape, instead, during the French colonial era, a period that witnessed the establishment of many of the island's cities and towns and a majority of place names, institutions, and memorials. That this material heritage is still conserved attests to the continuing importance of the French colonial past. [12] That many Mauritians continue to identify in various ways with a continental French motherland is likewise readily apparent in the widespread use of the French language in the media and interest in Francophone literature and culture.[13]

Although few modern Mauritians identify closely with Britain, the British colonial legacy also occupies an important place as one of the nation's foundational cultures and as a source of political legitimacy for those in the Indo-Mauritian population who have dominated national political life since independence.[14] Public perception of Britain is generally positive because the British colonial administration did not make sustained attempts to impose British culture or language on the island's inhabitants. The terms of the French capitulation in December 1810 included a British promise to respect the language, laws, religion, and customs of the local population, and as a result, French remained in widespread use as the principal language of administration, business, commerce, law, religion, and local culture. Economic power likewise remained in the hands of Franco-Mauritian merchants, traders, and estate owners. The British colonial administration encouraged the local sugar

industry's growth by developing necessary infrastructure, such as modern ports and an island-wide railroad system, and by supporting the introduction of hundreds of thousands of indentured laborers to work on the island's sugar estates following the abolition of slavery in 1835 and the termination of the apprenticeship system in 1838.[15]

While this Anglo-French legacy contributed significantly to modern concepts of Mauritian heritage, it rarely serves as a reference point for Mauritian Creoles (i.e., persons of African and Malagasy descent whose ancestors reached the island as slave laborers). Although Creoles possess an extremely rich oral culture and memories that posit a connection with Africa and Madagascar, identity negotiation for such individuals, who are often subsumed into the racial category of "Black" Mauritians, is a particularly complex process since they can rarely, if ever, activate an explicit connection with their ancestral homelands. As Megan Vaughan has noted, Mauritian Creoles tend to be defined not by what they are but by what they are not: French, Hindu, Muslim, Chinese, and so on.[16] Indeed, the term "creole," whether used to describe language or culture, refers to all things local. Being a "Creole" is thus often tantamount to being part of a less prestigious residual category. That slaves became acculturated to French colonial life ensured, moreover, that their descendants' ability to create or re-create a distinct African cultural identity remains a difficult undertaking. Because they are not empowered with a positive narrative about their origins, Creoles often suffer from the kind of marginalization in discussions about heritage that can easily contribute to the social tensions that are an integral part of contemporary Mauritian society.[17]

In light of these sociohistorical realities, the question arises whether modern Mauritians have managed to create common cultural references and, if so, how they have gone about doing so. What is clear is that in a society shaped by colonialism and immigration, Mauritian communities have come to refer to an "ideal" sense of ancestry that roots them in foreign lands. This dynamic, which can be defined as a "retroactive ancestral substitution," is similar to the process Hayden White uses to describe the history of the western world.[18] This process involves reinventing one's origins in order to accept and affirm changing identities: by imagining new ancestral narratives, individuals seek to define and legitimate their position in society. Culture and heritage are invariably involved in this process because they can easily symbolically embody a

group's narrative of its identity. This dynamic is particularly relevant to understanding the role that heritage plays in shaping modern Mauritian life, all the more so since scholars have noticed that social identities in postcolonial societies need to adapt to new contexts and develop another kind of ancestry, usually as a response to western epistemologies. Studies in South America, for example, have shown that the development of a notion of "nonhuman ancestry" can generate a linkage with the past that replaces ethnicity with ecological utopias as reference points in identity formation.[19]

This process of ancestral substitution is apparent in Mauritius's adoption of the famous dodo as the ultimate symbol of national identity. The modern image of the dodo, extinct since the seventeenth century, has evolved far beyond the scientific image of *Raphus cucullatus* described in sixteenth- and seventeenth-century accounts of the island.[20] The construction of the dodo's modern image began in the late nineteenth century when Lewis Carroll created the enchanting character that inhabits his classic novel *Alice in Wonderland*, first published in 1865. During the second half of the twentieth century, the dodo also became a symbol of the natural world's vulnerability in the face of human activity. Now used widely in promotional media and popular arts, the dodo has become an icon—a reinvented "ancestor"—that embodies a past that all Mauritians can share in common.[21] Local and international artists have used the dodo to create imageries that symbolize Mauritius in various ways, while local souvenir shops are filled with items featuring this trademark image.[22] For the modern Mauritian tourism industry, the dodo has become the symbol of the island as a reconstructed Arcadia, a paradise island of turquoise waters, palm trees, and white coral sand beaches that also embody a tropical eroticism.

The Ancestral Imagery of the Landscape and Its Commodification

This image of Mauritius as a paradise island has been used not only by the tourism industry, but also by the government to promote the island and attract investors, especially from Asia, who can contribute to the country's economic growth by engaging in technological and financial ventures that serve a global capitalist economy. Slogans that describe Mauritius as a "new tiger economy" clearly emphasize the ideals of western capitalism and target new investors seeking profits and development in an idyllic setting. This postcolonial vision of the nation can be

understood as an alternative modernity driven by those Franco-, Indo-, and Sino-Mauritians who have reappropriated the island's landscape in their desire to pursue capitalist agendas and projects. In so doing, they consciously attempt to emulate the success stories of cities such as Singapore and Hong Kong.[23]

Promoting these ideals of development and progress has entailed the reconstruction, if not destruction, of the island's coastal landscapes. Beaches and some lagoon areas have been transformed into a custom-made paradise complete with hotels and luxurious houses intended for the foreign investors' market. This commodification of the coastal landscape has not only altered the physical and historical relationship between the island and the Indian Ocean that surrounds it, but also profoundly changed perceptions of both coast- and oceanscapes.[24] There is now a substantial rupture, both real and figurative, between coastal landscapes as theatres of heritage and historical human interaction (e.g., zones of discovery, maritime trade, naval battles), and as venues for exotic, luxurious vacations and profitable investments. The National History Museum, formerly the Maritime Museum, in Mahébourg, for example, preserves important artifacts from the island's eighteenth- and early nineteenth-century colonial past but ignores the extent and complexity of the commercial and other ties that connected Mauritius with the wider Indian Ocean world, East Asia, and Europe during these centuries. Naval and coastal archaeology are likewise separated from the larger contexts that give them meaning. The tourism industry, for instance, promotes underwater heritage as essentially an extension of the island's beaches, a place where scuba divers can visit shipwrecks, both real and fake, with little regard to the ways in which such features are representative of and illustrate the extensive trade and maritime networks that are a hallmark of Mauritian and Indian Ocean history.[25] By isolating the country's maritime heritage in this way, these practices preclude the development of strong connections between the country's densely populated interior and its beaches, lagoons, and other seascapes. As a result, while heritage is seen as having a role to play in Mauritian tourism, only certain aspects of an ostensibly "authentic" Mauritian cultural landscape are emphasized. Popular tourist attractions reinforce the image of a beautiful and idyllic setting in which Mauritians of all backgrounds live together harmoniously in a "rainbow" nation.

Many local investors in the tourism industry are the descendants of Franco-Mauritian sugar estate owners who invested in coastal resorts as a way to diversify their interests after the economic crisis of the 1980s. The Franco-Mauritian community has accordingly been at the forefront of negotiating recognition of the coastal landscape as natural heritage and shaping the narrative that is used to project an image of Mauritius as an attractive place for international guests. However, their narrative seeks to avoid portraying the kind of property speculation that guides large-scale development in negative terms, and advances the notion that property development is a legitimate way to diversify the country's economy because, by serving the well-being of international tourists, it encourages the country's growth.[26]

In this context, landscape is often reduced to reinventing and promoting the island's coast as a pleasant, interesting, and exotic area. Tangible heritage can be used to reinforce this image: an old building or monument can easily function as a material symbol of an idyllic past. Intangible heritage and memory can serve the same purpose: performances of the dance known as *séga* and local music and celebrations of the richness and diversity of Indo-Mauritian cuisine can likewise be used to support images of various aspects of the Mauritian life in the past as well as the present. In modern settings such as restaurants, hotels, and convention centers, these activities, commonly managed by a small business elite and invariably intended for selected customers, especially foreign tourists or investors, are often perceived as an expression of slave and indentured heritage.[27] As such, heritage is shaped to meet the aspirations of an ideal image of Mauritius; foreign audiences are offered the opportunity to appreciate and experience manifestations of "authentic" Mauritian identity, while Mauritians see, in the commodification of their heritage, the expression of a homogenous Mauritian identity that everyone recognizes.

HERITAGE, IDENTITY, AND POLITICS

Following independence in 1968, the new government gradually articulated a vision for the nation that rested ultimately on the same principle of sociopolitical organization, one based on notions of "communal" representation that had been a prominent feature of British colonial policy. This attempt to use a communally based multiculturalism to

establish social stability and coherence has been a regular feature of national political life over the last forty-five years. Political parties, for example, regularly use the slogan *unité dans la diversité* (unity in diversity) to attract voters. Policies to foster the country's cultural development rely on the same motto and reflect the desire of the country's leading political groups to achieve and maintain social harmony in a pluralistic Mauritius. This cultural policy likewise constitutes part of the "Mauritianization" process initiated after the country became independent.[28]

General perceptions of heritage, and tangible heritage in particular, and the construction of national identity have been shaped in distinct ways by the ambivalent role that this notion of "multiculturalism" plays in Mauritian politics. Following independence, governmental decolonization strategies strongly promoted equality among Mauritians in keeping with the constitutional prohibition of any form of discrimination on the basis of race, place of origin, political opinion, color, creed, or sex. At the same time, the constitution guaranteed the freedom of expression needed to establish cultural associations and/or schools. Before it was amended in 1972, the constitution divided the country's population into four ethnic groups: Hindus (51 percent), Muslims (16 percent), Sino-Mauritians (2.9 percent), and the General Population (28.7 percent), which encompassed all other persons. The electoral system also recognized this ethnic division in order to guarantee that representatives from each of these groups sat in parliament. The extent of this commitment to ensuring that no minority ethnic group is excluded from or underrepresented in parliament is best illustrated by the fact that the constitution includes a provision allocating eight out of a total of seventy seats to an election's "best losers." Although intended to ensure that all groups in Mauritian society are represented in government, the best-loser system does not always guarantee that such actually happens. One consequence of these constitutionally mandated ethnic categories has been the need for modern Mauritians to consciously define themselves as part of a distinctive ethnic group.[29]

Other governmental policies have reinforced, albeit unintentionally, these potentially discriminatory categories. Since 1982, for example, censuses have replaced the category of "ethnicity" with that of "ancestral language," a term that also implies religious affiliation. As such, language has become an indirect indicator of ethnicity. Reference to such ethnic-linguistic affiliation restricts mobility between population

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categories: once citizens are registered under a particular category, they are expected to respect it for life. Mauritians are likewise supposed to bequeath their ethnic affiliation to their children. This expression of Mauritian multiculturalism does not, moreover, include provisions for "hybrid" categories such as those born of mixed racial or intercultural unions and those deemed *Créoles* or *mulâtres* (mulattos). The rigidity inherent in this system effectively restricts individuals' ability to move from one ethnic or linguistic group to another and relegates those of hybrid background to the margins of society. Nowhere is this truer than for the country's Creoles, who are unable to identify with a specific ethnicity or ancestral homeland or appropriate a language as their own since Creole (Kréol) is the lingua franca used by all Mauritians, regardless of their ethnic identity or background, on a daily basis.[30]

This particular sense of multiculturalism is closely associated with historically defined racial, labor, and gender categories and roles. Implicit in these ancestral categories and roles is the notion that modern Mauritians have to fit into the pattern established for their culturally or ethnically defined group and, eventually, embrace the moral values traditionally associated with it. Standard historical narratives tend, for instance, to recognize only four major population groups: white French planters and masters, black African slaves, Indian indentured workers, and Chinese merchants. In these narratives, those outside these categories, such as "Malay" slaves from Southeast Asia, African or Chinese indentured laborers, working class white Europeans, Indian sailors and merchants, and the descendants of multicultural or interracial unions, almost invariably remain unrepresented within this standard four-part conceptualization of Mauritian society.[31]

Because it automatically associates elements of the past with distinct sociocultural categories, this kind of multiculturalism makes the process of identifying a common heritage and constructing a collective historical memory particularly difficult. One consequence is a proliferation of ethnically based commemorations that can contradict a national collective memory. This propensity for national cultural heritage to be viewed through the prism of particular groups' ideology means that minority groups' history and memory are often only partly acknowledged.[32] Examples of such behavior in postcolonial Mauritius include both the formation of specific counter-histories[33] and the celebration of "national" holidays that emphasize social, political, or religious events

of importance to particular communities.[34] The most prominent examples of such activities are the holidays that commemorate the abolition of slavery (February 1) and the arrival of indentured laborers (November 2). The February 1 holiday, celebrated officially at Le Morne, a place closely associated in popular memory with slave resistance, honors the memory, sacrifices, and suffering of the mostly African and Malagasy ancestors of modern Creoles. The November 2 holiday in turn is closely associated with the advent of a new era in the island's history that began when the first indentured Indian laborers reached the island. This holiday's official observance occurs at the Aapravasi Ghat, the UNESCO WHS identified with indentured labor migration, and is widely interpreted as celebrating the achievements of Indo-Mauritians.[35]

MEMORIES, NEGATIVE MEMORIES, AND HERITAGE: COLONIAL NARRATIVES

The (re)generation and perpetuation of negative memories has been an integral part of social and cultural life in postcolonial Mauritius. A number of scholars and observers have pointed out that while Franco-Mauritians have not denied their ancestors' involvement with slavery or denied the crucial role that slaves and indentured laborers played in the colony's economic development, they have tended to gloss over various realities of these labor systems in their histories of colonial Mauritius.[36] This particular sense of collective memory first took shape during the mid-nineteenth century with the founding of the Royal Society of Arts and Sciences in 1847. This institution, modeled on the learned societies found throughout eighteenth- and nineteenth-century Europe, emphasized the role that the colony's French and British "founding fathers" played in the island's development, especially its economic development. To this end, the society concentrated on improving the "colonial cultivation generally" and, more particularly, that of the "only staple [sugar] and its intelligent manufacture."[37] Shortly after its establishment, the society inaugurated the practice of holding annual agricultural exhibitions that celebrated the best sugars, the latest techniques for manufacturing sugar, and local and regional produce. In 1859, the society created a subcommittee to support the publication of scientific, literary, and historical works. This committee, composed of members of the Franco-Mauritian elite, gradually assumed responsibility

for recognizing the contributions that various individuals had made to the colony's development, a process that included erecting statues of some of these personalities and monuments to commemorate their contributions.

The creation of the Historical Records Committee by British colonial authorities in 1889 reinforced this approach to national memory. Like the Royal Society of Arts and Sciences, the committee's principal goal was to honor the personalities who had contributed to the island's development as a British colony. In keeping with its legally mandated responsibility for historical places and monuments, the committee pressed the colonial government in 1928 to establish a legal framework for heritage and invited the governor to accord legal standing to some historic buildings. At the same time, the committee generated the first list of the colony's heritage on the grounds that since "the most interesting" of the island's ancient monuments, such as old forts, coastal batteries, and public buildings, were in a "state of dereliction that predicts their forthcoming disappearance," it was necessary to prevent the "most venerable souvenirs of our great ancestors" from disappearing into oblivion.[38] The colony's first ordinance governing heritage, issued in 1938, created the Ancient Monuments Board, established the process for listing structures as heritage, and articulated how such heritage was to be preserved and managed.[39]

Modern Franco-Mauritian narratives can be seen as continuing this nineteenth-century narrative with its emphasis on the social, cultural, and economic legacy that metropolitan France left modern Mauritius. This legacy can be used to justify or legitimize Franco-Mauritian claims to and rights in important assets such as land, commercial and business enterprises, and financial institutions. The argument that their contribution to the country's development was so significant is, in turn, deemed to be significant enough to preclude possible claims for reparations by the descendants of the island's slave and indentured workers.[40]

Three of the country's major private museums—the Blue Penny Museum, the Château de Labourdonnais, and L'Aventure du Sucre—reflect this approach to the country's past. The first of these institutions, the Blue Penny Museum, is closely associated with the country's landowning elite. The museum, established by the Mauritian Commercial Bank in 2001, is often described in tourist guide books as a "must-see" in Mauritius. The museum displays the bank's extensive collection of

artifacts, including works of art, historical objects, a rich numismatic and philatelic collection, and historic colonial-era documents. The section of the museum devoted to Mauritian history focuses on European exploration of and maritime activities in the Indian Ocean, with a particular emphasis on Port Louis's founding by Mahé de Labourdonnais, the most famous of the colony's French governors (1735–46). The material objects displayed in the museum's exhibits and their accompanying narrative focus on French colonization of the island's virgin landscape and the crucial role that Europeans played in the development of modern Mauritius. The museum building itself and the Caudan Waterfront, the modern shopping area in Port Louis where it is located, reinforce this narrative. The fragments of the old stone walls that once characterized this old dock area, its warehouses, and other port facilities were left in place only as decorative elements. As a result, public memory of not only the colonial port, but also the slaves, convicts, indentured laborers, and others who passed through or worked in this area is effectively masked by shops, restaurants, and a hotel intended to cater to foreign tourists.[41]

The Château de Labourdonnais, located in the northern district of Pamplemousses, is a private structure recently converted into a public museum. The château, constructed originally in 1859,[42] was meticulously restored in 2009 to provide a venue in which to display original furniture and other objects that illustrate the life and history of the property's owners. Only a few of the objects on display refer to the house as the seat of power from which the surrounding sugar estate was governed. This important aspect of the château's history is submerged instead in a narrative about the island's history that makes hardly any reference to the enslaved and indentured men, women, and children who worked on the estate.[43]

A similar focus on national history characterizes the permanent exhibits at L'Aventure du Sucre, the most visited museum in Mauritius. The museum, which is housed in a sugar factory that ceased operating only in 1999, occupies a site where sugar has been manufactured since 1797. L'Aventure focuses in great detail on the process of producing sugar, from the cultivation and harvesting of sugarcane to the processing of cut cane and the manufacture of refined sugar.[44] In this account of industrial activity, the organization and use of the slave and indentured laborers who worked in the cane fields and labored in the sugar

works are discussed in terms of the panregional systems of forced and free labor that flourished during eighteenth and nineteenth centuries. In this narrative, the history of sugar production is contextualized as a global venture in which everyone played an essential role in supporting the country's economy. This theme of sugar as a unifying thread in Mauritian history downplays the human suffering often associated with such colonial enterprises. The narrative surrounding other examples of surviving heritage, such as abandoned sugar mills, sugar estates' colonial-era houses, workers' barracks, the nineteenth-century railway network, and old port infrastructure, that are an integral part of Mauritian culture likewise view these structures in terms of how the nation was built "around the sugar chimney."[45]

The trials and tribulations experienced by those who traveled to and lived on the island during the eighteenth and nineteenth centuries could potentially serve as the basis of a shared national memory. In many instances, however, both literary and historical accounts of colonial life minimize the realities faced by the island's inhabitants. An early example of this attitude can be found in J. H. Bernardin de St. Pierre's famous novel, *Paul et Virginie*. The novel, first published in 1788 at the height of the French Enlightenment, implies that slaves' lives could be very good so long as their masters were nice to them. The novel also depicts its principal characters, Paul and Virginie, as beautiful, healthy, and vigorous children of Mauritius who live close to nature, away from the corrupting influence of civilization. In so doing, their characters celebrate the beauty of the island's tropical climate and landscape and represent the European pioneers who successfully colonized the island.[46]

This tendency to emphasize the beauty of the island's landscapes, the uniqueness of its now largely destroyed tropical forest, and the struggles of the colony's early settlers figure prominently in other heritage sites. The Botanical Garden at Pamplemousses, for example, celebrates human domination, and the victory of the colonial order in particular, over an untamed tropical environment. The garden, renamed in 1988 in honor of Sir Seewoosagur Ramgoolam, the first prime minister of an independent Mauritius, was established in 1735 by the French botanist Pierre Poivre. Poivre imported seeds and plants from around the world in an attempt to develop Mauritius into a "spice island" that would lessen France's dependence on Asian sources of supply for these commodities.[47] Although the Natural History Museum in Port Louis houses

an important taxidermic collection of endemic birds collected by European amateurs, scientists, and botanists, most visitors come to see one of the few complete dodo skeletons in existence. Mahébourg's Maritime Museum was established in 1950 to display artifacts retrieved during the dredging of the port's harbor, including those associated with the famous naval battle between the French and the British at the Ile de la Passe in 1810. Although renamed the National History Museum in 2000, the museum continues to emphasize the island's naval past and the lifestyle of the colonial white elite.[48]

Politics and Practices: Mauritian National Monuments and Archaeology

This vision of the nation's past, with its focus on colonial life and events, is also made manifest in the list of national heritage monuments and sites recognized by the National Heritage Fund Act of 2003. The act established the National Heritage Fund (NHF), which is charged with identifying, protecting, managing, and enhancing Mauritian national heritage, and nurturing a sense of belonging through valorizing the past.

The NHF maintains a list of 173 monuments and sites recognized officially as "heritage of national interest" that date from the early eighteenth century into the postindependence era.[49] A review of the structures on this list reveals the extent to which it fails to reflect the island's complex, multilayered heritage. Memorial monuments and graves account for 46 percent of all such sites, followed by colonial (mostly French) buildings (20 percent), colonial military sites and structures (17 percent), various features (mainly sugar mills and chimneys) associated with the island's sugar industry (9 percent), and miscellaneous colonial structures (8 percent). When examined in greater detail, the monuments in question reflect the conceptualization of national heritage in largely preindependence terms. In short, the list is representative of the notion of heritage that emerged in nineteenth-century Mauritius with its attendant emphasis on commemorating colonial personalities or events that shaped the history of the colonial elite (fig. 10.1).

For this reason, many of these sites remain largely irrelevant points of reference in the lives of most Mauritians, much less in their sense of national heritage. This indifference is compounded by the fact that few mechanisms exist to link heritage with contemporary Mauritian society. It is remarkable that the list of national monuments does not contain

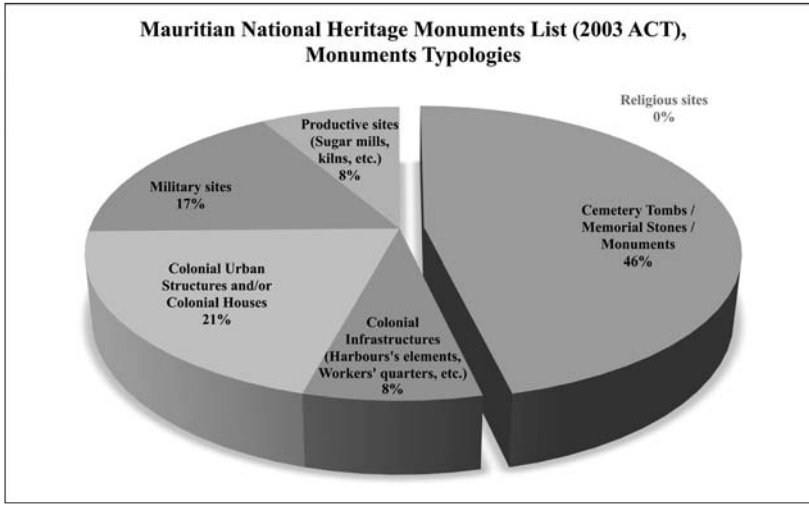

FIGURE 10.1. Monument typologies on the Mauritian list of national monuments, according the National Heritage Fund Act (2003) and its following amendments. (*Created by Diego Calaon.*)

any religious sites, as religion and religious practices are key elements in the process of appropriating a national shared identity, but their inclusion would have entailed a contested negotiation that NHF preferred to avoid, at least up to recent times.[50] The NHF does little to situate the monuments and sites that it does recognize in relevant contexts. Some sugar factory chimneys, for example, are not viewed or treated as part of the larger industrial complex of which they were an integral part. The act also fails to encourage the notion of "buffer zones" that would restrict or ban development around such sites, or to include topographical or environmental data about the sites in question. Last, but far from least, the act does not include mechanisms that would permit a site's heritage significance to be properly assessed or the monument's materiality to be managed in ways that would ensure its conservation and preservation.

Only seven sites have been added to the list of national heritage sites since 2003. It is interesting to note that the official approach to these sites remains much as before. Inclusion of Père Gabriel Igou's tombstone on the national heritage list in 2007, for example, did not include provision for this early eighteenth-century artifact's preservation or the collection of associated living memory.[51] Two years later, the addition

of Round Island, the first environmental site to be listed as part of the country's heritage, failed to specify whether it was being included because of its significance as a site of natural or historical heritage. The imprecision that often surrounds the designation of national heritage monuments and sites is perhaps best illustrated by the proposal in 2015 to list the stone feature known commonly as the Bassin des Esclaves as a site of historical memory, although there is no documentary, material, or other evidence that it was actually used by slaves. In short, its cultural significance rests entirely on the oral history associated with it.[52]

Despite their problematic nature, these examples demonstrate that Mauritians are developing a more complex idea of heritage. This more sophisticated understanding is also reflected by the Mauritian government's formally embracing new notions such as the need for buffer zones around heritage sites. It should be noted, however, that this concept has, so far, only been applied to the island's two UNESCO WHSs. UNESCO requires such sites to be protected from development that might compromise their historical or cultural value and integrity, and the success of the nomination dossiers for the Aapravasi Ghat (inscribed in 2006) and the Le Morne Cultural Landscape (inscribed in 2008) was contingent on the government's formal commitment to establish and maintain such zones.

Archaeological excavation and research holds out the promise of dramatically expanding the parameters of modern Mauritian discourse about heritage. Although persons of Indian descent account for approximately two-thirds of the nation's population, only 3 percent of the current list of national heritage sites is associated with indentured immigration, while just 1.5 percent of such sites are associated with slavery. A review of archaeological projects (excavations, topographic studies, artifact analysis, archaeo-anthropological studies) completed during the last two decades reveals, however, that 19 percent of the sites in question are associated with indentured laborers or their descendants while 18 percent are clearly related to slavery, including its intangible heritage and memories. Of those, 39 percent have focused on colonial cities, fortifications, and production sites, while the remaining 24 percent of these projects have been devoted to environmental or global issues tied closely to the island's social complexity (figs. 10.2 and 10.3).[53]

Although there is increasing public interest in archaeological research, the NHF has remained only marginally involved because there

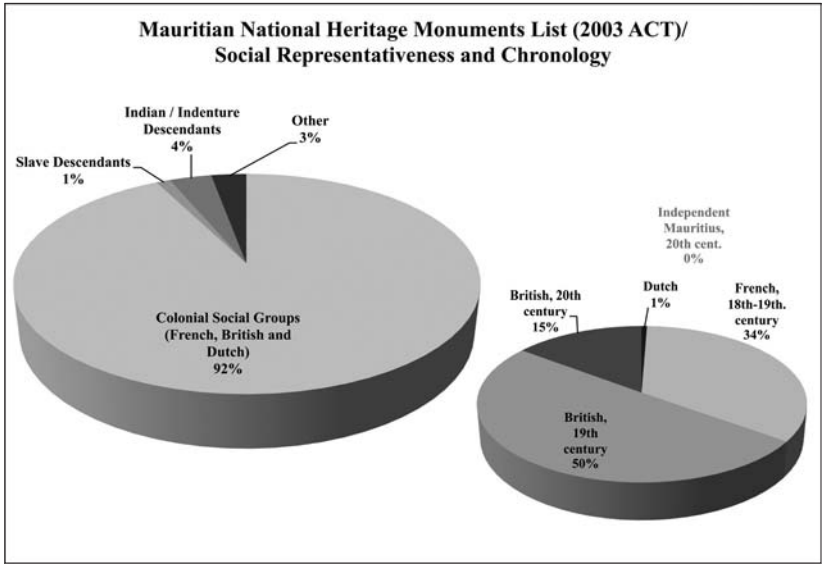

FIGURE 10.2. Social representativeness and chronology of the monuments listed in the National Heritage Fund Act (2003) and its following amendments. (*Created by Diego Calaon.*)

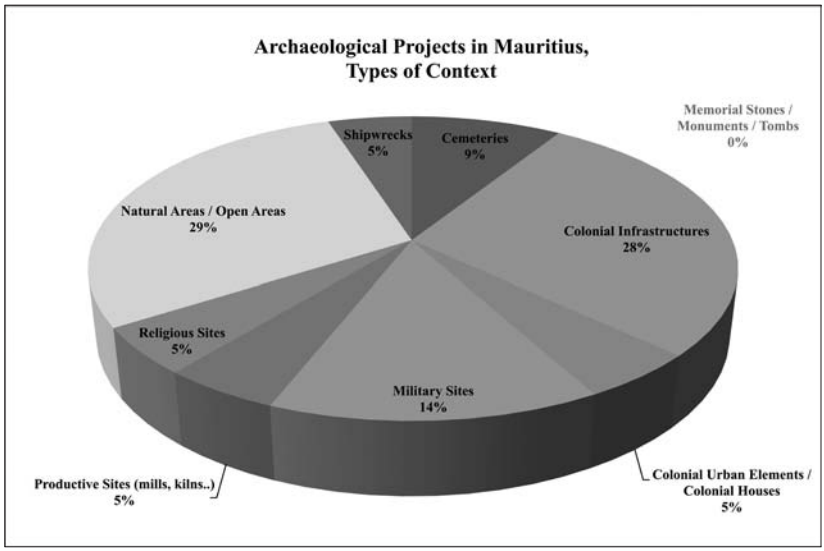

FIGURE 10.3. Context type for the archaeological projects in Mauritius (1997–2015). (*Created by Diego Calaon.*)

are no legal regulations to control the country's archaeological resources. Excavations and research are promoted mainly by local institutions, such as the Aapravasi Ghat Trust Fund (AGTF), the Le Morne Heritage Trust Fund, the National Parks and Conservation Services, the Mauritian Oceanographic Institute, the University of Mauritius, and the Mauritius Museums Council, or by foreign (mostly European and American) universities in collaboration with these Mauritian institutions. Although the legal instruments needed to address issues surrounding archaeological research do not exist, there is evidence that those at the lower levels of the country's administrative and political system are fully aware that the material approach to heritage is essential to understanding and managing the nation's past (see table 10.1, providing a list of archaeological projects).

An overview of archaeological projects that are currently underway provides an opportunity to better appreciate their impact on the ways in which heritage is being constructed in early twenty-first-century Mauritius. We may note, in the first instance, that the majority of these projects have elicited considerable public interest and that most have involved local community participation in research activities. Archaeology is accordingly clearly contributing to creating a new sense of heritage because it provides people with a tangible, rather than just emotional, attachment to specific sites. Since almost every project includes a study of the local landscape as part of the process of understanding the site's physical characteristics, it affords an opportunity for people to better understand the ways in which human intervention has transformed that landscape and environment. Because these projects also seek to situate these sites in larger contexts, they are also an important way in which local communities can develop a greater "sense of place" that allows them to appreciate the global historical contexts in which their ancestors lived and they themselves now live.[54] An increasing interest in the materiality of past daily life can be also outlined following oral history and ethnographically oriented projects; for example, investigating the traditional manufacturing and the use of daily objects connected with work in the sugar fields is contributing to making everyone's memory part of the global Mauritian history (fig. 10.4).[55]

The impact of these archaeological projects on Mauritian heritage extends beyond developing the kind of data that allow people to reconsider a site's cultural value and significance. The need for scientific

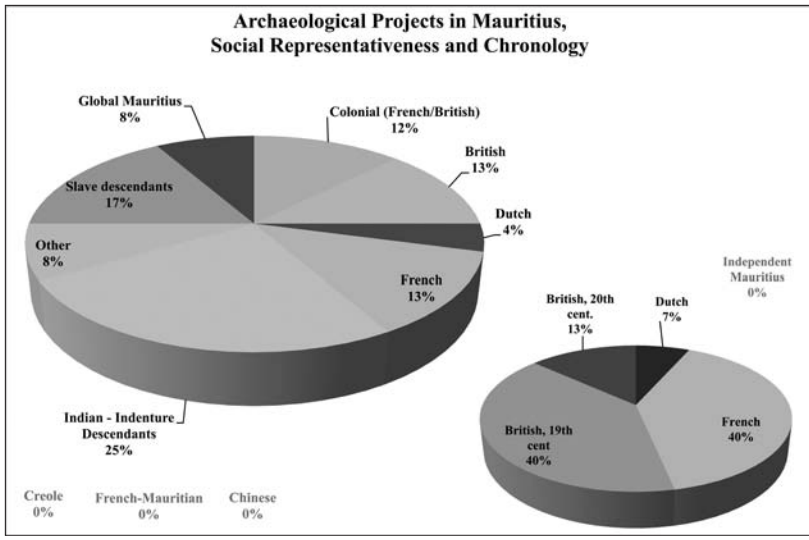

FIGURE 10.4. Social representativeness and chronology of the archaeological contexts studied by the archaeological projects in Mauritius (1997–2015). (*Created by Diego Calaon.*)

information to assess heritage significance prompted the University of Mauritius to inaugurate programs such as a Bachelor of Honors in history in which archaeology and heritage are integral components. At the same time, the island, once hardly acknowledged in archaeological debates about slavery or diasporas in the Indian Ocean world, has become a subject of increasing interest by scholars interested in studying the dynamics of identity creation, maintenance, and change that accompanied the global movement of people and goods in the colonial world.

UNESCO, WHSs, AND NEW MATERIAL PERSPECTIVES ON MAURITIAN HERITAGE

The idea of "world heritage" promoted by UNESCO has contributed in recent years to both a new perception of heritage in Mauritius and the development of new heritage policies, especially following the government's nomination of the Aapravasi Ghat and the Le Morne Cultural Landscape for inscription as WHSs. The Aapravasi Ghat, which consists of the remains of the old immigration depot in the heart of Port Louis's harbor area, was inscribed as a WHS in 2006 to commemorate where

TABLE 10.1. Main archaeological projects in Mauritius, 1975–2015

nr.	Project Name	District	Year	Institution / Researchers	Type of Archaeological Investigation	Typology / Archaeological Context	Main Social Group	Main Chronological Period	Description
1	Underwater Archaeological Researches (Archeomar Project: Coureur, St Géran, Magicienne, Sirius, Banda, Speakers wrecks etc.)		1975–2014	Mauritius Museum Council / Mauritian Marine Conservatory Society	Underwater Excavations / Underwater Surveys	Shipwreck	Colonial (French/British)	1715–1810	Shipwrecks
2	Martello Tower	Black River	1997–1998	Historical Society, Mauritius	Analysis of Standing Structures	Military Site	French	1715–1810	Fort
3	Vieux Grand Port, Archaeological Excavation at Fort Hendricks	Grand Port	1997–2005	Amsterdam Archaeological Center / National Museum Council, Mauritius	Excavations / Surveys / Analysis of Artifacts	Colonial Infrastructure	Dutch	1638–1710	First Dutch Colony
4	Île aux Aigrettes	Grand Port	2003	Geoffrey and Francoise Summers / National Heritage Fund, Mauritius	Survey	Productive site (mill, kiln, etc.)	British	1900–1968	Limekiln and other colonial infrastructures
5	Aapravasi Ghat 2003-04, Archaeological Excavation in the UNESCO Site Area	Port Louis	2003–2004	Aapravasi Ghat Trust Fund / Amitava Chowdhury	Archaeological excavations / Analysis of Artifacts	Colonial Infrastructure	Indian–Immigrants	Global History	Immigration Depot
6	Île de la Passe Archaeological Project	Grand Port	2003–2010	Geoffrey and Francoise Summers / National Heritage Fund, Mauritius	Surveys / Excavations / Analysis of Standing Structures	Military Site	French	1715–1810	French and British batteries / caserns
7	Le Morne Mountain, Survey and Excavation	Riviere Noire	2004	Le Morne Trust Fund / Amitava Chowdhury	Surveys / Excavations	Natural Area / Open Area	Slave descendants	1715–1810	Morne Brabant Mountain / caves / plateau
8	The Dodo Project		2004–2008	University of Mauritius / Natural History Museum London	Surveys / Excavations	Natural Area / Open Area	Other	Global History	Pre-contact period environmental research
9	Mont Choisy	Pamplemousses	2008	Mauritius Archaeology and Cultural Heritage / Krish Seetah	Excavations / Analysis of Artifacts	Natural Area / Open Area	British	Global History	Environmental researches
10	Aapravasi Ghat 2009, UNESCO Site, Excavation in the Sugar Warehouse (BRIC)	Port Louis	2009	Aapravasi Ghat Trust Fund / Jayshree Mungur	Excavations / Analysis of Artifacts	Colonial Infrastructure	Indian–Immigrants	Global History	Immigration depot
11	Le Morne Mountain, Survey (plateau)	Riviere Noire	2009–2010	Mauritius Archaeology and Cultural Heritage / Le Morne Trust Fund	Surveys	Natural Area / Open Area	Slave descendants	1715–1810	Morne Brabant Mountain / caves / palteau

12	Le Morne Cemetery	Riviere Noire	2009–2014	Mauritius Archaeology and Cultural Heritage / Le Morne Trust Fund / Krish Seetah	Excavations / Surveys / Analysis of Artifacts / Osteological Analysis	Cemetery	Slave descendants	1715–1810	Slave (or slave descendant) cemetery
13	Flat Island Project	Riviere du Rempart	2009–2014	Mauritius Archaeology and Cultural Heritage / Aapravasi Ghat trust Fund / Krish Seetah	Excavations / Surveys / Analysis of Artifacts	Colonial Infrastructure	British	1810–1900	Quarantine island, / hospitals / military quarters / cemetery / lighthouse
14	Trianon Project, Workers' Barracks	Plaines Whilems	2010–2012	Mauritius Archaeology and Cultural Heritage / Aapravasi Ghat trust Fund / Krish Seetah	Excavations / Surveys / Analysis of Artifacts / Analysis of Standing Structures	Arcaheology of Sugar Plantation / Estate	Indian–Immigrants	1810–1900	Colonial stone barracks / living quarters
15	Aapravasi Ghat 2010-13, UNESCO Site, BRIC–Beekrunsing Ramlallah Interpretation Center Excavation	Port Louis	2010–2013	Aapravasi Ghat trust Fund / Mauritius Archaeology and Cultural Heritage / Diego Calaon	Excavations / Analysis of Standing Structures / Analysis of Artifacts	Colonial Infrastructure	Indian–Immigrants	Global History	Immigration depot
16	Environmental and Colonialism (Trou aux Cerfs, Trois Caverns)	Whole Island	2010–2014	Mauritius Archaeology and Cultural Heritage / Krish Seetah	Surveys / Coring Campaigns	Natural Area / Open Area	Global Mauritius	Global History	Natural sites
17	Black River Gorges	Riviere Noire / Savanne	2010–ongoing	Le Morne Trust Fund / Black River Gorges National Park	Survey	Natural Area / Open Area	Slave descendants	Global History	Natural site / caves / gorges
18	Vagrant Depot	Riviere Noire	2010–2014	Aapravasi Ghat Trust Fund	Survey / Analysis of Standing Structures	Colonial Infrastructure	Indian–Immigrants	1810–1900	Prison
19	Château Labourdonnais	Pamplemousse	2011–2014	Domain de Labourdonnais	Analysis of Standing Structures	Colonial Urban Element / Colonial House	French	1715–1810	Colonial master house
20	Bois Marchand, Indentured Cemetery Area	Pamplemousse	2011–ongoing	Mauritius Archaeology and Cultural Heritage / Aapravasi Ghat trust Fund / Krish Seetah	Excavations / Surveys / Analysis of Artifacts / Osteological Analysis	Cemetery	Indian–Immigrants	1810–1900	Cemetery
21	Studies in Sugar Estates (Beau Valon, Forbach)	Grand Port	2012	Geoffrey and Francoise Summers / Aapravasi Ghat trust Fund	Surveys / Excavations / Analysis of Standing Structures	Arcaheology of Sugar Plantation / Estate	Colonial (French/British)	1810–1900	Sugar estates
22	World War II Cultural Heritage Project	Grand Port	2012–2014	Geoffrey and Francoise Summers	Surveys / Excavations / Analysis of Standing Structures	Military Site	Other	1900–1968	Military batteries
23	Archaeology of Religion in Mauritius	Whole Island	2013–ongoing	Mauritius Archaeology and Cultural Heritage / Sasa Caval	Surveys / Excavations / Analysis of Standing Structures	Religious Site	Global Mauritius	Global History	Archaeology of religious practices
24	Bras d'Eau National Park (ex Sugar Estate)	Whole Island	2014–ongoing	Mauritius Archaeology and Cultural Heritage / Aapravasi Ghat Trust Fund / Julia Haines	Surveys / Excavations / Analysis of Standing Structures / Analysis of Artifacts	Arcaheology of Sugar Plantation / Estate	Colonial (French/British)	Global History	Sugar estate / living quarters / production areas / agricultural fields

Source: Created by Diego Calaon.

the modern indentured labor diaspora, which scattered some 2.2 million Africans, Asians, Melanesian, and other (mostly non-European) contractual workers throughout and beyond the colonial plantation world between the 1830s and early twentieth century, began. The Le Morne Cultural Landscape, in the southwestern part of the island, was inscribed in 2008 as a memorial to slave resistance and maroonage.[56]

The nomination of these two sites for World Heritage status must be seen, at least in part, as important investments by the Mauritian government to enhance the fourth pillar of the country's economy: the tourism industry.[57] Mauritian tourism is now moving beyond its traditional focus on the island as an exotic beach resort to target a broader audience in line with the emergence of a more expansive hospitality market and international property development. Hospitality no longer encompasses just hotels, leisure parks, and related activities, but now includes other kinds of tourism (e.g., cultural, "green" or environmental, medical) as well as hosting international conferences, training seminars, and so on, while property developers increasingly seek crossborder opportunities. In these contexts, WHSs can become an important resource that has the potential to drive socioeconomic development. The inscription of local sites on the world heritage list has generally been perceived as a catalyst for the kind of new investments that can create global opportunities.[58]

The globalization of tourism and the development of cultural tourism in particular have deepened Mauritians' awareness of the need not only to make their past tangible, but also to safeguard it and transmit it to future generations. One consequence of this changing perception of heritage has been for governmental institutions to play a stronger role in developing heritage in line with its global tourism aspirations. By appropriating the process of creating heritage and memory, the Mauritian state has also sought to discourage the kind of independent public discourse about heritage that accompanies the complex negotiations about identity produced by the ongoing creolization of Mauritian society.[59]

Recent UNESCO policies have promoted a liberal, multicultural approach to world heritage. Because such policies tend to affirm and reinforce cultural difference, they highlight rather than minimize the differences between ethnic groups. As a result, the process of heritage construction can easily crystalize people's perceptions of the historical,

moral, and ethical values that contribute to recognizing a particular site as heritage.[60]

In the case of Mauritius, it would be too simplistic to argue that the decision to nominate the Aapravasi Ghat as a WHS was part of an explicit agenda by some of the country's political parties to celebrate the important role that Indian and Hindu indentured immigrants played in creating a modern country and society. The same can be said about the efforts to inscribe the Le Morne Cultural Landscape as a political response to calls by descendants of the island's slaves to receive reparations for the exploitation and suffering endured by their ancestors. Here it is important to remember that slavery and indenture both have universal value, not only in the Indian Ocean but also elsewhere in the globe, and the public discourse in Mauritius about nominating both of these sites for world heritage status generated the kind of discussion and debate that contributed in a positive manner to the process of heritage construction. For Mauritians, the world heritage framework enunciated by UNESCO and the International Council on Monuments and Sites (ICOMOS) has been instrumental in shedding new light on the nation's past. More specifically, UNESCO and ICOMOS requirements have spurred the kind of scientific research and the development of outreach programs[61] that encouraged local communities to view their own historical experience in broader social, economic, and political contexts. By encouraging Mauritians to adopt a more multilayered understanding of their history, this research has helped to establish a transversal image of the past in which everyone, regardless of their ancestry, worked and lived together in a society that now forms one nation.[62]

Because the WHS nomination process requires the establishment of administrative and cultural institutions dedicated to protecting and managing sites inscribed on the world heritage list, the Mauritian government has supported the two organizations—the AGTF, established in 2001, and the Le Morne Heritage Trust Fund, established in 2004—responsible for overseeing these sites. In addition to endowing these organizations with boards of directors that include representatives from government ministries, other cultural institutions, and the general public, these organizations house technical and research units charged with producing management plans that include specific policies to develop a site's intangible as well as tangible values.

As a result of these organizations' work, the government has adopted a new approach to managing heritage. Before the Aapravasi Ghat and Le Morne Cultural Landscape's inscription as WHSs, sites deemed to be of national importance were simply listed as such without any provision being made for their protection, conservation, and development. Not unsurprisingly, this approach did little to raise local communities' awareness of heritage sites in their area. Since 2006, however, the Mauritian government has demonstrated increasing support for the development of instruments to conserve, manage, and promote these sites, including archaeological research, exhibitions, educational, and cultural activities related to tangible and intangible heritage.

This new governmental approach to heritage is visible in other ways. The UNESCO requirement that WHSs must be protected by a buffer zone has led recently to the issuance of new plans to control development in the buffer zone surrounding the Aapravasi Ghat. This zone is an important historic urban landscape filled with structures that reflect Port Louis's evolution as a city. As a result, these elements of the city's, and ultimately the nation's, tangible and intangible heritage are now being safeguarded and enhanced. In marked contrast to developments some thirty years earlier, rapid urban "development" now has to deal with the immaterial value of memory.[63]

The role that archaeology can play in shaping national heritage is perhaps best illustrated by activities conducted by AGTF.[64] Since 2003, AGTF has conducted and supported a program of archaeological research in order to develop a fuller understanding of the Aapravasi Ghat's history as the depot through which hundreds of thousands of indentured laborers, mostly from India but also from Africa, Asia, and elsewhere, landed in Mauritius between 1849 and the 1920s. In addition to shedding new light on the site's development as an immigration depot, these excavations helped situate the depot more firmly as an integral part of the global economic system that emerged during the eighteenth and nineteenth centuries. Excavations revealed, for example, that the part of the Trou Fanfaron in which the depot is located was also used as a landing place by the French *Compagnie des Indes* during the eighteenth century. These excavations also provided an opportunity to investigate the topography and industrial development of this key area in Port Louis. By deepening our understanding of the ways in which the immigration depot was connected closely with other port facilities, this research has underscored the ways newly arrived indentured immigrants became involved in the island's globalized economy and how their sense of

cultural identity was challenged and ultimately modified by the materiality of colonial infrastructure.[65]

Archaeology likewise played a significant role in preparing the dossier that nominated the Le Morne Cultural landscape as a WHS, given the limited number of archival sources that made explicit reference to maroon activity and slave resistance in the area around the site. Archaeological excavations found, for example, material traces of temporary human occupation on Le Morne itself, evidence that gave substance, albeit problematic substance, to local oral traditions that maroon slaves took shelter on the mountain.[66] While more extensive research has suggested that the mountain's topography precluded the establishment of a permanent maroon settlement on its summit, this research encouraged excavations of the so-called maroon cemetery near Le Morne and in the vicinity of the village of Makak. This research has yielded important new insights into the lives of the island's early nineteenth-century inhabitants of African and/or Malagasy origin, including the ways in which these individuals related to the landscape in which they resided.[67]

Throughout its history, Mauritian society has been shaped by a series of complex interactions with the wider world, interactions that began with the island's colonization by the Dutch in 1638 and continue to the present. Since independence in 1968, Mauritians have sought to come to terms, both individually and collectively, with the social, economic, cultural, and political legacy of their complex and multifaceted colonial past and their place and identity in a modern state and society. An inherent part of this endeavor has been to discuss and debate what it is to be Mauritian. Heritage plays an increasingly important role in this process of negotiating what it means to be part of a nation that espouses the idea of *unité dans la diversité*.

The inscription of the Aapravasi Ghat and the Le Morne Cultural Landscape as WHSs has played a major role in encouraging many Mauritians to begin viewing their history and heritage in broader, international contexts. Their doing so has also given local identities new forms of expression. Because of its emphasis on recovering, analyzing, and contextualizing materiality, archaeological research has contributed to this development of new, more truly national perspectives on the Mauritian past. By providing scientifically based, culturally neutral insights into the country's rich, complex, and multilayered history, archaeology promises to provide all Mauritians with new opportunities to better understand not only the nature, dynamics, and realities of their past, but also the ways in which they can build a vibrant postcolonial nation and society.

NOTES

1. On Port Louis's rapid development, see Joe Ravtez, "New Futures for Older Ports: Synergistic Development in a Global Urban System," *Sustainability* 5 (2013): 5100–5118.

2. For a history of heritage policies in Mauritius, see Corinne Forest, "Management and Conservation of Heritage: Challenges and Opportunities for the Future," in Teelock et al., *Angajé*, vol. 3, *Post-indenture Mauritius*, 209–21. See also Jocelyn Chan Low, "Memory, Identity and Heritage in a Multi-ethnic Island: The Case of Mauritius," in *Island as Crossroads: Sustaining Cultural Diversity in Small Island Developing States*, ed. Tim Curtis (Paris: UNESCO, 2001), 69–94.

3. For example: Boswell, *Challenges*; Nagamah Gopauloo and Sooryakanty Gayan, "Perspectives on Cultural Policies in Mauritius," in "Heritage," special issue, *Journal of Mauritian Studies* 5 (2010): 7–41; Sooryakanty Nirsimloo-Gayan, "On the Possibility of a Shared Cultural Heritage," *Journal of Mauritian Studies* 4, no. 1 (2007): 44–49; Hans Ramduth, "Heritage: A Postmodern View," in "Heritage," special issue, *Journal of Mauritian Studies* 5 (2010): 43–50; and Anna K. Soper, "Developing Mauritianness: National Identity, Cultural Heritage Values and Tourism," *Journal of Heritage Tourism* 2, no. 2 (2008): 94–109.

4. On heritage as a cultural process, see Laurajane Smith, *Uses of Heritage* (New York: Routledge, 2006). For a definition of heritage and the history of the processes of heritage construction, see: Niamh Moore and Yvonne Whelan, *Heritage, Memory and the Politics of Identity: New Perspectives on the Cultural Landscape* (Aldershot, UK: Ashgate, 2007); Susie West and Jacqueline Ansell, "A History of Heritage," in *Understanding Heritage in Practice*, ed. Susie West (Manchester: Manchester University Press, 2010), 7–46; Marie-Thérèse Albert, Roland Bernecker, and Britta Rudolff, eds., *Understanding Heritage: Perspectives in Heritage Studies* (Berlin: de Gruyter, 2013); and Peter F. Biehl et al., eds., *Identity and Heritage: Contemporary Challenges in a Globalized World* (New York: Springer, 2015). On heritage and politics, see the articles by Rodney Harrison ("What Is Heritage?," 5–42; "The Politics of Heritage," 154–96), Rodney Harrison and Audrey Linkman ("Understanding the Politics of Heritage," 43–80), and Anne Lawrence ("Heritage as a Tool of Governement," 81–114) in Rodney Harrison, ed., *Understanding the Politics of Heritage* (Manchester: Manchester University Press, 2010).

5. For example: Jean Michel Jauze, "Patrimoine et identité dans les villes mauriciennes," in *Les quais ou voyages transculturels: Mélanges en l'honneur du Professeur Edmond Maestri*, ed. Edmond Maestri and Prosper Ève (Saint-Denis, Réunion: CRESOI, 2004), 269–81; Sandra Carmignani, "Figures identitaires créoles et patrimoine à l'île Maurice," *Journal*

des Anthropologues 104–5 (2006): 265–85; Catherine Nadia Boudet and Julie Peghini, "Les enjeux politiques de la mémorie du passé colonial à l'île Maurice," *Transcontinentales* 6 (2008): 13–36; Thomas Hylland Eriksen, "Containing Conflict and Trascending Ethnicity in Mauritius," in *Internal Conflict and Governance*, ed. Kumar Rupesinghe (Houndmills, UK: Macmillan, 1992), 103–29; Eriksen, "Nationalism, Mauritian Style: Cultural Unit and Ethnic Diversity," *Comparative Studies in Society and History* 36, no. 3 (1994): 549–74; Eriksen, "Symbolic Power Struggles in Inter-cultural Space" (lecture delivered at the symposium Culture in the Global Village, Lund, Sweden, 14–16 January 1993), http://hyllanderiksen.net/Symbolic.html; Patrick Eisenlohr, *Little India: Diaspora, Time, and Ethnolinguistic Belonging in Hindu Mauritius* (Berkeley: University of California Press, 2006); and Eisenlohr, "Mediality and Materiality in Religious Performance: Religion as Heritage in Mauritius," *Material Religion* 9, no. 3 (2013): 330–48.

6. On the notion of global heritage and global archaeological heritage in particular, see the introduction in Lynn Meskell, *Global Heritage: A Reader* (Chichester, UK: John Wiley and Sons, 2015). On the relevance of archaeological research for local communities in Mauritius, see: Krish Seetah, "'The Minister Will Tell the Nation': The Role of the Media for Archaeology in Mauritius," *World Archaeology* 47, no. 2 (2015): 285–98; Seetah, "Objects Past, Objects Present"; and Colwell-Chanthaphonh, Le Chartier, and Jacquin-Ng, "Search for Makak."

7. Richard B. Allen, "A Traffic of Several Nations: The Mauritian Slave Trade, 1721–1835," in Teelock and Alpers, *History, Memory and Identity*, 165.

8. Multicultural Mauritius has long been of interest to historians and social scientists. Significant studies include: Adele Smith Simmons, *Modern Mauritius: The Politics of Decolonization* (Bloomington: Indiana University Press, 1982); Toni Arno and Claude Orian, *Ile Maurice, une société multiraciale* (Paris: L'Harmattan, 1986); Larry W. Bowman, *Mauritius: Democracy and Development in the Indian Ocean* (Boulder, CO: Westview Press, 1991); M. Carter, *Servants, Sirdars and Settlers*; Teelock, *Bitter Sugar*; R. Allen, *Slaves, Freedmen, and Indentured Laborers*; C. Anderson, *Convicts in the Indian Ocean*; Vaughan, *Creating the Creole Island*; Boswell, *Le malaise créole*; Eisenlohr, *Little India*; Pineo and Lim Fat, *From Alien to Citizen*; and Chazan-Gillig and Ramhota, *L'Hindouisme mauricien*. For a preliminary genetic assessment of the contemporary Mauritian population, see Fregel et al., "Multiple Ethnic Origins."

9. For example: Sandra Carmignani, "Mémoires déchaînées autour du Morne: Esclavage, créolité et patrimoine à l'Ile Maurice" (PhD diss., Université de Lausanne - Suisse, 2010); and Carmignani, "Figures identitaires créoles."

10. On shifting heritages and recasting memories in the Indian Ocean, see Boswell, "Multiple Heritage, Multiple Identities." On the issues surrounding slave descendant ancestral identities, see Boswell, *Le malaise créole*. On Hindu-Indian legacies, see Mathieu Claveyrolas, "L'ancrage de l'hindouisme dans le paysage mauricien: Transfert et appropriation," *Autrepart* 56, no. 4 (2010): 17–37. On the concept of "otherness," see Bhabha, *Location of Culture*; and Thomas Nicholas, *Colonialism's Culture: Anthropology, Travel and Government* (Princeton, NJ: Princeton University Press, 1994).

11. On the Dutch in Mauritius, see P. J. Moree, *A Concise History of Dutch Mauritius, 1598–1710: A Fruitful and Healthy Land* (London: Kegan Paul International, 1998). For a report on the archaeology of Vieux Grand Port's Fort Frederik Hendrik, see Floore and Jayasena, "In Want of Everything?"

12. On Franco-Mauritian identity, see Catherine Boudet, "Les abolitions de l'esclavage à Maurice et la construction d'une identité franco-mauricenne," in *Esclavage et abolitions dans l'océan Indien (1723–1860)*, ed. Edmond Maestri (Paris: L'Harmattan, 2002), 255–65; Boudet, "La construction politique d'une identité franco-mauricienne (1810–1968): Le discourse identaire comme gestion de la contradiction," *Kabaro* 3, nos. 3–4 (2005): 23–45; Boudet, "Les Franco-Mauriciens: Une diaspora pollinisés," *Revue européene des migrations internationales* 23, no. 3 (2007): 2–19; and Boudet, "Le rôle du 'péril hindou' dans la mise en place de la démocratie consociative à l'île Maurice (1947–73)," *Revue canadienne des études africaines* 46, no. 2 (2012): 177–93. For a recent study of this population, see Tijo Salverda, *The Franco-Mauritian Elite: Power and Anxiety in the Face of Change* (New York: Berghan Books, 2015).

13. Peter Hawkins, *The Other Hybrid Archipelago: Introduction to the Literatures and Cultures of the Francophone Indian Ocean* (Lanham, MD: Lexington Books, 2007); and Srilata Ravi, *Rethinking Global Mauritius: Critical Essays on Mauritian Literatures and Cultures* (Trou d'Eau Douce, Mauritius: L'Atelier de l'écriture, 2012).

14. For example, Julie Peghini, "Les impasses du multiculturalism: Politiques, industries et tourisme culturels à l'île Maurice" (PhD diss., Université de Paris - Vincennes-Saint-Denis, 2009).

15. On the provisions of the 1810 capitulation, see Charles Giblot Ducray, *Île Maurice, ancienne Île de France: Histoire et anecdotes* (Port Louis, Mauritius: Croix du Sud, 1965), 116. For an overview of British Mauritius, see Vijaya Teelock, *Mauritian History: From Its Beginnings to Modern Times* (Moka, Mauritius: Mahatma Gandhi Institute, 2001). On the development of the Mauritian sugar industry, see R. Allen, "Capital, Illegal Slaves, Indentured Labourers."

16. Vaughan, *Creating the Creole Island*, 3.

17. On modern Mauritian Creole identity, see Boswell, *Le malaise créole*. See also Lynn Meskell, "Negative Heritage and Past Mastering in Archaeology," *Anthropological Quarterly* 75, no. 3 (2002): 557–74. On the role of Creole (Kréol) as a language in modern Mauritius, see Patrick Eisenlohr, "Creole Publics: Language, Cultural Citizenship, and the Spread of the Nation in Mauritius," *Comparative Studies in Society and History* 49, no. 4 (2007): 968–96.

18. Hayden White, "What Is a Historical System?," in *The Fiction of Narrative: Essays on History, Literature, and Theory, 1957–2007*, ed. Robert Doran (Baltimore: Johns Hopkins University Press, 2010), 126–35.

19. Ewa Domanska, "Retroactive Ancestral Constitution, New Animism and Alter-Native Modernities," *Storia della Storiografia. Histoire de l'Historiographie/History of Historiography, Geschichte der Geschichtsschreibung* 65, no. 1 (2014): 61–76.

20. On the dodo and its extinction, see Richard Grove, *Green Imperialism* (Cambridge: Cambridge University Press, 1995).

21. This idea was first suggested by Vaughan (*Creating the Creole Island*, 1–5).

22. For a detailed study of the dodo's virtual images and its role in Mauritian symbolism, see Laetitia van den Heuvel, "Dodo's Virtual Reality," in *Globalisation and the South-West Indian Ocean*, ed. Vinesh Y. Hookoomsing and Sandra Evers (Leiden and Réduit: Netherlands International Institute for Asian Studies and University of Mauritius Press, 2000), 77–90.

23. On Mauritius and alternative modernity, see N. L. Aumeerally, "'Tiger in Paradise': Reading Global Mauritius in Shifting Time and Space," *Journal of African Cultural Studies* 17, no. 2 (2005): 172–74. For an overview of the dilemmas of the western modernities in historical theory, see Dilip Parameshwar Gaonkar, *Alternative Modernities*: *A Millennial Quartet Book* (Durham, NC: Duke University Press, 2001), 1–23. For recent criticism of the idea of alternative modernity, see Arif Dirlik, "Thinking Modernity Historically: Is 'Alternative Modernity' the Answer?," *Asian Review of World Histories* 1, no. 1 (2013): 5–44.

24. This type of commodification is not confined to Mauritius, but is a consequence of the exploitation of mass tourism around the world. See, for example: Noel B. Salazar and Yujie Zhu, "Heritage and Tourism," in Meskell, *Global Heritage*, 240–58; and Matthew Kurtz, "Heritage and Tourism," in West, *Understanding Heritage*, 205–39.

25. Auguste Toussaint wrote extensively on the island's trade and maritime history during the eighteenth and early nineteenth centuries; for example: Toussaint, *Early American Trade with Mauritius* (Port Louis, Mauritius: Esclapon, 1954); Toussaint, *La route des îles*; Toussaint, *Le mirage des îles: Le négoce française aux Mascareignes au XVIIIe siècle*

(Aix-Provence: Edisud, 1977); and Toussaint, *Les frères Surcouf* (Paris: Flammarion, 1979). On the slave trade to Mauritius, see R. Allen, *European Slave Trading*, esp. chaps. 3 and 5. Mauritian trade and commerce after the 1820s has received little scholarly attention. Underwater archaeology in Mauritius is, unfortunately, often associated with treasure hunting. For an overview of known shipwrecks around the island, see the Mauritian Marine Conservation Society's website at http://www.mmcs-ngo.org. See also Yann von Arnim, "L'Archéologie sous-marine à Maurice, un historique," *Mauritius Institute Bulletin* 11, no. 1 (2003): 33–38. The Mauritian Archaeology and Cultural Heritage (MACH) project, based at Stanford University, is promoting a survey of the island's coastal and lagoon heritage in collaboration with the Mauritius Oceanography Institute.

26. For example, Thomas Meisenhelder, "The Developmental State in Mauritius," *Journal of Modern African Studies* 35, no. 2 (1997): 281. On labor in contemporary Mauritius, see Richard Anker, Raymond Torres, and Rajendra Paratian, *Mauritius* (Geneva: International Labour Office, 2011).

27. For example, Rajendra Paratian, "L'évolution du sector du services à l'île Maurice," *Annuaire des pays de l'océan Indien* 11, nos. 1986–89 (1991): 237–64.

28. On "Mauritianization" and multiculturalism in the decolonization process, see: Julie Peghini, "'L'unité dans la diversité' à Maurice: Un modèle d'inspiration indienne," in *Indianité et creolité à l'île Maurice*, ed. Catherine Servan-Schreiber (Paris: Édition de l'École des Hautes Études en Sciences Sociales, 2014), 75–100; and Peghini, "Les impasses du multiculturalism," 468–80. See also: Catherine Nadia Boudet, "Nationalisme, décolonisation et consolciation à l'île Maurice: L'emergence d'un Mauricianisme stratégique (1945–1967)," *Revue canadienne des études africaines* 47, no. 3 (2014): 385–403; and Boudet and Peghini, "Les enjeux politiques." On multiculturalism in the Mauritian education system and the country's self-promoted image internationally, see: N. L. Aumeerally, "The Ambivalence of Post-colonial Mauritius. Policy versus Practice in Education: A Reading of Official and Popular Multiculturalism," *International Journal of Cultural Policy* 11, no. 3 (2005): 307–23; and Aumeerally, "'Tiger in Paradise.'" The Mauritian model of "ethnic" compromise and pluralism has been discussed in Bowman, *Mauritius*, 63–68. On ethnicity and pluralism in Mauritius, see also: Barbara Carroll and Terence Carroll, "Accomodating Ethnic Diversity in a Modernizing Democratic State: Theory and Practice in the Case of Mauritius," *Ethnic and Racial Studies* 23, no. 1 (2000): 120–42; Eriksen, "Nationalism, Mauritian Style"; and Eriksen, "Containing Conflict."

29. On ethnicity in the Mauritian constitution and electoral system, see: Aumeerally, "Ambivalence of Post-colonial Mauritius," 308; Boudet and Peghini, "Les enjeux politiques," 13–15; and Peghini, "'L'unité dans la diversité.'"

30. Peghini, "'L'unité dans la diversité,'" 18; and Aumeerally, "Ambivalence of Post-colonial Mauritius." The government identifies eight main ethnoliguistic groups: four among the Indo-Mauritian community (Hindus, Tamouls, Telegus, Marathis); the Franco-Mauritian population; those of African descent (who speak French and Creole); and Sino-Mauritian (who speak Hakka or Cantonese).

31. On the link between a specific social or ethnic group and the attendant need for it to adhere strictly to its moral and religious code, see Aumeerally, "Ambivalence of Post-colonial Mauritius," 307–8.

32. In its 2011 report, the Truth and Justice Commission, established in 2008 to investigate the legacy of slavery and indenture in the country, notes that the negative consequences of slavery and indentured labor are still discernible in contemporary Mauritian society and continue to impede social justice. More specifically, the Commission reports that public ignorance about the history of slavery and indenture and slaves' and indentured laborers' contributions to society perpetuate stereotyping, racism, underdevelopment, poverty, and cultural amnesia. The commission also found that the country's political system seems to have prevented groups, especially descendants of the colony's slave population, from participating fully in both private and public sectors of national life. Truth and Justice Commission, ed., *Report of the Truth and Justice Commission*, vol. 1, *Report of the Truth and Justice Commission* (Port Louis: Government of Mauritius, 2011), 281–89.

33. For example: A. Beejadhur, *Les Indiens à l'île Maurice* (Port Louis, Mauritius: Typographie Moderne, 1935); Emrith, *Muslims in Mauritius*; and R. Sooriamoorthy, *Les tamuls à l'île Maurice* (Port Louis, Mauritius: Olympic Printing, 1977).

34. National holidays that celebrate the island's religious diversity, for example, include five different Hindu festivals (Thaipoosam Cavadee, Maha Shivaratri, Ougadi, Ganesh Chaturthi, Diwali), the Muslim celebration marking the end of Ramadan (Eid al-Fitr), and the Christian holidays of All Saints' Day and Christmas Day.

35. For example: Chan Low, "Memory, Identity and Heritage," 72–77; and Jocelyn Chan Low, "Les enjoux actuels des débats sur la mémoire et la réparation pur l'esclavage à l'île maurice," *Cahiers d'Études Africaines,* 44, nos. 173–74 (2004): 401–18.

36. For example: Hervé de Rauville, *L'île de France contemporaine* (Paris: Nouvelle Librarie Nationale, 1909); Noël Merrier d'Unienville, *L'île Maurice et sa civilisation* (Paris: G. Durassié and Co., 1949); and Noél, *L'esclavage à l'Isle de France*.

37. *Transactions of the Royal Society of Arts and Sciences*, vol. 2 (Port Louis, Mauritius: Royal Society of Arts and Sciences of Mauritius, 1847–48), parts 1 and 5.

38. Mauritius National Archives: X18/1, Honorary Secretary of the HRC to Magistrate E.D., 5 May 1933.

39. Pierre de Sornay, *Isle de France, île Maurice* (Port Louis, Mauritius: General Printing and Stationery Company, 1950), 494.

40. Boudet and Peghini, "Les enjeux politiques," 15; and Boudet, "Les Franco-Mauriciens."

41. For example, Boudet and Peghini, "Les enjeux politiques," 16–18.

42. Stéphane Sinclair and Johann Wiehé, *Christian Wiehé (île Maurice, 1807–1878): Sucre et raffinement* (Mauritius: Jacques Wiehé and Stéphane Sinclair, 2010).

43. The château's official website proclaims that its purpose is "to present the Château de Labourdonnais as a cultural place following the concept of a *château* in a natural setting, where its history, flora, orchards, cuisine and Mauritian expertise would be highlighted." See http://chateaulabourdonnais.com/en/mauritius-museum.html.

44. The introduction to the museum's homepage reflects this perspective: "Once lusted after as much as gold, as much sought after as Indian spices, as sweet on the palate as silk is round a woman's neck, sugar has enjoyed an extraordinary existence, leaving a profound impression on the history and identity of Mauritius. Travelling through the museum, visitors learn about the deeply intertwined history of sugar and Mauritius, how it has all led to the harmonious, smiling and multicultural society it is today" ("The Adventure Begins Here," http://www.aventuredusucre.com/en).

45. Words taken from the museum display at Adventure du Sucre, Pamplemousses (Mauritius).

46. On the novel's adoption as a quasi-foundational myth of the island, see Suzanne Chazan-Gillig, "De l'abolition de l'esclavage à l'interprétation ethnique de la question nationale à l'île Maurice," *Annuaire des pays de l'océan Indien* 17 (2003): 337–40. Two officially recognized national heritage monuments refer directly to this legend, the most prominent of which is the statue *Paul et Virginie* in the compound of the municipality of Curepipe. The original statue, now preserved in the Blue Penny Museum, was created by Prosper d'Epinay pursuant to an 1881 commission from the municipality of Port Louis. The monument at Poudre d'Or commemorating the *Saint Géran*, a French East India Company ship wrecked in 1734 off the island's coast with the loss of 149 sailors, 13 European passengers, and 30 slaves is the second such monument. Bernardin de St. Pierre appropriated the ship's destruction as part of Paul and Virginie's story.

47. Madeleine Ly-Tio-Fane, *Mauritius and the Spice Trade: The Odyssey of Pierre Poivre* (Port Louis, Mauritius: Esclapon, 1958).

48. Only 25 percent of the museum's displays include information about the island's slave and indentured populations. On Mahébourg's

history, see Lilian Berthelot, *Mahébourg, ville virtuelle: La capitale d'antan* (Rose Hill, Mauritius: Editions de l'Océan Indien, 2002). On the issues surrounding depiction of the island's slave and indentured populations in Mauritian museums, see Corinne Forest, "Memory and Representations of Slavery and Indenture in Mauritius: Towards the Recognition of Silent Heritage," in Truth and Justice Commission, *Report*, vol. 4, *History, Economy, Society and Memory*, 799–874.

49. For a history of heritage legislation in Mauritius, see Forest, "Management and Conservation of Heritage." The list of national heritage sites was updated in 2005, 2006, 2007, and 2009.

50. We have to note that in 2016, the NHF listed 12 religious sites as National Heritage following the recommendation of the Truth and Justice Commission to list St Anne Church. The Cultural policy relying on pluralism led to the identification of 11 religious sites representative of main religions observed on the island so as to ensure equity among communities. See Šasa Čaval, this volume.

51. Igou was the first vicar of the parish of St. Louis.

52. The *bassin* is near a cemetery used during the slavery era. Popular tradition holds that it was where slaves were bathed before being sold at auction, a tradition that may reflect general awareness about how slaves were treated upon their arrival in the Americas.

53. For a preliminary assessment on archaeology's potential role in studying indentured labor, see Teelock, "Potential of Archaeology." The MACH project has promoted archaeological campaigns in different sites; for details see Krish Seetah et al., "The Mauritian Archaeology and Cultural Heritage Project: Exploring the Impact of Colonialism and Colonisation in the Indian Ocean," *Antiquity* 85, no. 330 (2011), http://antiquity.ac.uk/projgall/seetah330/; Seetah, "Objects Past, Objects Present"; Seetah, "'Minister Will Tell the Nation'"; Seetah, "'Our Struggle': Colonial Legacies on Island Paradise," *Shima* 4, no. 1 (2010): 99–112; and Diego Calaon et al., "Archaeological Insight of the 'Indenture Experience': The Case of the Trianon Barracks," in Teelock et al., *Angajé*, vol. 2, *The Impact of Indenture*, 121–38. Reports of the research conducted under Geoffrey Summers's direction are available online: http://www.mauritius.metu.edu.tr.

54. On the notion of "sense of place," see John Schofield and Rosy Szymanski, *Local Heritage, Global Context: Cultural Perspectives on Sense of Place, Heritage, Culture and Identity* (Farnham, UK: Ashgate, 2011). On the role that the kind of materiality with which archaeology is synonymous can play in encouraging local communities to engage with and take heritage seriously, see Chip Colwell-Chanthaphonh and Thomas J. Ferguson, *Collaboration in Archaeological Practice: Engaging Descendant Communities* (Lanham, MD: Altamira Press, 2008). On the debate in

heritage studies about archaeology, ethics, and local communities, see Chip Colwell-Chanthaphonh and Charlotte Joy, "Communities and Ethics in the Heritage Debates," in Meskell, *Global Heritage*, 112–30.

55. An effort to build a living archive of oral traditions and intangible cultural heritage is promoted by the NHF, AGTF, and Le Morne Heritage Trust Fund. Interesting interdisciplinary projects are demonstrating how much the knowledge of making objects using the available local materials is contributing to building a consciousness of a multifaceted, rich, and truly Mauritian heritage. See Diana Haise and Martin Mahando, this volume.

56. See the UNESCO website: Aapravasi Ghat (http://whc.unesco.org/en/list/1227), and Le Morne Cultural Landscape (http://whc.unesco.org/en/list/1259).

57. The five pillars of Mauritius's growth are sugar, textiles, tourism, and financial services, see African Center for Economic Transformation, *2014 African Transformation Report*. *Growth with Depth* (Accra, Ghana; ACET, 2014), Annex 2, 190.

58. On tourism as third pillar of the nation's economy, see the Ministry of Tourism's webpage at http://tourism.govmu.org/English/Pages/Overview-of-Tourism-Sector-in-Mauritius.aspx. For a discussion of cultural heritage and tourism in Mauritius, see Soper, "Developing Mauritianness." Recent trends in the Mauritian tourism industry are reflected in private and semiprivate business reports: World Travel and Tourism Council, "Travel and Tourism. Economic Impact 2015, Mauritius," 2015, https://www.wttc.org/-/media/files/reports/economic%20impact%20research/countries%202015/mauritius2015.pdf; and Bhavik Desai, Melvyn Chung Kai To, and Vikash Tulsidas, *The Mauritian Tourism Industry. June 2014* (Port Louis, Mauritius: AXYS Stockbroking, 2014), http://isnuomokbusta.lt/pdf/the-mauritian-tourism-industry-c5d8.pdf. On Mauritius as an international travel destination, see: Prabha Ramseook-Munhurrun, V. N. Seebaluck, and Perunjodi Naidoo, "Examining the Structural Relationships of Destination Image, Perceived Value, Tourist Satisfaction and Loyalty: Case of Mauritius," *Procedia - Social and Behavioral Sciences* 175 (2015): 252–59; and Perunjodi Naidoo, Prabha Ramseook-Munhurrun, and Ramesh Durbarry, "Tourists' Perspective of the Brand Image of Mauritius," *International Journal of Management and Marketing Research* 3, no. 3 (2010): 95–106.

59. On the relationship between cultural heritage and tourism, see: Sophia Labadi and Peter G. Gould, "Sustainable Development: Heritage, Community, Economics Heritage," in Meskell, *Global Heritage*, 196–216; Helaine Silverman and Richard W. Hallet, "Cultural Heritage under the Gaze of International Tourism Marketing Campaigns," in *A Companion to Heritage Studies*, ed. William Logan, Máiréad Nic Craith, and Ullrich

Kockel (Chichester, UK: Wiley-Blackwell, 2015), 177–88; Tim Winter, "The Political Economies of Heritage," in Anheier and Isar, *Heritage, Memory and Identity*, 70–81; and Kurtz, "Heritage and Tourism." For recent work on identity issues and cultural heritage and tourism practices in the southwestern Indian Ocean, see Boswell, "Multiple Heritage, Multiple Identities."

60. For a recent overview of the complex interaction between UNESCO's supranational policies and national identities and political programs, see Lynn Meskell and Christoph Brumann, "UNESCO and New World Orders," in Meskell, *Global Heritage*, 22–42; Meskell, "Globalizing Heritage," in Meskell, *Global Heritage*, 1–21; Albert, Bernecker, and Rudolff, *Understanding Heritage*; and Yudhishthir Raj Isar, "UNESCO and Heritage: Global Doctrine, Global Practice," in Anheier and Isar, *Heritage, Memory and Identity*, 39–52. On the effects of the liberal multicultural view of heritage, see: Lynn Meskell, "Gridlock: UNESCO, Global Conflict and Failed Ambitions," *World Archaeology* 47, no. 2 (2015): 225–38; and Chiara De Cesari, "World Heritage and Mosaic Universalism," *Journal of Social Archaeology* 10, no. 3 (2010): 299–324.

61. Outreach programs were developed to disseminate research results and raise awareness of the outstanding universal value of the WHSs, including educational kits for teachers and the wider audience.

62. On Mauritian political discourse about memory and heritage, see Boudet and Peghini, "Les enjeux politiques." On the practices introduced following the Aapravasi Ghat's inscription as a WHS, see Corinne Forest, "Aapravasi Ghat World Heritage Site: A Change in the Perception of Heritage in Mauritius," in Teelock et al., *Angajé*, vol. 3, 193–208.

63. The Ministry of Housing and Lands, for example, issued buffer zone regulations in June 2011.

64. For an updated contribution on the discourse of the diasporic identification and designated heritage at Aapravasi Ghat, see Candice Lowe Swift, "Privileging the Diaspora in Mauritius: Making World Heritage for a Multicultural Nation," *Diaspora* 16, no. 3 (2007): 287–322.

65. For a comprehensive overview of the site, see *A Unique Place in Time and Space: A Pictorial Presentation of the Aapravasi Ghat World Heritage Site and the Indenture Experience in Mauritius (1834–2014)* (Port Louis, Mauritius: Aapravasi Ghat Trust Fund, 2014). On archaeological research at the Aapravasi Ghat, see: Diego Calaon, "Industrial Archaeology at Aapravasi Ghat: Goods, Ports and People Histories," *Newsletter Aapravasi Ghat Trust Fund* 9 (2011); Amitava Chowdhury, "Towards an Archaeological Heritage Management of Aapravasi Ghat," *Journal of Mauritian Studies* 2, no. 1 (2003): 8–104; Amitava Chowdhury and Aapravasi Ghat Trust Fund, *The Aapravasi Ghat, Past and Present: Archaeological Investigations* (Port Louis, Mauritius: Aapravasi Ghat Trust Fund, 2003); and

Summers, "Excavated Artifacts." On the site's nomination as a WHS, see Forest, "Aapravasi Ghat World Heritage Site"; Forest, "Management and Conservation of Heritage"; and Forest, "Heritage in Post-colonial Mauritius: The Contribution of World Heritage Status" (paper presented to the International Conference on Living with World Heritage in Africa, Johannesburg, South Africa, 26–29 September 2012).

66. For a published version of such traditions, see Ramdoyal, *Tales from Mauritius*, 1–7. For an overview of the issues currently surrounding the memory of slavery in Mauritius, see Anne Eichman, "The Heritage of Slavery and Nation Building: A Comparison of South Africa and Mauritius," in *Slavery, Memory and Identity: National Representations and Global Legacies*, ed. Douglas J. Hamilton, Kate Hodgson, and Joel Quirk (London: Pickering and Chatto, 2012), 63–76. For a general assessment of the contested nature of public memories of slavery, see Ana Lucia Araujo, *Politics of Memory: Making Slavery Visible in the Public Space* (New York: Routledge, 2012); Araujo, *Shadows of the Slave Past: Memory, Heritage, and Slavery* (New York: Routledge, 2014); and Douglas J. Hamilton, Kate Hodgson, and Joel Quirk, introduction in Hamilton, Hodgson, and Quirk, *Slavery, Memory and Identity*, 1–14.

67. Krish Seetah et al., "Le Morne Cemetery: Archaeological Investigations—The 2010 Season; Excavation, Results and Interpretation," in Truth and Justice Commission, *Report*, vol. 3, *Contemporary History, Culture and Society*, 221–64; Appleby et al., "Non-adult Cohort"; Seetah, "Objects Past, Objects Present"; and Colwell-Chanthaphonh and de Salle-Essoo, "Saints and Evil."

ELEVEN

Climate and Disease in the Indian Ocean

An Interdisciplinary Study from Mauritius

KRISH SEETAH

IN RECENT YEARS, THE consequences of climate warming have become a topic of considerable interest to archaeologists and historians. Climatic changes have the potential to impact our world in numerous ways, underscoring the complexity of trying to understand how ecological systems (precipitation, temperature, and geology) interact with each other. Of these concerns, one of the more pressing is the potential risk to human health that a warmer climate may result in. Given the well-studied nexus between disease and historic globalization events, it is surprising that historical archaeologists have paid little attention to this topic. Taking another view, while climate change is a process that is in constant flux and has been since deep antiquity, the changes wrought on our environment by humans over the last five hundred years have arguably had the greatest impact on the modern world. Thus, this period should be a key focus of climate change research.[1]

In this chapter, I present a study that illustrates how historical archaeologists can use techniques developed by environmental scientists to better understand the ecological consequences of colonization on Mauritius. In addition to discussing environmental impacts, as they can be determined from climate proxy data,[2] I also outline how these same datasets can be used to improve our knowledge of the historical spread of disease, in this case malaria, and potentially contribute to future disease control. The study outlined here is nested within the Mauritian Archaeology and Cultural Heritage (MACH) project, and although at present we must consider this a theoretical exercise, it is one based on well-established methodological precedent, with active analysis of human skeletal bone. The research presented here capitalizes on the specific nature of the archaeological sites the MACH project is working on (i.e., cemeteries), from which we have been able to recover human remains. It also takes advantage of the ability to undertake a range of climate analyses using samples derived from coastal and terrestrial coring. As set out in the introduction to this volume, the research is interdisciplinary and integrates datasets and perspectives from archaeology, history, and environmental science, with applicability at the local, regional (i.e., Indian Ocean basin), and global levels, where malaria is prevalent. Further, it aims to underscore the potential insights that a better understanding of diseases in the region might reveal, and how these could improve our knowledge of the processes of demographic transformations at a range of geographic scales.

CONNECTED ISOLATION: THE PARADOX OF ISLANDS

Historical research has long conceptualized the connected nature of islands and their communities, while archaeology, approaching islands from the perspective of artifacts, also emphasizes the way that material exchanges result in connectivity.[3] However, when approached from the viewpoint of environmental science, the tendency has been to see islands as constrained zones, particularly when discussing geography. This is obviously true within the context of physical space and can be beneficial to research as it permits control over spatial variables. Particularly within the modern setting, and despite their often-small size, islands are rarely truly isolated, and their connections to global networks have increasingly resulted in negative implications for the local communities.

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This takes the form of increased dependence on imported products, and particularly problematic, a reliance on nonlocal raw materials required for construction. While these issues illustrate the role that island communities themselves can and do play in modifying local landscapes, particularly through processes of modernization, of far greater impact are the potentially devastating consequences for islands that global climate change could initiate. Rising sea levels, alongside changes to patterns of precipitation and increased sea-surface and air temperatures, have the potential to overstrain already limited resources. In addition, policies developed at an international level may in fact limit the ability of local governments to make decisions regarding the best way to safeguard their environment. This has the potential to exacerbate damage to vulnerable ecological systems. In short, island communities need evidence that helps to frame, archaeohistorically, how local landscapes have been modified during and after the colonial period.[4]

ECOLOGICAL SYSTEMS AND COLONIZATION

At a practical level, the above begs the question: What actually catalyzes change to island ecology? Large-scale historical transformation is evident as a consequence of colonial administrative policy, and this has taken the form of the near-complete conversion of island landscapes, for example, as a consequence of intensified monocrop agriculture.[5] However, recent research is increasingly cognizant of the extent to which more subtle drivers of change can influence island ecosystems. In particular, while the destructive role of exotic introduced fauna is well known, it is now apparent that their influence has far-reaching, long-term ramifications. The main culprits are rats, pigs, and ungulates, in particular, cattle, and deer, with carnivores like the small Indian mongoose and cats playing a more direct role in reducing native fauna.[6] There are many complexities in how these species interact with and impact island ecology, and it has been suggested, for example, that the negative effect of rats has been exaggerated.[7] Rats were, and continue to be, an unintentional introduction; large ungulates, on the other hand, and in particular cattle, were deliberately introduced as a source of nutrition and for traction. Their role from a historical standpoint, in Brazil as a case in point but applicable to many geographic locations in the Indian Ocean as well, has been considered critical to colonial expansion.[8] Their

direct impact on island ecosystems takes many forms, and it has been suggested that "ungulate herbivory is a chronic, landscape-scale disturbance capable of influencing plant communities as much as episodic events such as fire. Consequently, ungulate herbivory has the potential to facilitate the invasion and establishment of exotic plants."[9] In addition to their destructive impacts on flora, at a more discreet level, cattle have been shown to facilitate the expansion of other exotic faunal species, as demonstrated in Australia with cane toads.[10]

The specific behavior patterns of pigs have also been shown to have a particularly detrimental impact. Their rooting activities during periods of feeding disturb soil layers, and can cause major disruption to the establishment of seedlings, aeration of the soil, and natural decomposition.[11] In spite of the large array of destructive actions exotics have initiated, including extirpating native flora, preying on indigenous fauna, and facilitating the establishment of new invasive species, the most devastating long-term impact of ungulates and other introduced animals is likely to take the form of novel behaviors that they undertake in new environments. This point is particularly important for small islands that have historically lacked large, terrestrial herbivores.[12]

THE CONTEXT OF DISEASE IN THE COLONIAL WORLD

Understanding disease in the colonial setting is far from simple. Aside from the fact that "colonial medicine" and medical practice of the day was itself a different entity in terms of how disease was conceived of, when compared to the modern world, there is also the issue of the very different ways in which individual colonial powers treated those afflicted with illness, and indeed, the extent to which they integrated local medical traditions. In effect, this captures an aspect of how imperial forces chose to interact with indigenous communities: the Portuguese actively engaged with Indian healers, pundits, in Goa, while the far more industrialized British implemented regimes that generally took little account of local practices.[13]

For the purposes of this chapter, one point in particular is worth noting. One of the main pillars of medical development during colonial rule rested on the deployment of skilled medical practitioners into newly colonized regions as a means of assessing the impacts of disease, primarily on the health of westerners, but also on the health of the

laboring classes. A feature that is particularly important is the speed with which these doctors transition from reporting that disease impact was "generally comparable to Europe" to stating that these regions were effectively a "white man's graveyard."[14] While this latter descriptor was used widely to describe Africa during early exploration, it was subsequently adopted to describe the Caribbean, for example, and illustrates the rapidity with which a range of diseases migrated with the transatlantic slave trade, a so-called Africanizing of the disease environment. Not only does this model illustrate how African diseases, principally malaria and smallpox, migrated across the Atlantic, it also showed how, later, Atlantic diseases, such as syphilis, transitioned into South Asia.[15]

In terms of geographic spread, alongside malaria, smallpox, cholera, and yellow fever were quickly disseminated around the globe as a consequence of improved transportation. These diseases became an important focal point for colonial administration, principally because they caused high death rates for westerners, particularly soldiers, but also because they drastically reduced the available workforce. Understanding the underlying mechanisms of transmission for individual diseases, how to control their spread, and ultimately how to cure the sick became a major preoccupation of the administration for the simple fact that these diseases decimated populations, often on a cyclical basis. It quickly became apparent that the environmental component was critically important, both at the larger panregional scale in terms of moving diseases along with people, but also at the local scale, with regard to practices adopted for agriculture that then influenced and augmented the spread of disease. Two examples from Mauritius illustrate this situation: By retaining standing water for irrigation of plantations, the risk of malaria infection was increased as these reservoirs provided ideal habitats for the larvae of mosquitoes. Similarly, the poor sanitation and lack of clean drinking water for residents of Port Louis resulted in outbreaks of cholera.[16]

The massive demographic reconfigurations that epitomized the historical period created new disease environments where neither the local population nor incoming groups were prepared for the devastating consequences of new, or new forms, of diseases. James L. A. Webb succinctly summarizes the significance of disease: "Historians of Africa have credited the difficult disease environment of tropical Africa with a vital role in shaping the history of African civilizations."[17] This

statement is just as significant for and applicable to small islands in the Indian Ocean, and indeed, the colonial world more generally. What is absent is the assessment of the skeletal record, alongside the historical and environmental, to better understand the populations most likely to be affected by disease, and the outcomes in terms of physiological implications as well as inferred socioeconomic ramifications. This is where archaeology has a potentially important role to play. Although the present chapter focuses on malaria because of the specific circumstances of the materials we have available for study, much work exists on other major "plague" diseases, and similar approaches could be adopted to better understand their individual influence on historic population structure, administrative policy, and impact on the body.[18]

THE UTILITY OF MAURITIUS FOR RESEARCH ON CLIMATE AND DISEASE

Mauritius, known the world over as the home of the dodo, the quintessential icon of extinction and arguably the first species lost as a consequence of globalization, is an ideal location for studies that aim to contextualize colonial activity and the resulting climatic impacts. The island forms part of the Mascarene biodiversity hotspot, a region recognized as having a high degree of faunal and floral variation. Its lagoons function as a reservoir for its unique marine ecosystem, and prior to colonization, its flora constituted a lush mosaic of microhabitats ranging from heath and forest in the uplands to *Pandanus* reed swamp in coastal lowlands.[19] Mauritius had no indigenous populations; in fact, apart from bats the island had no mammals prior to settlement. Recent research using a variety of paleoecological tools has started to reveal not only a more complete picture of the island's native flora prior to settlement, but also the magnitude and rate of detrimental outcomes as a consequence of colonization. From 1598, the island witnessed three successive waves of colonialism, with each group bringing its own model of land exploitation. The Dutch (1638–1710) focused on forest resources, the French (1721–1810) introduced large-scale sugar cropping and animal husbandry, and the British (1810–1968) intensified sugar agriculture over the whole island, with the effect that around the 1850s, some 10 percent of global sugar production derived from the island.[20]

Mauritius serves as an important barometer for the wider region. It is five hundred miles from the nearest major landmass to the west, Madagascar, while eastward there is no land for nearly five thousand miles until one reaches Australia. Thus, its spatial isolation allows us to convincingly tie ecological effects to human agency on the island. Its unique history and rich archival record also provide a rare opportunity to chart temporal change through time using instrumental records (historical archives of rainfall, meteorological activity, and other climate variables) and to observe how these correlate with policy during the various colonial phases.

In addition to the historical backdrop and the ongoing paleoecological work, the team of the MACH project has undertaken excavation on a range of sites that are now providing source materials for further analysis. Of key significance is the Bois Marchand Cemetery, located in Terre Rouge (fig. 11.1), a functional, contemporary cemetery with historic sections ostensibly dedicated to indentured workers. Since 2011, excavations at Bois Marchand have unearthed a unique snapshot of the island's ancient population, unearthing some thirty human skeletons. In addition to an estimated four hundred to five hundred interred, the cemetery has an extensive and impressive collection of burial records,

FIGURE 11.1. Bois Marchand. (*Photo by Yves Pitchen, reproduced here with permission.*)

detailing demographic and cause of death data, spanning back to its inception.

At the time it was established in 1867, Bois Marchand covered some four hundred acres, and was created to accommodate the massive death toll resulting from epidemics of malaria and cholera. The smaller cemeteries of the capital, Port Louis, were simply overwhelmed by the numbers of individuals who perished. In 1867, forty-one thousand people, 10 percent of the entire population, died from malaria. The response by the British administration was to expand quarantine and cemetery infrastructure; there was no way the British could have known that mosquitoes were the vector for malaria as these discoveries were not made until Ross's work some thirty years later.[21]

While Bois Marchand is under active investigation and has yielded human remains that are currently being analyzed, the site of Flat Island Quarantine Station is also potentially promising. Two brief survey seasons have been undertaken on the island to date, which have revealed rich archaeological potential. The site retains standing archaeological features, such as a hospital block and possible desalination plant. In addition, historic maps indicate zones on the island used as "coolie camps" as well as two cemeteries, one of which may have formed the final resting place for those who fell ill on the voyage to Mauritius and ultimately died while in quarantine. This site thus has the potential to add important information regarding the administration's response and the actions taken to control the spread of disease. Given the historical reference to a cemetery, it may even prove to be a locus for additional human samples with future excavation.

MAURITIUS, MALARIA, AND THE WIDER INDIAN OCEAN

Having established that from both an ecological and archaeohistoric perspective the island has considerable utility for a better assessment of the environmental consequences of colonization, as well as scope for improving our knowledge of the spread of malaria, the next point is to demonstrate how outcomes from Mauritius may be useful for the wider region. Africa has the highest prevalence of malaria in the world, with approximately 90 percent of cases recorded on this continent. South Asia, and India in particular, has the second highest rate of occurrence.

Mauritius, effectively an African island composed of a plural but predominantly South Asian community, captures the two key elements that underscore malarial transmission: its environment and ecology were, and remain, very well suited to harboring and spreading malaria via mosquitoes. Secondly, the specific demographic that now constitutes the island includes individuals from key high-risk locations; thus, if we can understand how the disease interacts with these groups, we have the opportunity to apply any results to these larger continental landmasses. In addition, the particular history of malaria, its development and impact on the island, is idiosyncratic. No recorded case of the disease was noted during the French period; by 1867 it was epidemic, particularly in urban areas, but was eliminated by 1969 only to reemerge in 1975. The island finally achieved disease-free status in 1998, and is, as of the writing of this chapter, maintaining it. Mauritius is one of only two cases in Africa classed as malaria free by the WHO.[22] Given this singular set of circumstances, what lessons can we learn, especially when we approach the study of ancient malaria transmission from a scientific perspective?

Archaeologically speaking, the role of disease, while figuring strongly in Atlantic research, has remained largely unstudied within an Indian Ocean context, and could prove highly relevant to our understanding of labor provision in the Indian Ocean basin.[23] While this provides immediate outcomes and connects strongly to the themes set out in the introduction to this volume (namely, to find ways to connect historical and archaeological research agendas), it also has bearing on the issue of making archaeohistoric research relevant. This is the case with regard not only to contributions to academic narratives on "environmental crisis," but also to the very communities with which we work. In an African context, there is an expectation at the governmental level that those individuals who have training and expertise in subjects such as archaeology, and here I emphasize environmental archaeology specifically,[24] will be able to offer solutions to practical issues. The type of archaeohistoric research outlined and expanded on here has considerable potential benefit for contemporary communities, particularly within an African context.[25]

In the remainder of this chapter, I outline the ecological framework currently under development to generate climate proxy data, and explain how this fits into an ongoing investigation of the spread of malaria.

Ecology

The direct measurements of temperature, wind speed, and other climatic data (termed the instrumental record) have only been kept for a relatively short period of time, decades as opposed to centuries in most cases. Therefore, climate scientists face a challenging situation as they have few historically recorded data against which they can compare trends in climate fluctuation, assess change, or test climatic models. There are often major gaps in the archival records, a situation that affects Mauritius as well as being a more general concern. For this reason, additional analytical techniques have been developed to capture "proxy" data, which can be used to infer climatic conditions in the past, often to a high degree of specificity. These proxy data can be assembled from a range of sources, but two particularly profitable records can be derived from analyzing soil and coral core samples. The former provides information on geomorphology, hydrology, and land cover change. For the latter, climatic assessment can be generated from cores extracted from large *Porites* coral.[26] These are a group of dome-shaped, reef-building corals, with properties that make them highly suitable for climate studies. Cores are drilled (usually at no more than twenty meters below the surface of the sea) using special equipment to extract a precise set of climate proxy data from the skeletons of the corals. As the coral grows, the underlying structure of its skeleton traps particles of minerals and trace metals from the surrounding seawater, acting as a natural reservoir for these elements as they find their way into coastal waters from the land. These large corals form over many decades, with the largest capturing over three hundred years of climate information, although at present the coral from the coastal waters off Mauritius are likely to retain a record of approximately two hundred years as they are generally smaller due to cooler waters.

Coral cores provide evidence of changing sea surface temperatures, sediment runoff, and fertilizer use over time.[27] An additional benefit of using coral is that they form rings during their growth, in much the same way that trees do, and these provide an additional chronological reference point, which can also be carbon-dated to provide an absolute datum. Thus, a suite of ecological proxies forms the basis for the study outlined here, framed within chronological and archaeohistorical datasets.[28] Our principal archaeological, osteological, and molecular

research is being undertaken from human remains, and to date, samples from seventy skeletons—derived from Bois Marchand as well as the earlier slave and postemancipation Le Morne Old Cemetery—have been isolated and are actively under analysis.[29]

Disease

Geographically speaking, malaria is considered one of the most detrimental diseases on earth in terms of prevalence and mortality, with half of the world's population at risk from contracting the disease. It is estimated that some 10 percent of those living in high-risk areas will be infected, of which approximately one million will die annually. As mentioned above, Africa bears the brunt of this mortality, with 90 percent of deaths occurring on this continent, primarily in infants under five. Given these rates of mortality and the specific portion of the demographic that is most affected, it is clear why the socioeconomic cost is even greater than this death toll suggests.[30] More alarming is that despite decades-long efforts at eradication, malarial prevalence is on the increase. With a warming climate, greater levels of resistance to prophylaxis, and no proven vaccine, malaria poses an increasingly significant global socioeconomic and health challenge, in the context of both shifting zones of infection to new areas and the reemergence in areas formerly under control.[31]

In light of the fact that malaria is largely preventable, both the widespread socioeconomic ramifications of the disease and its significant cost in human life may seem inexplicable. However, climatic conditions are a critical factor in determining the range of malaria, and are expected to change rapidly in some malaria regions in the future as the climate warms. Thus, while we have good models for assessing how the activity pattern of mosquitoes correlates with changing temperatures for the contemporary setting, these have generally not been contextualized through time, given the paucity of data from the instrumental records. Furthermore, recent research has suggested, in addition to the well-documented effects of temperature, rainfall, and humidity, that geomorphology, hydrology, and land cover change may be crucially important determinants of mosquito distribution and activity.[32] With better, more complete correlations between climatic conditions and mosquito activity, it would be possible to provide better advice on how

to avoid periods of peak mosquito activity, and thus reduce the risk of being infected through bites.[33]

In recent years, evolving resistance to both pesticides and drugs has led to attempts at developing a vaccine. However, vaccines for parasitic disease, as opposed to viral or bacterial illness, are harder to produce because of the greater genetic complexity of the organisms (e.g., the poliovirus has eleven genes while *Plasmodium falciparum*, the most virulent form of the protozoan parasite that causes malaria in humans, has over five thousand). Furthermore, no other vector-borne disease has the capacity to evade the human immune system as effectively as *Plasmodium falciparum*; thus, efforts to aid the immune system through modern medicine have been largely ineffective. Despite the seeming incompatibility between modern medicine and archaeological practice, the following outlines what may be a potentially ground-breaking development in terms of the application of scientific archaeology to modern disease control.[34] The human skeletal remains that have been (and continue to be) excavated from cemeteries such as Bois Marchand may hold the key to unlocking a path to improved vaccine development, based on a better understanding of how malaria genes have changed over time. Recent advances in DNA analysis using next-generation sequencing (assessing the whole genome) and shotgun techniques allow us to study the genomic basis of virulence, causes of historical outbreaks, and natural selection for drug resistance.[35] To these molecular techniques, we can add evidence from more traditional osteological assessment of the skeletal remains, which can divulge the extent to which nutrition and other physiological responses triangulate with malaria infection. Osteology also provides an established, though contested, means of recognizing infection from the skull, porotic hyperostosis, and cribera orbitalia (fig. 11.2). The pitting of the cranial vault that typifies these conditions is a skeletal response to anemia and has been linked to malaria.[36]

ARCHAEOHISTORIC DATA, aDNA, CLIMATE, AND MALARIA

There is well-established precedent for the extraction of plasmid DNA from ancient remains, in some instances spanning many thousands of years. Indeed, the earliest evidence of malaria was recovered from a mosquito preserved in amber dating to some thirty million years ago in the Dominican Republic. However, research on human malaria has tended

FIGURE 11.2. Cribera orbitalia in individual twenty-nine from Le Morne "Old Cemetery." (*Photo by Jonathan Santana, reproduced here with permission.*)

to focus on establishing the origin and early spread of the disease, so the main thrust of this work has not been disease control, although it has certainly been recognized that this may be a future application.[37] More importantly, to my knowledge, no attempts have been made to extract malaria DNA from historic sites, and this is likely a consequence of the fact that strong evidence already exists in the form of archival records for the presence of malaria at that time. However, historical sources detail far more than the mere presence of the disease. Archival records have the potential to provide accounts of daily death rates during spikes in infection, as well as demographic data about those individuals who were dying during periods of malaria epidemics.[38] These data need to be used with caution as they may be subject to inaccuracy, given the lack of scientific mechanisms at the time for establishing malaria per se; thus, general terms such as "fever" were commonly used, which do not necessarily provide evidence for malaria.

By using samples from historically contextualized malarial outbreaks, the aim is to integrate archaeological, climatic, and genetic datasets into a model whereby we know with a high degree of probability when infection occurred, its magnitude in terms of death rate, and the physiological effect that the disease had on individual human bodies through osteological analysis. At a broader level, we also have an account of the sociopolitical response by the administration. The samples from Bois Marchand and the island more generally derive from

the 1800s, when human migration, a major influence on the spread of the disease, was at a historical peak;[39] however, this is still well before the period of modern prophylaxis. By combining these various datasets and correlating climatic and genetic evidence with information from the archaeohistoric record, we are able to investigate the "evolution" of *Plasmodium falciparum* under environmental and human agency pressures and the responses this triggered in the genomic structure of the malaria virus.

IMPROVING MALARIA MONITORING AND EARLY WARNING SYSTEMS

Historical and climate proxy data may allow us to build better models of malaria incidence, incorporating a range of variables: environment, demographics, land use, and public policy (i.e., disease control efforts in the historic past). To this, we add any observed changes that may occur in the genetic structure of the malaria virus itself. The more exciting future prospect lies in combining these data and correlating the historic response to malaria with the way the virus then "reacts" (if at all) to human policy.

In the future, the data generated from the present study could be used to constrain, test, and improve existing mosquito propagation and activity models. Using the recorded incidences and death rates for malarial infection and indications of malaria on the skeletons correlated with the climate record, we can calibrate predictive models in order to assess malaria response to fluctuations in climate. This would allow better forecasting of disease transmission in response to mosquito carrying capacity within the environment.[40] In the local case, although Mauritius has eliminated malaria, it is still actively involved in surveillance measures and maintaining its disease-free status.[41] Furthermore, these types of climate models provide evidence of the activity of mosquitoes, which carry other diseases. A serious outbreak of chikungunyu (a viral infection that results in sudden fever and joint pain and is transmitted by mosquitoes) in 2005–6 caused major concerns for both the local population and travellers. Thus, these data would be instrumental in improving management of mosquitoes and therefore have utility for the control of a range of diseases, not just malaria. On a wider regional level, these models can be easily scaled for application to continental landmasses.

This could lead to the development of landscape-based, low-tech, and ecologically sensitive control measures that can be implemented to mitigate spread during periods of increased mosquito activity.[42]

CONCLUSION

The preceding illustrates the kinds of projects that are open to historical archaeologists in the region, made possible through integrative approaches, and readily applicable to other settings both in the Indian Ocean, but also more widely where diseases such as malaria have had a major impact. The approach outlined here—correlating climate data and osteological analysis with historically documented cases of malaria outbreaks and potentially the impacts that environmental and human agency factors had on the virus's DNA—could provide a significant body of data for controlling malaria in the future. Recent research has shown that current models, particularly for temperature, need better calibration.[43] The data that this project proposes to collect, incorporating temperature, rainfall, and land cover change evidence, in effect mining archaeological and historical sources,[44] provide a much more comprehensive assembly of climate proxy data than has been studied, or even attempted, to date. This broad array of climate variables has the potential to be much more informative then current models that aim to predict the spread of mosquitoes or their biting activity (two major factors in determining rates of transmission). Better modeling, and indeed, the possible contributions to vaccine development, become even more urgent when we consider the likelihood that malaria transmission, strongly correlated to temperature, will shift and potentially reemerge in areas where it had been eliminated as temperatures rise with global warming. Thus, beyond the specific benefits for Mauritius, this study has major potential to be applied to other islands in the Indian Ocean basin, Atlantic, and Pacific, as well as scaled up for larger continental landmasses.

History, Archaeology, and Disease

> Epidemics are like large signposts from which the statesman of stature can read that a disturbance has occurred in the development of his nation—which not even careless politics can afford to overlook.
>
> —Rudolf Virchow, 1848[45]

Although the significant potential for disease control is tantalizing, the underlying strength of the project outlined here is in the role that archaeology and history can play in helping understand how disease trajectories functioned, as well as making that evidence applicable to a modern global community by improving current modeling or contributing to prophylaxis. History, and specifically political history and the history of science, has been instrumental in explaining the consequences of recent pandemics on demography and socioeconomic life and linking those developments to issues of globalization. Thus, we see the underlying impact that disease actually had on society. In addition to a record of the reduction in population size for a given territory, it is also possible to glean an understanding of the response to disease by administrative powers and of how the specific case nests within a regional zone.[46]

For archaeologists, this serves as an important theoretical point of departure, principally through analogy, providing the political framing but also chronological backdrop for the expansion of quarantine stations and cemeteries, for example. However, the methodological component is critical and needs to be considered from the ground up. For our case, we have developed new ways of sampling bone: rather than waiting for the osteologist to study the bones prior to sending bone and tooth samples for DNA assay, we extract bone tissue from the skeleton as soon as it is exposed, bagging these and placing them in a freezer as soon as possible after removal from the ground. This not only reduces the risk of contamination, but also potentially increases the likelihood of capturing DNA, which is damaged the longer it is exposed to sunlight and other environmental conditions. Bone tissue is removed from areas of the skeleton that would be highly vascularized during life. This is important, as the traditional skeletal elements favored for recovery of human DNA are the teeth. However, malarial DNA is likely to occur in areas of the body with high red blood cell counts. While it is highly unlikely that we will ever be able to recover cells that contain hemoglobin[47] given the rapid rate of osteological deterioration in the tropical climate of Mauritius, by sourcing bone from areas of the skeleton that in life would have had a high blood flow,[48] we maximize the likelihood of recovering *Plasmodium* DNA. Finally, contamination is a serious issue, particularly as we are also interested in and actively studying the demographic origins of those interred. To deal with this, only one individual undertakes sampling following our protocol, and all individuals involved

in excavation can be screened so that their DNA can be cross-referenced with and removed from our ancient human DNA samples. Underlying these new methodological techniques and approaches is a theoretical model that dictates our practice: we are effectively excavating with an underlying premise that we may use recovered material for future analytical procedures not currently being undertaken; in effect, we are future-proofing our sampling strategy.

The new technical approaches, climate data, and molecular techniques are focused on gaining a much better understanding of malaria. The significant potential for understanding how the disease changed in an environment where it was epidemic, then eliminated, is based on the more holistic outlook that archaeohistoric research promotes, an analytical view of the world from an encompassing vantage point.

Disease control and health provision stand to benefit a great deal when we integrate medical perspectives with those from archaeohistory. Particularly for conditions like malaria (and despite the obvious indiscriminate nature of infection), understanding social aspects such as hierarchy is critical as these underpin exposure to the disease, and more importantly, the likelihood of surviving it. More specifically, by correlating osteological evidence with the molecular assessment of the malaria virus, we can explore and gain a better understanding of immune response to the disease in those infected.

At a local level, emphasizing the social context is particularly valid, as this offers fertile ground for integrating the types of data available from archaeology and history. The way in which sexually transmitted diseases, particularly syphilis, were viewed in India during the period of European colonization offers an insightful example of the manner in which social attitude impacted on how populations likely conceptualized certain diseases or, more precisely in this case, types of infections. Syphilis was considered a European import, coming in with the Portuguese; however, a less virulent local form was evidently well established, as noted by the complexions of locals, showing pocks and other skin lesions. In contrast to the European view of syphilis and other sexually transmitted diseases, the local form was not seen as an indicator of a lack of morality. This issue, as well as the role played by Western psychology in attempts to explain sexuality, disease, and morality, is explored in much greater detail within an African context.[49]

Moving to a wider regional level, it is possible to explore the ways in which disease influenced population, both demographically as well

as who actually travelled to the colonies from European states (i.e., the specific demographic that migrated), and the system that pushed rather than pulled them to these locations. This was true for the elite as well as the soldier, and effectively rests on the way in which diseases created environments that would likely kill someone new to the region, not to mention the likelihood of contracting a disease while shipboard.[50] It has been estimated that some twenty-five thousand Portuguese soldiers died in Goa during the thirty-year period from 1604–34, mainly from diseases such as cholera, but also from syphilis. Of fifty governors who made it to India, twenty-two died during their term or on the voyage home.[51] As illustrated in the Caribbean, disease had the power to transform tropical sanctuaries (with disease environs that were similar if not actually better for one's health than Europe) into epidemic hotspots. This in turn resulted in important economic and political responses, not to mention propaganda, that were replicated in numerous settings. One particularly insightful example of this rests on the connection between African diseases and African "disease resistance," providing both newly imported slaves and local Creole populations immunity to diseases such as malaria (or at least immunity to the harshest symptoms of such). The recognition of this resulted in the British using Africans in military campaigns, despite fears of arming slaves. This same model was adopted in high-risk malarial regions in Arabian wadis, where African workers were employed on date plantations in complete contrast to the usual system of agricultural slavery in Arabia more generally.[52] Not only does this background reveal which populations were more likely to fall victim of specific diseases, but it should prompt us to view the skeletal repository from excavations, at least in part, as a record of these political and economic transitions.

Finally, at the global level, the fact that malaria remains a major killer and that the spread of the disease is strongly correlated with temperature and land cover change should alert us to the risks we are potentially exposing ourselves to with a warming climate and the devastating implications that this may have for the poorest members of the world's community. It is for precisely this reason that we need to better understand cultural and social outcomes, and indeed drivers, for disease transmission. Ultimately, we need to think about disease in new ways, and investigate the way that disease changes as civilization changes, and in response to major society-level transformations in population structure and culture.

NOTES

1. For example, on history and ecology see: Alfred W. Crosby, *Ecological Imperialism: The Biological Expansion of Europe 900–1900* (Cambridge: Cambridge University Press, 2004); and Crosby, *The Columbian Exchange: Biological and Cultural Consequences of 1492* (Westport, CT: Praeger, 2003). For a broader geographic context, see Kenneth. F. Kiple and Stephen V. Beck, eds. *Biological Consequences of the European Expansion 1450–1800* (Brookfield, VT: Ashgate, 1997). For more specific regional examples, see: Helge Kjekshus, *Ecology Control and Economic Development in East African History* (Athens: Ohio University Press, 1996); and Cheke and Hume, *Lost Land of the Dodo*. Archaeological studies include Daniel H. Sandweiss and Alice R. Kelley, "Archaeological Contributions to Climate Change Research: The Archaeological Record as a Paleoclimatic and Paleoenvironmental Archive," *Annual Review of Anthropology* 41 (2012): 371–91. For a specific African case, see Paul Lane, "Environmental Narratives and the History of Soil Erosion," *International Journal of African Historical Studies* 42 (2009): 457–83. For history and disease, see: early classic work by Hans Zinsser, *Rats, Lice and History: Being a Study in Biography, Which, after Twelve Preliminary Chapters Indispensable for the Preparation of the Lay Reader, Deals with the Life History of Typhus Fever* (Boston: Little, Brown and Co., 1935); Terrence Ranger and Paul Slack, eds., *Epidemics and Ideas* (Cambridge: Cambridge University Press, 1992) for a more global collection of papers on the history of disease and pestilence; Sheldon Watts, *Epidemics and History* (New Haven: Yale University Press, 1997) for an account of disease and imperialism during colonial history; and Aberth, *The First Horseman*, for the role played by history in our understanding of modern disease transmission and control. More specific regional studies can be found in: Arnold, "Indian Ocean as a Disease Basin," and Arnold, *Colonizing the Body*, for India; Vaughan, "Syphilis," and Vaughan, *Curing Their Ills* (Stanford: Stanford University Press, 1991), for Africa; and Vaughan, "Slavery, Smallpox, and Revolution," and Boodhoo, *Health, Disease and Indian Immigrants*, for Mauritius. Works relating specifically to malaria include McNeill, *Mosquito Empires*; and Klein, "Development and Death." Key archaeological contributions to our understanding of disease in the past include: Charlotte A. Roberts and Jane E. Buikstra, *The Bioarchaeology of Tuberculosis: A Global View on a Reemerging Disease* (Gainesville: University of Florida Press, 2003); and Anthony J. McMichael, "Insight from Past Millennia into Climate Impacts on Human Health and Survival," *Proceedings of the National Academy of Science* 13 (2012): 4730–37. Finally, see Kevin Lafferty, "The Ecology of Climate Change and Infectious Diseases," *Ecology* 90 (2009): 888–900, for a more contemporary discussion on the nexus between ecology and disease, including the role of history and the use of modeling.

2. The phrase "climate proxy datasets" refers to a range of evidence that paleoclimatologists gather from natural repositories of past climate variables. These reservoirs include tree rings, ice cores, ocean sediment cores, and, as in this case, coral cores. Coral, which builds its skeleton from calcium carbonate that in turn traps oxygen isotopes, provides a record of sea-surface temperature, along with other parameters.

3. For example, for archaeological research, see: Boivin et al., "East Africa and Madagascar"; Fuller et al., "Across the Indian Ocean"; and Horton, "Artisans, Communities and Commodities." For historical examples, see: Machado, *Ocean of Trade*; and Sheriff and Ho, *The Indian Ocean*.

4. Heather Lazrus, "Sea Change: Island Communities and Climate Change," *Annual Review of Anthropology* 41 (2012): 285–301.

5. Anthony S. Cheke, "An Ecological History of the Mascarene Islands with Particular Reference to Extinction and Introduction of Land Vertebrates," in *Studies of Mascarene Island Birds*, ed. A. W. Diamond (Cambridge: Cambridge University Press, 1987), 15–89. See also Walsh, "Island Subsistence," for a description of more direct human influences on fauna, as opposed to landscapes.

6. For rats, see Jean-Yves Meyer and Jean-François Butaud, "The Impacts of Rats on the Endangered Native Flora of French Polynesia (Pacific Islands): Drivers of Plant Extinction or Coup de Grâce Species?," *Biological Invasions* 11 (2009): 1569–85. For pigs, see Molly J. Murphy et al., "Invasive Feral Pigs Impact Native Tree Ferns and Woody Seedlings in Hawaiian Forest," *Biological Invasions* 16 (2014): 63–71. For ungulates, see: Dian Spear and Steven L. Chown, "Non-indigenous Ungulates as a Threat to Biodiversity," *Journal of Zoology* 279 (2009): 1–17; and Marty Vavra, Catherine G. Parks, and Michael J. Wisdom, "Biodiversity, Exotic Plants Species, and Herbivory: The Good, the Bad, and the Ungulate," *Forest Ecology and Management* 246 (2007): 66–72. For carnivores, specifically the small Indian mongoose, see Arijana Barun et al., "Can Genetic Data Confirm or Refute Historical Records? The Island Invasion of the Small Indian Mongoose," *Biological Invasions* 15 (2013): 2243–51.

7. David R. Towns, Ian A. E. Atkinson, and Charles H. Daugherty, "Have the Harmful Effects of Introduced Rats on Islands Been Exaggerated?," *Biological Invasions* 8 (2006): 863–91.

8. Crosby, *Columbian Exchange*, 110.

9. Vavra, Parks, and Wisdom, "Biodiversity," 66.

10. González-Bernal et al., "Cane Toads on Cowpats."

11. Murphy et al., "Invasive Feral Pigs."

12. D. Spear and Chown, "Non-indigenous Ungulates."

13. M. N. Pearson, "First Contacts between Indian and European Medical Systems: Goa in the Sixteenth Century," in *Warm Climates and*

Western Medicines: The Emergence of Tropical Medicine, 1500–1900, ed. David Arnold (Atlanta: Rodopi, 1996), 20–42.

14. Kenneth F. Kiple and Kriemhild Conée Ornelas, "Race, War and Tropical Medicine in the Eighteenth-Century Caribbean," in Arnold, *Western Medicines*, 65–80.

15. See Kiple and Ornelas, "Race, War and Tropical Medicine," for malaria and yellow fever in the Caribbean; and M. Pearson, "First Contacts," for syphilis in India. For an archaeological approach based on disease biology, see Ann Ramenofsky, "Native American Disease History: Past, Present and Future Directions," *World Archaeology* 35, no. 2 (2003): 241–57.

16. See Amar Hamoudi and Jeffery D. Sachs, "The Changing Global Distribution of Malaria: A Review" (Center for International Development Working Paper no. 2, Harvard University, March 1999), https://www.hks.harvard.edu/sites/default/files/centers/cid/files/publications/faculty-working-papers/the_changing_global_distribution_of_malaria_a_review.pdf, for comments on irrigation and malaria. See also Boodhoo, *Health, Disease and Indian Immigrants*, 140.

17. James L. A. Webb, "Malaria and the Peopling of Early Tropical Africa," *Journal of World Prehistory* 16, no. 3 (2005): 270–91.

18. For an overview of the administrative reaction to cholera in India, see S. J. Watts, "From Rapid Change to Stasis: Official Responses to Cholera in British-Ruled India and Egypt: 1860 to c. 1921," *Journal of World History* 12, no. 2 (2011): 321–74. For cholera in Africa, see Myron Echenberg, *Africa in the Time of Cholera: A History of Pandemics from 1817 to the Present* (New York: Cambridge University Press, 2010). See William H. Schneider, "Smallpox in Africa during Colonial Rule," *Medical History* 53 (2009): 193–227, for a review of smallpox and vaccination policy on that continent. See Banthia and Dyson, "Smallpox in Nineteenth-Century India," for implications for demographic structure of smallpox epidemics on the subcontinent.

19. Geert van der Plas et al., "Mauritius since the Last Glacial: Environmental and Climatic Reconstruction of the Last 38,000 Years from Kanaka Crater," *Journal of Quaternary Science* 27 (2012): 159–68.

20. Cheke, "Ecological History"; Cheke and Hume, *Lost Land of the Dodo*; and R. Allen, *Slaves, Freedmen, and Indentured Laborers*, 23.

21. Nicholas Pike, *Sub-tropical Rambles in the Land of Aphanapteryx* (New York: Harper and Brothers, 1873), 401. See also early groundbreaking work in: Ronald Ross, "On Some Peculiar Pigmented Cells Found in Two Mosquitos Fed on Malarial Blood," *British Medical Journal* 2 (1897): 1786; and subsequently, Ross, *Report on the Prevention of Malaria in Mauritius* (London: Waterlow and Sons, 1908), for work undertaken on Mauritius specifically.

22. Robert Snow et al., "The Changing Limits and Incidence of Malaria in Africa: 1939–2009" *Advances in Parasitology* 78 (2012): 162–262; Vandana Wadhwa, Ashok K. Dutt, and Rais Akhtar, "The History and Progression of Malaria: A Global and Regional View," in *Malaria in South Asia*, ed. Rais Akhtar, Ashok K. Dutt, and Vandana Wadhwa (Boston: Springer, 2010), 1–27; and WHO, "10 Facts on Malaria," last updated December 2016, http://www.who.int/features/factfiles/malaria/en/.

23. For the Atlantic, see A. Pearson et al., *Infernal Traffic*. From the historical perspective, see: Arnold, "Indian Ocean as a Disease Basin," for a detailed historical overview for the Indian Ocean; and Boodhoo, *Health, Disease and Indian Immigrants*, for Mauritius specifically. See Rohan Deb Roy, "Quinine, Mosquitoes and Empire: Reassembling Malaria in British India, 1890–1910," *South Asian History and Culture* 4, no. 1 (2013): 65–86, for a detailed study of the way knowledge of malaria was assembled and employed in colonial India.

24. Environmental archaeology is the branch of archaeology dealing specifically with the methods and approaches focused on human-environmental interactions. See Keith Wilkinson and Chris Stevens, *Environmental Archaeology: Approaches, Techniques and Applications* (Gloucester, UK: Tempus, 2003) for an overview, and pp. 45–135 for a discussion on paleoenvironments.

25. Paul Lane, "Possibilities of a Postcolonial Archaeology in Sub-Saharan Africa: Indigenous and Useable Pasts," *World Archaeology* 43, no. 1 (2011): 7–25.

26. Robert B. Dunbar and Gerard M. Wellington, "Stable Isotopes in a Branching Coral Monitor Seasonal Temperature Variation," *Nature* 293 (1981): 453–55; Guy S. Marion et al., "Coral Skeletal $\delta^{15}N$ Reveals Isotopic Traces of an Agricultural Revolution," *Marine Pollution Bulletin* 50 (2005): 931–44; and Fleitmann et al., "East African Soil Erosion."

27. Sea surface temperature is investigated using stable isotopic analyses of oxygen, as well as x-ray synchrotron polymorph partitioning, a process that involves analysis of powdered coral under high-energy lasers. Fertilizer use is assessed through analysis of the organic nitrogen isotope found within the coral skeleton. Sediment runoff is traced using barium:calcium ratios, either from within the coral skeleton or by direct measurement of included sediment particles.

28. Erik J. de Boer et al., "Rapid Succession of Plant Associations on the Small Ocean Island of Mauritius at the Onset of the Holocene," *Quaternary Science Reviews* 68 (2013): 114–25; de Boer et al., "Multi-proxy Reconstruction"; and de Boer et al., "Climate Variability in the SW Indian Ocean from an 8000-Yr Long Multi-proxy Record in the Mauritian Lowlands Shows a Middle to Late Holocene Shift from Negative IOD-State

to ENSO-State," *Quaternary Science Reviews* 86 (2014): 175–89. See also Lucien F. Montaggioni and Gérard Faure, "Response of Reef Coral Communities to Sea-Level Rise: A Holocene Model from Mauritius (Western Indian Ocean)," *Sedimentology* 44 (1997): 1053–70, for more specific details of the coastal zone.

29. These tests are being undertaken at the GeoGenetics Laboratories in Copenhagen for extraction of *Plasmodium falciparum* DNA. Demographic assessments based on ancient human DNA of the past population are underway in the Bustamante Laboratory, Stanford University. Climate proxy data are also being generated, currently based on core samples previously extracted from Mauritius by Jens Zinke, University of Western Australia, and the Mauritius Oceanographic Institute, with additional samples tentatively scheduled to be cored during the summer of 2016. For our case specifically, instrumental records have been mined from the records of the Mauritius Meteorological Service (which retains climate data, often derived from recording stations established on plantations with the intention of servicing the sugar industry, spanning back to 1862) by Caroline Staub, University of Florida. Supplementary data are available from stations that are maintained by the World Meteorological Organization. Climate proxy data are also available, as various datasets have been published on Mauritius based on terrestrial coring undertaken on volcanic crater sites, which provide a baseline detailing the island's ecosystem prior to settlement.

30. WHO, "10 Facts on Malaria"; Snow, "Changing Limits"; Wadhwa, "History and Progression of Malaria"; and Richard J. S. Tol, "Climate, Development and Malaria: An Application of *FUND*," *Climate Change* 88 (2008): 21–34.

31. For the EU, see Norbert Beneker, "Influence of Climate Change on Mosquito Development and Mosquito-Borne Disease in Europe," *Parasitology Research* 103 (2008): S19–S28. For China, see: Li Bai, Lindsey C. Morton, and Qiyong Liu, "Climate Change and Mosquito-Borne Diseases in China: A Review," *Globalization and Health* 9 (2013): 10; and Xiao-Nong Zhou, Randall Kramer, and Wei-Zhong Yang, eds., "Malaria Control and Elimination Program in the People's Republic of China," special issue, *Advances in Parasitology* 86 (2014). For India, see Amit Garg et al., "Development, Malaria and Adaptation to Climate Change: A Case Study from India," *Environmental Management* 43 (2009): 779–89.

32. Lafferty, "Ecology of Climate Change"; and Mark Smith, M. G. Macklin, and C. J. Thomas, "Hydrological and Geomorphological Controls of Malaria Transmission," *Earth Science Review* 116 (2013): 109.

33. Kristie L. Ebi, "Malaria Early Warning Systems," in *Biometeorology for Adaptation to Climate Variability and Change*, ed. Kristie L. Ebi, Ian Burton, and Glenn McGregor (Boston: Springer, 2009), 49–74; and

Henri E. Z. Tonnang, Richard Y. M. Kangalawe, and Pius Z. Yanda, "Predicting and Mapping Malaria under Climate Change Scenarios: The Potential Redistribution of Malaria Vectors in Africa," *Malaria Journal* 9 (2010): 111–21.

34. These techniques, while novel in terms of their application to historic burials in this region, build on strong precedent for extracting *Plasmodium* from remains far older than the samples currently under analysis for this project. For example, see: Robert Sallares and Susan Gomzi, "Biomolecular Archaeology of Malaria" *Ancient Biomolecules* 3 (2001): 196; R. L. Miller et al., "Diagnosis of *Plasmodium falciparum* Infections in Mummies Using the Rapid Manual ParaSight-F Test," *Transactions of the Royal Society of Tropical Medicine and Hygiene* 88 (1994): 31-2; and Patricia Schlagenhauf, "Malaria: From Prehistory to Present," *Infections Disease Clinics of North America* 18 (2004): 189–205.

35. aDNA techniques have an established precedence and have been applied to recover and study ancient pathogens (e.g., tuberculosis). See: Stewart T. Cole et al., "Deciphering the Biology of *Mycobacterium tuberculosis* from the Complete Genome Sequence" *Nature* 393 (1998): 537–44; and Kate L. Seib, Gordon Dougan, and Rino Rappuoli, "The Key Role of Genomics in Modern Vaccine and Drug Design for Emerging Infectious Diseases," *PLoS One Genetics* 5 (2009): e1000612.

36. Earlier works—such as J. Lawrence Angel, "Porotic Hyperostosis, Anaemias, Malarias and Marshes in the Prehistoric Eastern Mediterranean," *Science* 153 (1966): 760–63; and Israel Hershkovitz et al., "Possible Congenital Hemolitic Anaemia in Prehistoric Coastal Inhabitants of Israel," *American Journal of Physical Anthropology* 85 (1991): 7–13—have linked the presence of cribra orbitalia to malaria. However, recent research has questioned this connection, given its ubiquity in antiquity, even in areas of low historic malarial risk. These researches suggest that the osteological markers that typify cribera and porotic hyperostosis may be related to general malnutrition. Fiorenzo Facchini, E. Rastelli, and P. Brasili, "Cribra Orbitalia and Cribra Cranii in Roman Skeletal Remains from the Ravenna Area and Rimini (I–IV Century AD)," *International Journal of Osteoarchaeology* 14 (2004): 126–36; and in particular Phillip L. Walker et al., "The Causes of Porotic Hyperostosis and Cribra Orbitalia: A Reappraisal of the Iron-Deficiency-Anemia Hypothesis," *American Journal of Physical Anthropology* 139 (2009): 109–25.

37. George Poinar Jr., "*Plasmodium dominicana* n. sp. (Plasmodiidae: Haemospororida) from Tertiary Dominican Amber," *Systematic Parasitology* 61, no. 1 (2005): 47–52; Facchini, Rastelli, and Brasili, "Cribra Orbitalia," for a first- to fourth-century Roman example; Anne Keenleyside and Krastina Panayotova, "Cribra Orbitalia and Porotic Hyperostosis in a

Greek Colonial Population (5th to 3rd Centuries BC) from the Black Sea," *International Journal of Osteoarchaeology* 16 (2006): 373–84, for a Greek case; and Andreas G. Nerlich et al., "Plasmodium Falciparum in Ancient Egypt" *Emerging Infectious Diseases* 14 (2008): 1317–19, for a case dating back around four thousand years. See Teddi J. Setzer, "Malaria Detection in the Field of Paleopathology: A Meta-analysis of the State of the Art," *Acta Tropica* 140 (2014): 97–104, for an overview of current research on malaria and archaeology and the possible applications to modern medicine and vaccine development.

38. The presence of periodic fever and other indicators of malaria affecting large numbers of people can be taken as evidence of malaria, at least anecdotally, which should alert us to the possibility that we are dealing with a period in which the disease reached epidemic proportions.

39. Patricia Schlagenhauf, "Travelers' Malaria: Some Historic Perspectives," in *Travelers' Malaria*, ed. Patricia Schlagenhauf (Hamilton, ON: BC Decker, 2001), 1–13.

40. Adrian M. Tompkins et al., "A Dynamical Climate-Driven Malaria Early Warning System Evaluated in Uganda, Rwanda and Malawi," *Malaria Journal* 13, Suppl. 1 (2014): 99; and Erin A. Mordecai et al., "Optimal Temperature for Malaria is Dramatically Lower than Previously Predicted," *Ecology Letters* 16 (2013): 22–30.

41. Dian P. Iyaloo et al., "Guidelines to Site Selection for Population Surveillance and Mosquito Control Trials: A Case Study from Mauritius," *Acta Tropica* 132 (2014): S140–49.

42. Stefan Edlund et al., "A Global Model of Malaria Climate Sensitivity: Comparing Malaria Response to Historic Climate Data Based on Simulation and Officially Reported Malaria Incidence," *Malaria Journal* 11 (2012): 331–43.

43. Mordecai et al., "Optimal Temperature."

44. We can consider coral data to be an archaeological dataset in terms of chronological context.

45. Originally published in *Archiv. Für pathology. Anatomie u. Physiologie u. für kiln. Medicin, 1848*. Quoted in Rudolf Virchow, "Reports on the Typhus Epidemic in Upper Silesia," in *Collected Essays in Public Health and Epidemiology*, ed. L. J. Rather (Sagamore Beach, MA: Watson Publishing International, 1985), 205–320.

46. Arnold, *Colonizing the Body*.

47. Because of the tropical climate, the bone preservation in Mauritius makes it unlikely that hemozoin (a by-product of blood digestion by parasitic organisms, such as malaria) could be preserved. However, see Setzer, "Malaria Detection," for a description of the possible detection of this by-product of hematophageous activity in archaeological bone.

48. As opposed to teeth, which are commonly used for capturing human DNA but have only a small amount of blood that travels into them, therefore reducing the likelihood of finding traceable residues of *Plasmodium falciparum* DNA.

49. See M. Pearson, "First Contacts," 23, for India and Goa specifically; and Vaughan, *Curing Their Ills*, for Africa.

50. For an account of the high death toll of diseases such as small pox and scurvy on ships, refer to R. Allen, *European Slave Trading*, 80–81.

51. See M. Pearson, "First Contacts," 24–25, for the impacts of disease on the Portuguese in Goa. For a broader assessment of the varied influence on demographics, including age and disease, see R. Allen, *Slaves, Freedmen, and Indentured Laborers*, 110.

52. For impacts on different populations that colonized and discussion on the speed with which colonial settings became disease hotspots, see M. Pearson, "First Contacts," 24–25; and Kiple and Ornelas, "Race, War and Tropical Medicine," 71. For the use of slaves in the British military, see in Kiple and Ornelas, "Race, War and Tropical Medicine," 76. For Africans in Arabian wadis, see Benjamin Reilly, "Mutawalladeen and Malaria: African Slavery in Arabian Wadis," *Journal of Social History* 47, no. 4 (2014): 878–96. For political responses to disease, see: Arnold, *Colonizing the Body*, for India; Schneider, "Smallpox in Africa," for smallpox in Africa and the use of colonial propaganda; and Watts, "Rapid Change to Stasis," for an assessment of essential transformations in the methods used for disease prevention and the political underpinnings for these moves. Finally, see Hamoudi and Sachs, "Changing Global Distribution," 10 (for malaria); and Banthia and Dyson, "Smallpox," 649, for examples of lessons learned from successful disease control measures.

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