HEALTH AND ARCHITECTURE

THE HISTORY OF SPACES OF HEALING AND CARE IN THE PRE-MODERN ERA

Edited by
Mohammad Gharipour

BLOOMSBURY VISUAL ARTS
LONDON • NEW YORK • OXFORD • NEW DELHI • SYDNEY

BLOOMSBURY VISUAL ARTS
Bloomsbury Publishing Plc
50 Bedford Square, London, WC1B 3DP, UK
1385 Broadway, New York, NY 10018, USA
29 Earlsfort Terrace, Dublin 2, Ireland

BLOOMSBURY, BLOOMSBURY VISUAL ARTS and the Diana logo
are trademarks of Bloomsbury Publishing Plc

First published in Great Britain 2021
Paperback edition first published 2023

Cover design by Namkwan Cho
Cover image: Anonymous, Hospital Real de Todos-os-Santos (View of Rossio). Courtesy of
Álvaro Roquette and Pedro Aguiar Branco, Antiquary. Photo by Onshot / Rui Carvalho.

A catalogue record for this book is available from the British Library.

Library of Congress Cataloging-in-Publication Data
Names: Gharipour, Mohammad, editor.
Title: Health and architecture : the history of spaces of healing and care
in the pre-modern era / [edited by] Mohammad Gharipour.
Identifiers: LCCN 2020046858 (print) | LCCN 2020046859 (ebook) |
ISBN 9781350217379 (hardback) | ISBN 9781350217416 (paperback) |
ISBN 9781350217386 (pdf) | ISBN 9781350217393 (epub) | ISBN 9781350217409
Subjects: LCSH: Architecture–Health aspects. | Health facilities–Design and construction. |
Hospital buildings–Design and construction. | Architecture–Psychological aspects.
Classification: LCC RA967 .H36 2021 (print) | LCC RA967 (ebook) | DDC 725/.52–dc23
LC record available at https://lccn.loc.gov/2020046858
LC ebook record available at https://lccn.loc.gov/2020046859

ISBN:	HB:	978-1-3502-1737-9
	PB:	978-1-3502-1741-6
	ePDF:	978-1-3502-1738-6
	eBook:	978-1-3502-1739-3

Typeset by Integra Software Services Pvt. Ltd.

To find out more about our authors and books visit www.bloomsbury.com
and sign up for our newsletters.

CHAPTER 8
SPACES OF HEALING IN EARLY MODERN PORTUGUESE EMPIRE
CHANGING PUBLIC HEALTH AND HOSPITAL BUILDINGS ON MOZAMBIQUE ISLAND

Eugénia Rodrigues

Research on hospital buildings and sites in the Western world has shown how, throughout the early modern period, the typology of edifices, architectural styles, and their location changed according to various historical contexts. From the eighteenth century onward, the shift in care for patients from being a religious charitable act to active medicalization as well as the resurgence of environmental perspectives on disease and health changed the characteristics of hospital buildings and the organization of their internal spaces. The rise of public policies for healthcare and the emphasis on preventive medicine increased the number of hospitals and resulted in their reorganization according to new medical models, as well as a mechanism to better monitor patients and medical staff.[1] Hospital architecture is also discussed as part of spatial practices in the context of European urbanization, with a focus on the landscape in which hospitals were built, which articulates internal and external changes.[2] European powers tended to transfer domestic models to their empires. However, as David Arnold, a historian of medicine in India, highlights in relation to medicine in the tropics, it is necessary to also consider the impact of local factors. Thus, these transpositions from Europe to overseas domains were not mimetic and entailed their own cultural configurations.[3]

In the case of Portugal and its overseas empire, scholarly literature has paid scant attention to the architecture of hospitals and how it was incorporated into the urban landscape, generally mentioning it only in the context of broader research. For example, this is the case with studies on All Saints Royal Hospital in Lisbon, which was established in 1492 by the Portuguese Crown in the framework of reforms providing for poor relief and healthcare. These studies demonstrate that the regulation of the hospital in Lisbon followed the model of organization and functioning of Italian hospitals, especially Santa Maria Nuova hospital in Florence, and that it was inspired by the architectural layout of the Lombard hospitals. Set out as a Greek cross, the large All Saints Royal Hospital consisted of three-story buildings in a symmetrical structure. As Santa Maria Nuova hospital it was organized into several gendered infirmaries, a church, administrative rooms, and spaces for daily life. Occupying a central location in the Portuguese capital, which was enjoying a spurt of urban growth due to its standing as a leading maritime Atlantic port, the new hospital also served as an affirmation of royal power.[4] Pointing to the same kind of legitimation, the Queen's House established a thermal hospital at Caldas da Rainha, approximately 100 kilometers north of Lisbon, whose regimen was similar to that of All Saints Royal Hospital.[5] However, most of the hospitals in Portugal were small institutions scattered across the countryside, such as those maintained by the Holy Houses of Mercy (Santas Casas da Misericórdia), which deserves some scrutiny from scholars.[6] The architecture of the military hospitals that were established in Portugal during the seventeenth century—some in buildings that were adapted while others were specifically built for that purpose—has also been studied.[7] In turn, the growing literature on hospitals in the Portuguese Empire, mainly in Brazil and India, explores some physical characteristics of the edifices.[8]

In relation to Mozambique Island, in modern-day Mozambique, the subject of this chapter, some studies have analyzed health policies and the administration of hospitals, but shed little light on the buildings themselves.[9] This chapter addresses the progressive transformation of the hospital established by the Portuguese Crown on Mozambique Island in the early sixteenth century, as well as the role played by the hospital run by the Santa Casa da Misericórdia that was settled during the eighteenth century. Instituted by the Portuguese Crown as a mechanism to build its empire in the Indian Ocean, the royal hospital underwent changes in the location and structure of the edifices in response to prevailing medical perspectives. Notions about health and disease and public policies that supported changes in hospitals in Europe also shaped the configuration of hospital buildings on Mozambique Island, although they had to take local contexts into account. Over time, concerns about the building's role varied, reflecting different medical, social, and urban contexts. Changes in hospital architecture were particularly noticeable during the eighteenth century, when the former structure was progressively expanded and redesigned in attempts, often deemed unfruitful, to provide suitable conditions for healing patients. While outlining the evolution of health politics and the royal hospital on Mozambique Island, this chapter discusses how European models of architecture were transposed to imperial territories and interacted with local cultures.

Empire and Health: The Royal Hospital on Mozambique Island

To a great extent, the Portuguese Empire in the Indian Ocean was a Crown-run enterprise, and this conditioned health services policies. From the sixteenth century onward, the Portuguese Crown assumed responsibility for maintaining hospital facilities in the Indian Ocean, just as it did in Lisbon at the Real Hospital de Todos os Santos.[10]

In the early sixteenth century, the Portuguese established factories in various cities along the East African coast, including Sofala and Mozambique Island, in present-day Mozambique, as part of their strategy to build an empire in the Indian Ocean. As was the case with other Swahili port cities, Mozambique Island, situated in the bay of Mossuril, north of Mozambique, was governed by a Muslim elite, represented by a sheik, and had close ties with Kilwa in what is now Kenya. Measuring almost 3 kilometers in length and with a maximum width of 500 meters, the island was a narrow, sandy area that depended on supplies of food and water from the neighboring mainland. Even though it was not a well-known trading station at the time, it played a crucial function in supporting the route linking Kilwa and Sofala—the main port for trading gold procured from the Karanga plateau south of the Zambezi River. Vessels stopped there for repairs and supplies.[11]

The role it played in providing assistance for navigation also attracted the Portuguese to Mozambique Island. In 1507, they built a small fortification, the Tower of São Gabriel, with warehouses to complement their factory in Sofala (1505) in central Mozambique. While the shallow waters along the Sofala coast were an obstacle for Portuguese carracks, Mozambique Island offered a sheltered deep-water port, and thus increasingly became the main port of call on the India route. The carracks that set out every year from Lisbon for India, and some on the return voyage, would stop there to replenish their supplies of fresh food and water, while soldiers, crewmates, and passengers could recover after a long voyage. The vessels often had to winter on the island, staying there for several months for repairs or awaiting favorable monsoon winds.[12]

By the 1530s, Mozambique Island had become the political seat of Portuguese establishments in Southeast Africa, integrated into the Estado da Índia (State of India) and governed from Goa, India. Simultaneously, its port acquired an increasingly important role in African trade as the Portuguese expanded their networks along the coast and the Zambezi River Valley. It became a military base from the 1540s onward due to the island's relevance as a way station on the India route and hub for African trade. The São Sebastião fortress was constructed on the northeastern tip to contain Ottoman expansionism and, subsequently, the rise of other

European powers. The fortress was intended to house three hundred soldiers, although that figure was rarely achieved. Military expeditions sent to the Zambezi Valley to conquer the famed Monomotapa, from the 1570s onward, also increased the total number of soldiers on the island.[13]

The political, military, and economic importance of Mozambique Island resulted in its urban growth, which, however, was not very significant. The Portuguese town was located in the central part of the island on the western side, next to the port and facing the continent. As the Portuguese progressively dominated the territory, the Swahili sheik was obliged to shift his settlement to the mainland, although part of the population remained on the island. Just like the Swahili, the Portuguese depended on supplies of water and produce from the neighboring mainland, but that practice proved to be insufficient to meet the needs of a burgeoning population and the many carracks that docked at the island. Foodstuffs were imported from more distant places, including the Zambezi Valley, Madagascar, and India.[14]

Keeping an important position in the Indian Ocean mercantile networks while later extending its influence to the Atlantic through its participation in slave trading, Mozambique Island developed multidirectional connections with other cultures. Although the island was under colonial rule, these specific historical conditions led to the emergence of a multicultural society in which diverse groups interacted, including in terms of medical practices. Indeed, throughout the early modern period, the medicine of the colonizers incorporated practices of other social actors who inhabited the island and the mainland, as well as those who stayed there for long periods for commercial reasons.[15] Health services for the colony's population as well as for the individuals arriving aboard the carracks integrated the policy of building the empire. In 1507, hospital facilities were installed at the island in a wooden building, located outside the walls of the first fortress that the Portuguese erected next to the port. This edifice, constructed by soldiers who stayed on the island, was described as a large house with a rear veranda, with separate houses for the nurse, the attending medic, and the pharmacy.[16] In 1538, it was replaced by a stone structure, with a rectangular shape and an inner courtyard according to its appearance on a map of Mozambique Island.[17] Similar to hospitals in Europe, it had religious facilities, the small church of Holy Spirit, and most likely a single hall.[18] Thus, along with the movement of people, European hospital patterns circulated across the territories of the empire as well.

The edifice was probably erected in keeping with the architecture of Portuguese hospitals and used both rocks found on the island as well as stones carried as ballast on ships sailing from Lisbon to Goa. The same combination of local and imported materials is found in the construction of the Sofala in the same period. This hospital was certainly spacious. In 1563, for example, a Jesuit father mentioned that there were more than 370 patients at the hospital, a number that was equivalent to those found in leading military hospitals in Europe during this period.[19] Despite its relatively large size, the hospital was located amid narrow streets that shaped the settlement.

However, little is known about the hospital operation during the sixteenth and seventeenth centuries. It was managed by local institutions, including the charitable institution Holy House of Mercy (Santa Casa da Misericórdia), a brotherhood commissioned by the Crown in 1564 to administer civil hospitals in Portugal.[20] The hospital was not designed to assist Africans but the soldiers and settlers as well as all those who arrived there aboard ships from Lisbon and from Indian Ocean ports.[21] Because local residents or *moradores*—Portuguese, Indian, and mixed-race people—received treatment primarily at home, most of the patients at the hospital were resident soldiers or sailors. The number of patients rose seasonally as the carracks arrived and increased even further when the ships were obliged to winter there. Without adequate food and water, the lengthy journey from Portugal would result in several diseases such as scurvy.[22] Sometimes the number of these mobile patients exceeded the hospital's capacity and it was necessary to build temporary shelters for them.[23]

As historian of European medicine Mary Lindemann argues, most scholars are of the view that early modern hospitals "offered little medical care, or at the very least, that was not their primary function."[24] It is not known exactly what care was provided in Mozambique since there were often no surgeons or bleeders. Individuals sailing aboard the carracks frequently provided therapeutic care since it was common for missionaries to spend their time on land caring for the sick.[25] However, in the sixteenth century, just as in the royal hospital in Goa, the hospital in Mozambique had a reputation for providing good accommodation, food, and medicines to patients.[26] In fact, the hospital was intended not only to house and feed the sick but also to provide medical care, following the pattern of royal hospitals in Lisbon.[27] For example, a royal letter dating from 1562 emphasizes "curing and healing the sick," ordering that the hospital should be consistently well supplied with "remedies and pharmacy drugs."[28]

In an age when the concept of illness was rooted in humors, as per the Hippocratic-Galenic tradition, health was understood to be derived from a balance of these fluids in the human body and disease was viewed as the outcome of imbalanced humors, influenced by environmental factors, including food and beverages. Medical therapies sought to readjust the proportion of fluids in each individual by means of bleeding, purges, sweating, vomiting, and drugs. The "pharmacy drugs" mentioned in the letter penned by the Portuguese king were also used to correct such imbalances. Moreover, for Christians, as for the Portuguese, the natural causes of illnesses, as explained by Hippocratic-Galenic medicine, mingled with religious convictions that attributed some ailments to divine entities and endorsed the role of prayer to obtain God's intervention in the healing process. The strong presence in the hospital of missionaries who arrived aboard the carracks and provided spiritual cures in addition to physical healing thus also helped ensure the hospital's good reputation.[29]

The standing of the hospital in Mozambique worsened considerably during the seventeenth century. The hospital building was destroyed during the Dutch sieges on Mozambique Island (1607–8) and the government installed it in some rented houses. The Portuguese administration was not able to erect a new building until in the 1630s. Since the ground on which the former hospitals were built had been leased to a private individual, the new structure was constructed at another site within the urban center, but its exact location is not clear. As had been the case in Goa, the hospital's administration was entrusted to the Jesuits in 1629, even before the construction was concluded.[30] Thus, unlike in Europe, where during the early modern period hospitals tended to be transferred from religious to civil authorities, the opposite happened in Mozambique and continued until the mid-eighteenth century.[31] As before, the hospital functioned under a contractual system in which the Crown paid the religious a certain amount annually in exchange for assistance provided to the sick. The hospital also benefited from pious endowments and testamentary legacies that allowed it to increase its budget. However, facing continuous complaints about the quality of care, in 1680 the Jesuits refused to continue with the responsibility of the hospital's administration.[32]

From the late 1670s, proposals were circulated to hand over the hospitals in the Estado da Índia to the Brothers Hospitallers of Saint John of God. This order was created by the disciples of the Portuguese soldier João de Deus (1495–1550), who was renowned for his care of the sick in Granada, Spain. Recognized as an order by Pope Pius V in 1572, the Brothers Hospitallers ensured the operation of military hospitals in Portugal from the early seventeenth century. Thus the Hospitallers were commissioned to run the hospital in Mozambique, as well as those in Goa, Bassein, Daman, and Diu, in the Portuguese State of India.[33] Preparations for this transition began in 1680, and in the following year a warrant issued by the regent, Dom Pedro, entrusted the Order of Hospitallers with the task of establishing a hospital on Mozambique Island, "not only to heal the soldiers at the fortress and the local residents but all the soldiers who arrive there, including those traveling aboard the carracks, to convalesce or to continue on their voyage."[34] The Crown maintained with the Hospitallers the former system of contract in which the budget was managed by the prior of the convent and administrator of the hospital. The Brothers were the main caregivers for the patients, along with

a chief-surgeon, since the chief physician who had been appointed at the time had died and was not replaced. Just as in many European hospitals, missionaries served as nurses.[35] Although most of the patients were soldiers, they included individuals of Portuguese, Goan, and mixed-race origin that composed the regiment of infantry. The African slaves pertaining to the Portuguese government, the so-called king's slaves, were also healed in the hospital.

The transfer of the hospital's administration to the Hospitallers was accompanied by the decision to change its location. The site chosen for the new royal hospital was outside the town on an open field south of the settlement. Instead of building a new structure, the Portuguese Crown decided to purchase two houses that had been the residence of a deceased merchant, Vicente Dourado, "as they are suitable and there are no other buildings in the said settlement that could serve the said purpose."[36] The hospital was also located opposite the fortress of São Sebastião, in the north of the island, the area from which most of the patients came. The property had a brackish water well and a cistern, which were invaluable assets considering that water was an extremely scarce resource. The houses were surrounded by a fence that extended up to the island's west coast toward the bay. The estate offered space for cultivation where innumerable palms were planted, along with a garden in which the plants habitually used to cure patients were grown (Figure 8.1).[37] Such features were also common in European hospitals—specifically in the military hospitals administered by the Brothers Hospitallers in Portugal.[38]

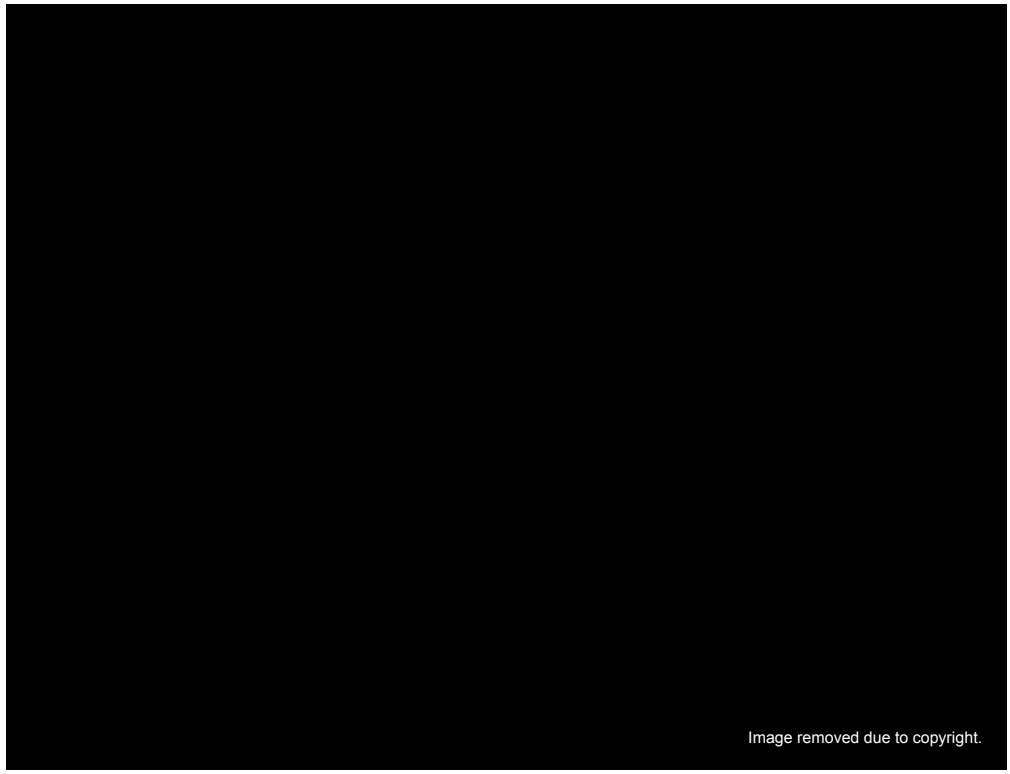

Figure 8.1 Map of Mozambique Island that shows the stone quarter to the west and the *macuti* palm huts scattered to the east and south of the stone town. The hospital appears in an isolated location south of the town. "Carta topografica da ilha de Mossambique," 1754, by Capitão de infantaria e engenheiro Gregório Taumaturgo de Brito. Arquivo Histórico Ultramarino, Lisbon. Courtesy of AHU

The houses that had been built as a private residence were adapted by means of small-scale works. The hospital began operating there in 1682. The architecture of these houses as well as of the structures that were later added to the hospital would undoubtedly have followed the building models and techniques that were already prevalent on Mozambique Island at this time. In the colonies the Portuguese had to adapt their architectural style to the existing materials and local expertise. When transferring European models to Mozambique, the Portuguese faced a continuum of cultural influences that interacted with their homeland styles on Mozambique Island. These influences came not only from mainland Africa, but were also related to the broader context of human mobility and trading networks in the Indian Ocean. The island received myriad influences from flows of people arriving from diverse continental regions and Indian Ocean islands—mainly from Swahili port cities, Arabia, Persia, and India— importing these peoples' own architectural culture and knowledge. The mainland Africans, who made up most of the labor force of slaves that worked on the construction of the buildings, undoubtedly contributed their knowledge of materials.

In the island's edifices, known as "stone and lime" construction, the walls were built with large blocks of coralline rocks extracted from the island's soil, which was the coral architecture found in other Swahili port cities.[39] These blocks were bound together with a lime mortar made from coral or marine shells. Instead of European-style roofs, the buildings were thatched with palm leaves, which were progressively substituted by terraces to gather rainwater that was then channeled into cisterns. This was similar to houses in southern Portugal, a dry region that evidenced a strong Islamic influence, as well as in the Swahili port cities, with which the island maintained close ties (Figure 8.2).

These terraces were constructed with very large girders of *mecrusse* wood (Lebombo ironwood, *Androstachys Johnsonii Prain*).[40] Narrower beams, generally of mangrove wood, were arrayed transversally over this visible wooden structure. Various layers of a mortar made of sand, crushed coral, and lime fabricated from marine shells covered this entire structure. Finally, everything was covered with a better-quality limestone plaster that incorporated sesame oil and *murrapa* oil extracted from a small shrub, producing a durable, elastic, and waterproof material. The same limestone plaster was used on the floor, due to the scarcity of wood. This construction technique ensured that the buildings maintained a comfortable temperature. These structures had a rectangular plan with many rooms, and large patios at the rear that housed the kitchen and living quarters for the domestic slaves. The patios, which sometimes had verandas, also provided spaces for social and leisure activities due to the cool shade from innumerable fruit trees, such as coconut palms, and orange and lemon trees.[41]

The type of materials that were available also influenced the aesthetics of the buildings. Since limestone that is easily worn away by rain could not be used to build European-style stonework, constructions used a stripped architecture with simple lines and plain surfaces. In contrast, facades had decorative elements made from lime mortar and doors were ornamented, becoming symbols of the wealth and social status of the owners (Figure 8.3). The product of cross-cultural encounters, the decorative elements had Indo-Portuguese origins and combined Portuguese and Indian motifs, derived particularly from Gujarat in northwest India from where most of the artisans were recruited, as well as Swahili roots. Seeking similarities between Mozambique Island and European towns, several visitors noted the grandeur of noble residences, the monumental scale of public buildings, and the combination of architectural styles. For example, the British traveler Henry Salt considered that the town, as did its people, presented "a strange mixture of Indian, Arabian and European costume, not blending very harmoniously together, and of which it is difficult to convey and adequate idea to any one unacquainted with three countries."[42] Conversely, a group of Danish architects, who conducted a study on Mozambique Island between 1982 and 1985, concluded that "architectural character of the 'stone built town', created through 400 years, is remarkable for its homogeneity."[43] More than a hybrid architecture, it was a new architecture. Indeed, the architecture promoted mainly by merchants and landlords on Mozambique

Figure 8.2 A view of a street in the stone town. Photo: Eugénia Rodrigues

Island, including the hospital edifices, mingled together in a unique way the use of materials, techniques, and aesthetics rooted in diverse worlds. The use of the same materials and techniques for centuries has given the island's buildings a stylistic homogeneity.

Nonetheless, nothing is known about the actual features of the two houses where the hospital was established in 1682. It would undoubtedly have had various rooms and could ostensibly house four hundred patients, but it only had a hundred beds.[44] Even if two patients could be housed in each bed, as was often the case in Europe at the time, the hospital would be able to accommodate a maximum of two hundred patients. Conceived along the lines of European institutions, the hospital depended on the dynamics of trade in the Indian Ocean that gave it a local touch: beds, linen, cushions, utensils, pharmaceuticals, and other paraphernalia were imported

Figure 8.3 Carved entrance door. Photo: Eugénia Rodrigues

from Chaul, India.[45] According to subsequent criticism, the building only housed patients. Medicines, for example, were acquired from a private pharmacy; there was no room in which they could be prepared.[46]

The hospital's history was inextricably intertwined with that of two other buildings that were indispensable to its functioning, the church and convent of St. John, and the pre-existent church of Good Health. Construction of the convent and church began in 1682, thanks to the generosity of a rich merchant, João Dias Ribeiro, and, after his demise in 1690, to the alms contributed by the island's residents.[47] As in the previous hospital edifices, the construction of a church adjacent to the hospital buildings was part of the European tradition of "mending the bodies, saving souls."[48]

Indeed, during an age when, for European friars, curing the body was inseparable from curing the soul, the location of the church alongside the infirmary allowed patients direct access to religious ceremonies. This church had three altars, one of which was certainly dedicated to St. John, as was habitual in the hospitals run by the Brothers Hospitallers in Portugal.[49] References to the convent portray it as a building that was never completed due to a shortage of funds. The ground floor had two cloisters, while the upper floor, built over one of the cloisters, was limited to eight cells, to house the Brothers who had arrived on the island.[50] The spatial

articulation among these constructions is not known precisely, though the complex is often referred to as the convent-hospital. The set of houses would probably have formed an L shape with the church and one of the cloisters adjoining the hospital buildings and the second cloister on the other side. The church of Good Health situated nearby was given over to the Hospitallers, who used the churchyard as a cemetery for patients who died at the hospital.[51]

Alongside these buildings, but within the surrounding fence, houses were built for African slaves who worked in the hospital and convent.[52] While the hospital, convent, and church were built from the limestone used on the island, the houses of the slaves were described as huts, and were probably made of adobe or were wooden and thatched with *macuti* palm leaves, as most African houses on the island were. The set of buildings that formed the hospital complex thus constituted a dialogue between stone structures and palm-thatched houses, which characterized the settlement until the nineteenth century, when the municipal authorities segregated the thatched housing, limiting it to the southern part of the island (Figure 8.4).[53]

The private residence of a rich merchant soon proved to be insufficient to house the patients. In 1692, for example, one of the officials on the island had to transform his home into "a second hospital."[54] In 1701, due to the "limited accommodation" and ruined walls of the hospital houses, the administrator Friar Francisco de São Tomás began to construct "a suitably large and enduring building."[55] When he left the island in 1704, it was almost completed and it was probably concluded in 1708, according to an inscription above the door.[56] The new infirmary was funded by the Royal Treasury, which stipulated the payment of a given sum for every section of the building that the missionaries were able to erect.[57] References to continuous construction, amid innumerable disputes with the administration in Mozambique, suggest that the construction work extended over several years. In addition to this building, one of the cloisters was transformed into a new infirmary, or "corridor," as it was also called, by enclosing the arches. Due to a lack of funding, the original houses were not rebuilt.[58] A 1754 map of the island shows that, with the new construction, the set of buildings were arrayed almost in the shape of a U around a large inner courtyard, delimited on the other side by a wall (Figure 8.5).[59] The hospital's architecture thus reflected monastic structures, and hence, as Mary Lindemann argues regarding many European hospitals, it is "artificial to separate monasteries from hospitals."[60]

Figure 8.4 Present-day *macuti* houses in the southern part of Mozambique Island. Photo: Eugénia Rodrigues

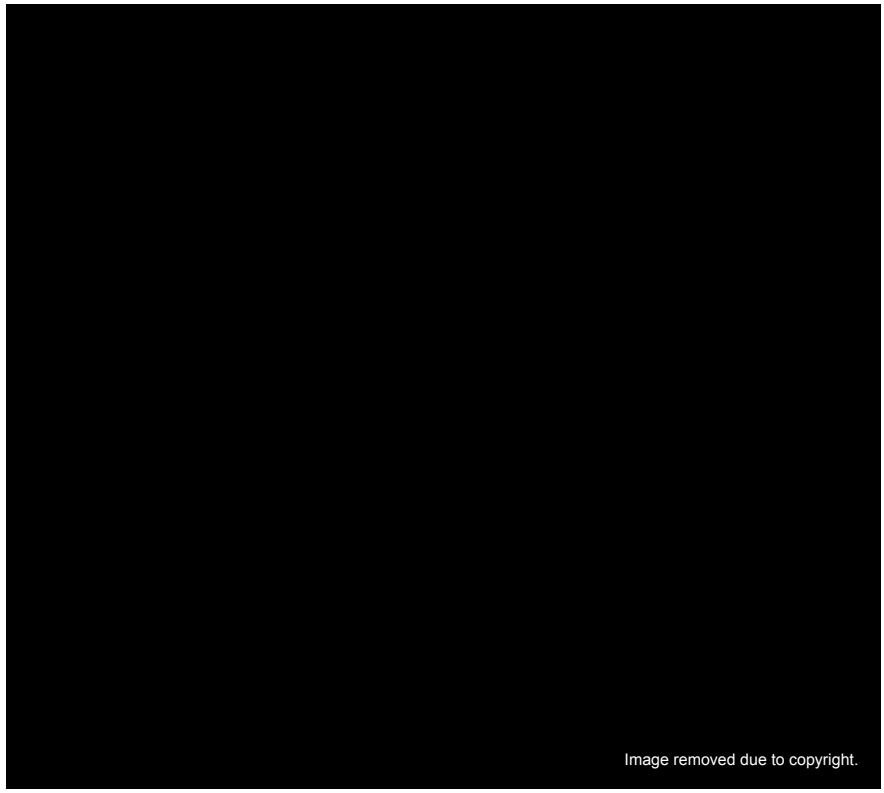

Figure 8.5 Detail from the 1754 map of Mozambique Island showing the hospital, convent, and church of St. John (16) and further away the church of Good Health (17). "Carta topografica da ilha de Mossambique," 1754, by Capitão de infantaria e engenheiro Gregório Taumaturgo de Brito. Arquivo Histórico Ultramarino, Lisbon. Courtesy of AHU

By the mid-eighteenth century, complaints about the limited space in the hospital increased, while the Hospitallers highlighted the need to carry out new construction work at the building. The hospital always incurred high expenditure and, according to the Brothers, its costs exceeded the royal funding, resulting in constant tension with the royal administration. When the number of patients increased, they were accommodated on mats distributed throughout the second cloister situated below the cells of the friars and the entrance to the convent, and were thus exposed to the vagaries of the weather. They sometimes had to be taken to the fortress at the other end of the island or to private homes.[61] There was thus some fluidity between the hospital buildings and other spaces that made the hospital an open institution. With the changes that occurred in medical theories in Europe and new views on the role of the state in looking after the health of subjects, the Hospitallers and the healthcare they provided were increasingly criticized.

Enlightening the Royal Hospital

In the context of the affirmation of European absolutist states, a state's power and wealth were associated with the existence of a numerous and physically robust population. These ideas were particularly expressed in the concept of medical policing, in which the government was to establish a set of policies in the health sector, such as the creation and overhauling of hospitals to promote broader medical facilities, to ensure a

healthy population. Although its roots can be traced back to the seventeenth century, the concept of medical policing gained ground during the second half of the eighteenth century.[62] Ideas advocating state intervention to safeguard the health of subjects emerged in Portugal as well.[63]

The evolution of medical theories, namely reinforcing the notion of prevention, required changes in the structure and location of hospitals. The resurgence of environmentalism, which had already been an integral part of medical knowledge in Europe from the time of Hippocrates, reinforced the belief in the noxious effects that the environment could have on the human body and hence on health. In particular, environmentalism claimed that the earth exuded miasmas, i.e., fetid elements dissolved in the atmosphere and in stagnant waters, derived from decomposing organic matter.[64] In the case of imperial territories, the influence of environmental factors was accentuated by the portrayal of the tropics as a different and threatening world for Europeans. As David Arnold argues, "'the tropics' became a way of defining something culturally alien to, as well as environmentally distinct from, Europe and other parts of the temperate World."[65] According to this representation, Europeans were vulnerable to diseases in hot and humid tropical regions, as opposed to the pleasant climate of temperate zones.[66]

From the mid-eighteenth century onward, the ideas that emerged in Europe also circulated throughout the European empires, giving rise to harsh disapproval of the healthcare that was available in Mozambique.[67] This period coincided with a time when Mozambique became autonomous from the Estado da Índia, now being administered directly from Lisbon (1752). Several contingents of soldiers were sent to Mozambique, which increased the pressure on the hospital. Criticism of the healthcare available in Mozambique was aimed, first and foremost, at the actions of the Hospitallers, who were accused of a lack of "charity" while treating patients, among a vast range of issues, such as nutrition, clothing, drugs, bed linens, and the cleanliness of the facilities. Second, the disapproval addressed the hospital facilities. In addition to underlining the small scale of the infrastructure, censure focused on the location and structure of the building as factors promoting diseases.

In effect, the previous assessment of the hospital in Mozambique ended up being combined with Enlightenment perspectives that viewed old hospitals as "gateways to death."[68] The governor-general, Francisco de Melo e Castro (1750–8), expressed the need for improvements, stating that the hospital was a "pigsty which had been given another name." The two infirmaries only had fifty or sixty beds and patients were thus distributed throughout the cloisters on African *quitandas*, i.e., bed frames strung with coir, with mats for mattresses. The luxurious beds imported from India had been replaced by the more Spartan, locally made beds, contributing to the hospital's broader image of decline. Moreover, the infirmaries were very damp and dark even during the summer, which threatened the health of patients. The governor also questioned the fact that there was no infirmary for officers, a social distinction in terms of healthcare that was gaining ground in Europe. Finally, he asked the Portuguese Crown to construct a new building that could house 250 to 300 beds, which was the usual number of patients.[69]

While refuting the criticism leveled at the Hospitallers, the hospital's administrator, Friar Vicente da Encarnação, highlighted that the location of the infirmaries and the building itself contributed to patient deaths. He argued that since it was in the middle of the island the hospital was not "bathed by purifying air … that would cleanse away so many diverse ailments." Moreover, the cloister transformed into an infirmary had to be closed completely, because it faced west, "which faces the brunt of harsh weather in this land," while the second cloister, located below the cells, was "underground" and susceptible to "evil vapors" that even killed the friars. These conditions were aggravated by the region's climate, which was "the most hostile for Europeans … this side of the Cape of Good Hope." He contended that patients sent to convalesce in the "pestilent" fortress returned to the hospital to die from the "contagion this climate produces." In addition, Friar Encarnação

felt that the former residences that had been acquired by the Royal Treasury were not suited for infirmaries because they were located in the middle of the island and adjoined the cemetery. He asked the king to build a new hospital "near the sea for better comfort and cleanliness."[70] The surgeon himself, José Alvares, declared that the site of the infirmary was unsuitable.[71] In short, as in Europe, debates in Mozambique also insisted that the hospital caused ailments.[72] Concepts relating to disease thus had an impact on assessing the architecture and location of hospitals, and demanded that healthier environments be created for patients. The criticism in Mozambique also coincided with the renovation of the hospital in Lisbon after the 1755 earthquake, which seemed to sustain similar arguments throughout the empire.[73]

In the context of complaints from Mozambique, the Portuguese Crown adopted two kinds of measures in keeping with the idea of state intervention to safeguard the health and lives of subjects. First, the Crown ordered a new hospital be constructed. In 1754, the Overseas Council in Lisbon agreed that it was crucial for the king to look after the "comfort and health of his vassals as well as his domains." As requested by the governor of Mozambique, the new hospital was to have a capacity of 250 to 300 patients and include houses for staff and other necessary facilities. A part of the customs revenues for ten years was allocated to build the hospital.[74] However, the construction never commenced due to a lack of funding. Second, in the 1761 *Instructions* for the captaincy's government, the more important regulations after Mozambique began to be administered directly from Lisbon, the Crown ordered that the hospital's management was to be transferred to the Royal Treasury so as to safeguard the health of Portuguese vassals. The Hospitallers were to continue as nurses and chaplains.[75]

These measures were implemented progressively. In 1763, the government of Mozambique appointed a storekeeper and a clerk to administer the hospital, subsequently designating other staff.[76] Nevertheless, considering the shortage of funds, the political choices made in Mozambique favored a gradual improvement and upgrade of the existing hospital instead of constructing a new edifice. Changes to the building's structure aimed to expand and specialize spaces, pursuant to medical trends that were gaining ground in Europe. As Dana Arnold argues, "improvements in medical knowledge impacted on the design and layout of hospitals, with distinctive designs to create healthier environments for patients and staff."[77]

In 1765, Governor Baltazar Pereira do Lago (1765–77) began work to "ensure these men live, so our state does not die."[78] Clearly inspired by theories claiming that a strong state depended on the number of subjects, and by the reorganization of hospitals then underway in Portugal, the governor built a new infirmary with thirty or forty beds to house patients with contagious diseases. One of his censures of the hospital was that "in one small infirmary remedies and cures were administered amidst utter confusion and tumult to all types of patients," as well as the existence of "a mix [at the same infirmary] of all kinds of fevers, different ailments and contagious diseases" which often led to the death of patients.[79] In the European hospital model, spaces began to be specialized according to ailment, creating specific hospitals or infirmaries. As the historian of architecture Harriet Richardson stresses, "Specialism was the key of the development of hospital architecture."[80] In Mozambique, it was imperative to introduce some rationality in the infirmaries, organizing spaces according to diverse diseases. Moreover, the governor built a house for convalescents who, after being sent to the fortress at the "first sign of recovery," soon returned to the hospital after relapsing.[81] As Guenter Risse, the historian of medicine, emphasizes, in a "more medicalized context, the issue of physical recovery began to loom larger after the Renaissance, based on more optimistic notions of health and illness."[82] This new infirmary was probably built by joining the ends of the U that formed the hospital's layout.

The governor also ordered the restoration of the old cistern because it was choked with debris and patients were "at the mercy of those who gave them putrid water to drink, and the tanks next to the said hospital are

even filthier."[83] Indeed, European medicine viewed beverages as a factor for health or illness. Furthermore, the governor implemented projects to streamline the hospital's functioning. He rebuilt the ruined houses in which the hospital had initially been installed to store food, medicines, beds, and other equipment. These goods had been kept in the storekeeper's house and transported daily to the hospital by slaves.[84] Thus, medicalization was reflected in the hospital's architecture: the infirmaries became differentiated while the increasingly complex tasks within the hospital resulted in the creation of new spaces.

The ruler established simultaneously a new hospital for twelve patients at the Holy House of Mercy (Santa Casa da Misericórdia), in the heart of the stone quarter, close to the port and the new government palace of Saint Paul, the former residence of the Jesuit fathers (Figure 8.6).[85] Although designated to assist

Figure 8.6 The Misericórdia church with a building attached to the left, where the charitable hospital for the poor was located on the ground floor. Photo: Eugénia Rodrigues

Figure 8.7 A pipe system on the Misericórdia terrace to conduct water to the cistern. Photo: Eugénia Rodrigues

the poor, the Holy House hospital also treated private patients, mainly crew from private vessels, at a time when the slave trade was expanding.[86] This small hospital was installed on the ground floor of the building adjoining the Misericórdia church and had specialized compartments and a chapel.[87] The system of terraces and pipes to use rainwater, which is still visible, likewise indicates the existence of a cistern (Figure 8.7). This initiative appears to have been part of the governor's policy of promoting the Holy House since he was also the trustee of the brotherhood, and not just due to the notions of medical exclusivity circulating in Europe that affirmed that hospitals should be free from the task of looking after the poor.[88] The Misericórdia hospital operated for a few years since, in 1789, the brotherhood and a new governor felt there was a shortage of medical staff to regularly tend to the sick and hence the institution was "a pitiful depository, where many of those miserable patients died in a few days." An agreement was then established with the Royal Treasury by which patients entrusted to the Misericórdia began to be treated at the royal hospital in exchange for payment.[89]

These reforms did not silence critics. In 1780, Governor José Vasconcelos e Almeida (1779–81) stated that the "hospital was so horrible, that it seemed more suitable to bury the dead than for patients to recover their health there." Considering the building to be limited and the infirmaries "damp and unsuitable, located at ground level," he began to renovate existing spaces and to build two new halls on the upper floor.[90] The theory that "corrupt" air was a contributing factor of disease made the provision of proper air circulation and adequate ventilation through window slits imperative, which could not be achieved in ground-floor infirmaries. In addition to intervening in the building, hospital rules adopted measures to eliminate the causes of the diseases that ran rife there, believing that it was impossible to heal patients where the "atmosphere was putrid or impregnated with rotten and contagious particles." Thus, the chief physician was to pay special attention to "ventilation and circulating" the air, "issuing orders to always keep a suitable number of windows open pursuant to the weather and the diseases." Air circulation was complemented by the daily burning of

aromatics "to correct rotten smells that are continually exuded by the bodies and excrement of many patients, so as to always keep them in a healthy state."[91] As in Europe, ventilation and perfuming became mandatory practices to eliminate bad air and make edifices healthy.[92]

Subsequent governors continued the building's refurbishment even though the structure was deemed unsuitable. For instance, Lieutenant-Colonel Vicente da Maia e Vasconcelos, the commander of the infantry regiment of Mozambique and interim governor (1781–2), concluded that the works had been "designed by someone who had no experience of troops or hospitals." He highlighted the absence of a prison for criminal patients, who at the time were treated at the fortress, as well as the lack of halls to cure syphilis, a dispensary, and other essential rooms.[93] The work extended through the 1780s, with slow progress due to limited funding.[94] Small works to adapt the structure were carried out later, such as to the installation of a pharmacy in 1795.[95] Thus, the small hospital of the late seventeenth century was transformed into a complex of larger buildings, especially when considering the scale of buildings on the island, and had acquired specialized spaces, in keeping with changes in medical practices

These architectural alterations were accompanied by the preparation of successive highly detailed regulations (1779, 1783, and 1788), aimed at political control of the hospital and its medicalization in keeping with trends at European hospitals.[96] For example, the 1788 regulations were prepared with the involvement of the chief physician João Domingos Toscano (1788–93), a native of Piedmont, Italy, where public control of healthcare was well established. This set of norms—designed to adapt the patients' treatment to the "lights of medicine"—established greater differentiation and specialization of spaces aimed at medical efficiency. While convalescents were kept in their own hall, patients were now organized into two infirmaries, one for medicinal treatment and the other for surgery. Within each infirmary they were distributed according to illnesses to avoid epidemics and to facilitate the work of the doctors.[97] Grouping patients according to diseases provided a spatial structure that contributed toward changing the medical focus, which instead of highlighting the individual patient now focused on the disease.[98] However, it is important to note that these changes were not linear and were often not institutionalized. Their application depended considerably on the incumbent governor and the chief physician, who was now responsible for managing the hospital, and hence criticism and disputes relating to the hospital continued throughout the early modern period.[99]

Available sources suggest that no major changes were made to the structure of the hospital building until the early decades of the nineteenth century. In 1821, the governor reorganized the space to promote greater specialization and patient monitoring. Soldiers, who comprised about 82 percent of the patients, now occupied the upper floor, known as the military hospital, while civilians were relegated to the ground floor—perceived as being more "damp" and "dark"—which began to be called the Misericórdia hospital. According to the governor, the hospital had 80 beds that were each 7.5 spans (1.65 meters) away from each other. This arrangement of the beds sought to reduce contagion among patients, which was in keeping with the organization of European hospitals, where clinics required space to conduct medical examinations on patients.[100] The governor simultaneously made it compulsory for nurses, the pharmacist, and his assistant to reside at the hospital.[101]

A plan of the hospital dating from 1821 reveals that the building continued to be organized around the large quadrangle courtyard. Another external courtyard expanded the space for patients to recuperate. These outdoor areas with gardens were understood to have a benign influence on health. Two wings on the ground floor were allocated for the Misericórdia hospital. The pharmaceutical services were distributed over the third wing: the pharmacy and its affiliated spaces (the kitchen or laboratory and the storehouse), along with the lodgings for the incumbent pharmacist and his assistant. Accommodations for the nurse and his assistant

were located in the last wing that adjoined the church, as was the pantry, a guardhouse, and the cistern. This wing was connected to the kitchen located outside behind the infirmary by means of a doorway. On the upper floor, four halls accommodated military patients, with a small room that was reserved for the nurse. The cells of the Hospitallers were placed in the other two wings.[102] The hospital did not limit itself only to healing patients. For example, the Genoese doctor Luís Vicente de Simoni, another native from the Italian Peninsula who served as chief physician between 1819 and 1821, mentioned that he researched diseases by carrying out autopsies on cadavers, probably in a small room.[103] Moreover, new medical professionals were also occasionally given training at the hospital.[104]

Shortly thereafter, in 1826, Governor Sebastião Xavier Botelho (1825–9) carried out new works on the building—to all appearances, mere repairs—and he reorganized medical services in Mozambique. First, he reopened the erstwhile hospital at the Holy House of Mercy where poor patients were transferred, freeing up space at the royal hospital. Secondly, since the number of Hospitallers had diminished significantly, he transformed a part of the upper floor into an infantry barracks. He separated the hospital infirmaries between high-ranking officers and lower ranks, accentuating the aforementioned social distinction. At this time there were "two airy halls for convalescents." The number of beds in the infirmaries rose to two hundred, probably achieved by reducing the space between them. The hospital retained its military features. No ward was set up to accommodate women; it was only in the 1830s that they were admitted to the infirmaries.[105] Thus, throughout the early modern period the gendered differentiation prevailing in European hospitals was not replicated on Mozambique Island. According to the governor, after these changes, the hospital was a good building with a beautiful front.[106] While rooted in local architecture styles, the hospital's shape resulted from the successive plans of several social actors, such as governors, religious, military officials, and doctors, whose ideas about healthcare were based mainly on European culture.

Urban improvements were also carried out to ensure that patients had healthy surroundings, as practiced in Europe. In the eastern area of the hospital African people built *macuti* houses, giving rise to the new neighborhood of Marangonha. In this space wells providing brackish water and some tanks were built; African people would wash their clothes in these tanks. However, the dirty water would then run off directly into the ground "and with no outlet would stagnate, become putrid, infest the air and cause serious ailments, despite the strong winds that blew over the island every evening." In 1825, the governor ordered channels to be dug that would divert the water into a drain that led to the sea, making this site "usable and healthy."[107] According to the ideas about the environment and its effects on human health, the well-drained ground would reduce the presence of miasma at the hospital site. This measure was part of the politics to control the urban space that was "perhaps the most dangerous environment for the population."[108] In fact, the government's interventions in the hospital buildings and surroundings were part of a broader operation to reshape the urban arrangement.

These changes occurred at a time of well-known urban growth that extended the southern limit of the stone quarter up to the hospital. The new stone and lime neighborhood of São João, established in the 1770s, now occupied all the space up to the hospital, while *macuti* houses spread out to the east at the Missanga quarter (Figure 8.8). What had once been an open field had become a square located east of the hospital. During the early decades of the nineteenth century, the hospital was the most impressive building on Mozambique Island, as noted by British surgeon James Prior in 1812: "At the western extremity is a capacious hospital for the sick, which, at certain seasons, are sometimes numerous."[109] In short, the successive expansions and restructuring of the hospital had transformed it into a landmark in the city. In a period when the growth of commerce, especially slave trading, drew many people to the island, the large hospital demonstrated the power of the Portuguese Crown to the local inhabitants and foreign visitors.

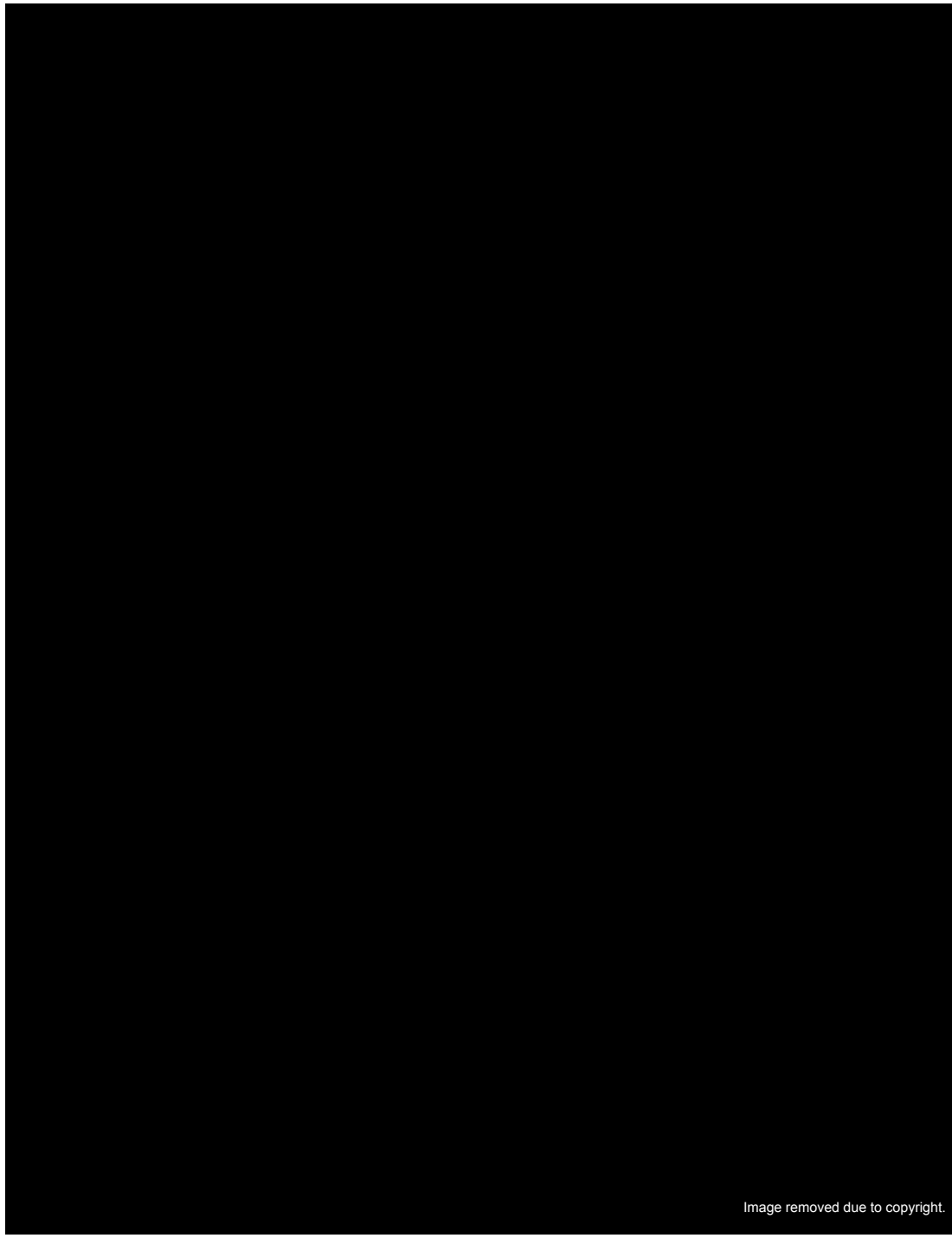

Figure 8.8 An early nineteenth-century map of Mozambique Island that shows how the stone quarter extended up to the hospital buildings (N) as well as the *macuti* houses to the east. "Plano da ilha de Moçambique," Sargento-mor e comandante do corpo de artilharia, Carlos José dos Reis e Gama. 1802. Arquivo Histórico Ultramarino, Lisbon. Courtesy of AHU

Conclusion

The Portuguese Crown established a royal hospital on Mozambique Island in the early sixteenth century to serve the commercial and military interests of its empire in the Indian Ocean. As the island became the main port of the Portuguese in Southeast Africa and the capital of their colony, the hospital achieved increasing importance. The Portuguese hospitals provided the template for the construction of other hospitals in the empire and on Mozambique Island. The hospital was crucial in offering European models of assistance to residents and soldiers in the Portuguese colony, as well as to those who called in at the island on voyages between Europe and India. In this context, the patients were mainly soldiers, including those residents on the island as well as those in transit. However, it is important to stress that the initial European army changed over time to include individuals of Goan, African, and mixed-race origin. Thus, the hospital was not an enclave for Europeans even though they constituted most of the patients, and there were asymmetrical relations of power between these groups. The interaction between these cultures influenced the hospital's daily life and medical practices. The royal hospital was always funded by the Portuguese Crown even though it underwent diverse forms of administration. In the 1760s it was supplemented by the hospital run by the Holy House, sponsored by this lay brotherhood. From the time the royal hospital was established, Renaissance European models of healthcare for patients based on charity and religious support seem to have dominated in Mozambique, even though the provision of medicines was a Crown concern. In 1682, the transfer of the hospital's administration to the Brothers Hospitallers strengthened the association between healthcare and religious institutions, in contrast to what occurred in Europe. With the emergence of medicalization in the eighteenth century, the hospital was harshly criticized, and its management was transferred from the religious to the Royal Treasury. Nevertheless, healthcare continued to be shaped by funding constraints, as most political decision-makers sought to keep expenditure low.

While continuing to act as a symbol of colonial power, throughout the early modern period the royal hospital was located in diverse sites, establishing different relationships with the town. It was initially placed at the heart of the urban matrix, being closely linked to the everyday activities of residents and to the port that connected Mozambique Island to other worlds. It was constructed alongside the first small fortress the Portuguese built on the island, outside the surrounding walls, and was associated with the port and military facilities from which most patients arrived. When its location was changed to a field south of the settlement in 1682 the hospital lost this close link with the town, which only resumed when it expanded southward from the final decades of the eighteenth century onward. At this time the hospital marked the southern edge of the stone and lime quarters. Conversely, the Holy House hospital, which operated intermittently, kept its facilities in the stone and lime building next to the brotherhood church in the center of the city.

As has been stated in this chapter, little is known about the features of the buildings of the former hospitals located at the heart of the settlement. In the initial organization of their colonial settlement on Mozambique Island, the Portuguese privileged their homeland paradigms of architecture and urban landscapes. Yet sources suggest that European models evolved toward a local architecture, adapted to the materials and techniques available in the region, and utilized aesthetics that reflected mainly Swahili and Indo-Portuguese influences. In fact, the transfer of the European paradigms to the colonial settings carried important differences between the diverse regions to which they were transported. It is important to consider the agency of local actors along with the movement of architectural cultures between different worlds. Due to its role as a seaport that was related to the ports of the broader Indian Ocean and its capacity to attract different peoples, locality on Mozambique Island was produced through the lasting interconnection with other worlds.

The first of these hospital edifices was a precarious wooden structure that was replaced by a rectangular stone building with a church. This latter structure was of considerable size to accommodate a number of

patients comparable to those housed in military hospitals in Renaissance Europe. There is scarce information about the features of the hospital that replaced this building after it fell into disrepair. The new edifice was erected during the 1630s in the center of the town, albeit at an unknown location. The building, if not its antecessor, was certainly based on local construction techniques, adapted to the use of coral limestone blocks and cemented with a mortar made of sand, coral, and lime.

Unlike the earlier constructions, designed specifically to host patients, the last royal hospital of the early modern period was established in 1682 in existing residential houses, which were augmented by a church and a residence for the friars. These buildings were undoubtedly built in the same manner as the "stone and lime" houses in the city, as were the wings that were added later. The changes that took place over the course of the eighteenth century occurred in response, first, to the need to expand the space for housing patients and, subsequently, to adapt the hospital's structure to the evolution of medical theories. Grappling with the challenges of the medicalization of healthcare, the dissemination of environmental perspectives on disease and the adoption of theories associating strong states with healthy subjects, by the mid-eighteenth century political decisions on whether to construct a new hospital in an environment considered to be healthier or to enlarge the existing building also depended on available funding. This interplay resulted in the decision to expand the old edifice with the sequential construction of new infirmaries and specialized halls. As this chapter has shown, medical specialization entailed a fragmentation of the space and the creation of differentiated rooms for patients, medical procedures, and lodging for hospital staff in a manner similar to the ongoing contemporaneous process in Europe. The enlargement of the hospital changed the building's layout, altering its formerly L-shaped plan, including the church, to a square edifice set around a courtyard, with the addition of an upper floor. Due to these changes, the royal hospital became a key visual landmark on the island, for its facade and its dimensions.

Despite the scant information available on the specific features of the buildings, a study of the hospitals on Mozambique Island reveals how multiple cultural influences—Portuguese, mainland African, Swahili, and Indian—mingled together in the town, creating a singular architecture. It also paves the way for researching comparative perspectives on the ways in which European models were transposed to imperial territories and articulated with local models of construction, giving rise to buildings with unique characteristics. The study of hospitals on Mozambique Island unveils how circulation of European models of hospital architecture has been interpreted and localized in non-European worlds.

Notes

1. For more about changes in medicine and hospitals, see, for example, Guenter B. Risse, *Mending Bodies, Saving Souls. A History of Hospitals* (New York: Oxford University Press, 1999); Mary Lindemann, *Medicine and Society in Early Modern Europe* (Cambridge: Cambridge University Press, 2010); Laurence I. Conrad et al., eds., *The Western Medical Tradition: 800 BC–1800 AD* (Cambridge: Cambridge University Press, 1995); John Henderson, *The Renaissance Hospital: Healing the Body and Healing the Soul* (New Haven: Yale University Press, 2006); *The Impact of Hospitals, 300–2000*, ed. John Henderson, Peregrine Horden, and Alessandro Pastore (Oxford: Peter Lang, 2007); Michel Foucault, "The Politics of Health in the Eighteenth Century," in Michel Foucault, *Power/Knowledge*, ed. Colin Gordon (New York: Pantheon Books, 1980), 166–82; Michel Foucault, *The Birth of the Clinic* (London: Routledge, 2003). On architectural changes in Western World hospitals, see Harriet Richardson, ed., *English Hospitals, 1660–1948: A Survey of Their Architecture and Design* (Swindon: Royal Commission on the Historical Monuments of England, 1998); Jeanne Kisacky, *Rise of the Modern Hospital: An Architectural History of Health and Healing, 1870–1940* (Pittsburgh: University of Pittsburgh Press, 2017); Christine Stevenson, *Medicine and Magnificence: British Hospital and Asylum Architecture, 1660–1815* (New Haven: Yale University Press, 2000).
2. See, for example, Dana Arnold, *The Spaces of the Hospital: Spatiality and Urban Change in London 1680–1820* (New York: Routledge, 2013).

3. David Arnold, "The Place of 'the tropics' in Western Medical Edeas since 1750," *Tropical Medicine and International Health* 2, no. 4 (1997): 303–13.
4. Luís A. de Oliveira Ramos, "Do Hospital Real de Todos os Santos. A história hospitalar portuguesa," *Revista da Faculdade de Letras* 10 (1993): 333–50; Paulo Pereira, ed., *O Hospital Real de Todos os Santos: 500 Anos. Catálogo* (Lisbon: Câmara Municipal de Lisboa, 1993); António Fernando Bento Pacheco, "De Todos-Os-Santos a São José: Textos e Contextos do 'esprital grande de Lixboa'" (MA diss., New University of Lisbon, 2008); Jon Arrizabalaga, "Medical Theory and Surgical Practice: Coping with the French Disease in Early Renaissance Portugal and Spain," in *Hospital Life: Theory and Practice from the Medieval to the Modern*, ed. Laurinda Abreu and Sally Sheard (Bern: Peter Lang, 2013), 93–117; Laurinda Abreu, "Training Health Professionals at the Hospital de Todos os Santos (Lisbon) 1500–1800," in *Hospital Life*, 119–37. On Italian hospitals, see Henderson, *The Renaissance Hospital*; Philip Foster, "Per il disegno dell'Ospedale di Milano," *Arte Lombarda* 38, no. 39 (1973): 1–22; Renzo Baldasso, "Function and Epidemiology in Filarete's Ospedale Maggiore," in *Medieval Hospital and Medical Practice*, ed. Barbara S. Bowers (Aldershot: Ashgate, 2007), 107–22.
5. Lisbeth de Oliveira Rodrigues, "Os hospitais portugueses no Renascimento (1480–1580): o caso de Nossa Senhora do Pópulo das Caldas da Rainha" (Ph.D. diss., University of Minho, 2013); André Costa Aciole da Silva, "'*Queremos e mandamos … que o dito hospital … cure os enfermos …*': poder e medicina no hospital de Nossa Senhora do Pópulo (séc. XVI–XVII)" (Ph.D. diss., Federal University of Goiás, 2015).
6. Joana Maria Balsa Carvalho de Pinho, "As Casas da Misericórdia: confrarias da Misericórdia e a arquitectura quinhentista portuguesa" (Ph.D. diss., University of Lisbon, 2012).
7. Augusto Moutinho Borges, *Reais Hospitais Militares em Portugal (1640–1834)* (Coimbra: Imprensa da Universidade de Coimbra, 2009).
8. For some studies, see Ermelinda Pataca, "Entre a engenharia militar e a arquitetura médica: representações de Alexandre Rodrigues Ferreira sobre a cidade de Belém no final do século XVIII," *História, Ciências, Saúde. Manguinhos* 25, no. 1 (2018): 89–113; Artur Teodoro de Matos, "A Glimpse of the Hospitallers of Diu in the late 18th Century," in *Goa and Portugal: History and Development*, ed. Charles J. Borges, Oscar Guilherme Pereira, and Hannes Stubbe (New Delhi: Concept Publishing, 2000), 231–7; Fátima da Silva Gracias, *Health and Hygiene in Colonial Goa, 1510–1961* (New Delhi: Concept Publishing, 1994); Cristiana Bastos, "Hospitais e sociedade colonial. Esplendor, ruína, memória e mudança em Goa," *Ler História* 58 (2010): 61–80; Cristiana Bastos, "Together and Apart: Catholic Hospitals in Plural Goa," in *Hospitals in Iran and India, 1500–1950*, ed. Fabrizio Speziale (Leiden: Brill, 2012), 133–57.
9. Banha de Andrade, "O hospital de Moçambique durante a administração dos Almoxarifes," *Portugal em África* 13, no. 78 (1956): 357–70; Banha de Andrade, "O Hospital de Moçambique durante a administração dos religiosos de S. João de Deus," *Portugal em África* 13, no. 77 (1956): 261–2; Banha de Andrade, "Os Hospitaleiros de S. João de Deus na Índia," *Portugal em África* 14, no. 80 (1957): 107–19; Banha de Andrade, "Fundação do Hospital Militar de S. João de Deus, em Moçambique," *Stvdia* 1 (1958): 77–89. For studies focusing on hospital buildings, see Pedro Quirino da Fonseca, "Algumas descobertas de interesse histórico-arqueológico na ilha de Moçambique," *Monumenta* 8 (1972): 55–71; Pedro Dias, "Algumas Misericórdias no Estado da Índia. Apontamentos para a história da construção dos seus edifícios," in *A Misericórdia de Vila Real e as Misericórdias no Mundo de Expressão Portuguesa*, ed. Natália Marinho Ferreira-Alves (Porto: CEPESE, 2011), 555–62.
10. For more on hospitals in the Portuguese Indian Ocean Empire, see Germano de Sousa, *História da Medicina Portuguesa durante a Expansão* (Lisbon: Temas e Debates, 2013), 149–95; Gracias, *Health and Hygiene*; Bastos, "Hospitais e sociedade"; Bastos, "Together and Apart."
11. Michael N. Pearson, *Port Cities and Intruders. The Swahili Coast, India, and Portugal in the Early Modern Era* (Baltimore: Johns Hopkins University Press, 1998); Malyn Newitt, "Mozambique Island: The Rise and Decline of a Colonial Port City," in *Portuguese Colonial Cities in the Early Modern World*, ed. Liam Matthew Brockey (Farnham: Ashgate, 2008), 105–27.
12. C. R. Boxer, "Moçambique Island and the 'carreira da Índia,'" *Stvdia* 8 (1961): 95–132; Malyn Newitt, *A History of Mozambique* (London: Hurst & Company, 1995), 1–30; Newitt, "Mozambique Island."
13. Eric Axelson, *Portuguese in South-East Africa 1600–1700* (Johannesburg: Witwatersrand University Press, 1969), 15–29; Newitt, *A History*, 157–72; Newitt, "Mozambique Island"; Eugénia Rodrigues, *Portugueses e Africanos nos Rios de Sena. Os Prazos da Coroa em Moçambique nos Séculos XVII e XVIII* (Lisbon: Imprensa Nacional-Casa da Moeda, 2013), 123–5.
14. Alexandre Lobato, "Ilha de Moçambique: Notícia Histórica," *Arquivo* 4 (1988): 79–83; Newitt, "Mozambique Island."

15. Eugénia Rodrigues, "Moçambique e o Índico: a circulação de saberes e práticas de cura," *Métis: História & Cultura* 19 (2011): 15–42; Eugénia Rodrigues, "Crossing the Indian Ocean: African Slaves and Medical Knowledge in Goa," in *Learning from Empire: Medicine, Knowledge and Transfers under Portuguese Rule*, ed. Poonam Bala (Newcastle upon Tyne: Cambridge Scholars Publishers, 2018), 74–96.
16. Gaspar Correia, *Lendas da Índia* (Coimbra: Imprensa da Universidade de Coimbra, 1921), 785; Boxer, "Moçambique Island," 105.
17. Manuel Godinho de Herédia, *O lyvro de plantaforma das fortalezas da India* (Lisbon: Ministério da Defesa, 1999).
18. João dos Santos, *Etiópia Oriental e Vária História de Cousas Notáveis do Oriente* (Lisbon: CNPCDP, 1999), 256–7.
19. "Carta do Irmão Jácome de Braga S.J., Goa, 2 de Dezembro de 1563," in *Documentação para a história do padroado português do Oriente. India*, vol. 9, ed. A. da Silva Rego (Lisbon: AGU, 1953), 214. On European military hospitals, see Lindemann, *Medicine and Society*, 186.
20. Eugénia Rodrigues, "As Misericórdias de Moçambique e a administração local, c. 1606–1763," in *O reino, as ilhas e o mar oceano. Estudos em homenagem a Artur Teodoro de Matos*, vol. 2, ed. Avelino de Freitas de Menezes and João Paulo Oliveira e Costa (Lisbon: CHAM, 2007), 709–29. On the role of Misericórdias in the administration of hospitals in Portugal, see Abreu, "Training Health Professionals," 125–9. For more about Misericórdias, see Isabel dos Guimarães Sá, *Quando o rico se faz pobre: Misericórdias, caridade e poder no império português 1500–1800* (Lisbon: CNCDP, 1997).
21. Boxer, "Moçambique Island," 106–7.
22. Ibid., 100–5.
23. Sousa, *História da Medicina*, 112.
24. Lindemann, *Medicine and Society,* 159–60.
25. Boxer, "Moçambique Island"; Sousa, *História da Medicina*, 111–14.
26. For some testimonies, see Boxer, "Moçambique Island." On hospitals in Goa, see Bastos, "Hospitais e sociedade"; Bastos, "Together and Apart"; Gracias, *Health and Hygiene*.
27. On All Saints Hospital in Lisbon, see Pacheco, "De Todos-Os-Santos a São José."
28. "Carta régia,13 Março de 1562," *Arquivo Português Oriental* 5, no. 2 (1865): 501.
29. J. Worth Estes, "Food as Medicine," in *The Cambridge World History of Food*, vol. 2, ed. Kenneth F. Kiple and Kriemhild Conèe Ornelas (Cambridge: University of Cambridge Press, 2000), 1534–53; Jean-Louis Flandrin and Massimo Montanari, eds., *Histoire de l'Alimentation* (Paris: Fayard, 1996); Lindemann, *Medicine and Society*, 12–17.
30. Boxer, "Moçambique Island," 107; Andrade, "Fundação do Hospital"; Rodrigues, "Misericórdias de Moçambique."
31. Risse, *Mending Bodies,* 218.
32. Axelson, *Portuguese*, 117–19.
33. The Brothers Hospitallers of Saint John of God also run hospitals in Spain and Italy. Borges, *Reais Hospitais*; Andrade, "Os Hospitaleiros de S. João de Deus."
34. "Alvará do príncipe regente D. Pedro," March 24, 1681, Arquivo Histórico Ultramarino (Overseas Historical Archive, Lisbon; hereafter AHU), Conselho Ultramarino, cod. 1545, fol. 2–2v.
35. On European hospitals, see Lindemann, *Medicine and Society*, 163.
36. "Provisão do vice-rei do Estado da India," January 3, 1682, AHU, Conselho Ultramarino, cod. 1545, fols. 2v–3.
37. "Carta do príncipe regente D. Pedro para o vice-rei D. Pedro de Almeida," March 20, 1680, AHU, Índia, cx. 56; Frei Bartolomeu dos Mártires, "Memoria Chorografica da Provincia ou Capitania de Mossambique na Costa d'Africa Oriental conforme o estado em que se encontrava no anno de 1822," 1823, Arquivo Histórico de Moçambique (Mozambique Historical Archive, Maputo; hereafter AHM), SE aIII P 9, no. 216a.
38. Borges, *Reais Hospitais*.
39. The Swahili stone domestic architecture developed from the fifteenth century onward. However, it was only in the eighteenth century that stone houses became common in Swahili cities. Andrew Petersen, *Dictionary of Islamic Architecture* (London and New York: Routledge, 2002), 75–6.
40. *Mecrusse* is a very hard wood, which was durable and resistant to the lime used to build houses and the termites that abounded in the region.
41. For more about techniques of construction on Mozambique Island, see Pedro Quirino da Fonseca, "Breves notas sobre a evolução da habitação e construção em Moçambique," *Monumenta* 4 (1968): 45–8; *Ilha de Moçambique. Relatório–Report 1982–85* (Maputo: Secretaria de Estado da Cultura—Moçambique & Arkitektskolen i Aarhus—Danmark, n.d). On Swahili towns, see Prita Meier, *Swahili Port Cities: The Architecture of Elsewhere* (Bloomington, IN: Indiana University Press, 2016).

42. Henry Salt, *A voyage to Abyssinia, and Travels Into the Interior of that Country, Executed Under the Orders of the British Government, in the Years 1809 and 1810* (Philadelphia: M. Carey; Boston: Wells & Lilly, 1816), 29.
43. *Ilha de Moçambique*, 59. See also Alexandre Lobato, *Ilha de Moçambique. Panorama Histórico* (Lisbon: AGU, 1967).
44. "Carta do príncipe regente D. Pedro para o vice-rei," March 20, 1680, AHU, Índia, cx. 56; Andrade, "Fundação do Hospital."
45. "Cópia do assento para o vedor da fazenda geral mandar uma botica de medicina e camas para a enfermaria e mais fabricas necessárias para o hospital novo de Mossambique," November 26, 1681, AHU, Conselho Ultramarino, cod. 1545, fol. 6–6v; "Lista das cousas enviadas de Goa para o novo hospital de Moçambique," AHU, India, cx. 56.
46. For more on the pharmacy, see Andrade, "Fundação do Hospital."
47. "Carta de Frei Vicente da Encarnação para o rei," December 23, 1758, AHU, Moçambique, cx. 15, doc. 39. See also Andrade, "Fundação do Hospital."
48. Risse, *Mending Bodies*.
49. On hospitals in Portugal, see Borges, *Reais Hospitais*.
50. "Carta de Frei Vicente da Encarnação para o rei," December 23, 1758, AHU, Moçambique, cx. 15, doc. 39.
51. "Provisão da Igreja da Saúde," August 7, 1711, AHU, Conselho Ultramarino, cod. 1545, fols. 20v–21.
52. The Portuguese Crown initially bought ten slaves to work in the hospital, but this number varied over time. "Provisão do conde vice-rei," January 3, 1682, AHU, Conselho Ultramarino, cod. 1545, fols. 4v–6.
53. For more on houses built in lime and stone and *macuti*, see *Ilha de Moçambique.*
54. Quoted by Boxer, "Moçambique Island," 109. See also Andrade, "O Hospital de Moçambique durante a administração dos religiosos de S. João de Deus," 261–2.
55. Quoted by Andrade, "O Hospital de Moçambique durante a administração dos religiosos de S. João de Deus," 261–2.
56. The date above the door appears on a hospital plan from 1847. "Plano do Hospital Militar de Moçambique," October 9, 1847, AHU, Secretaria de Estado da Marinha e do Ultramar, Direcção Geral do Ultramar, cx. 1507.
57. "Cópia do assento para o feitor de Mossambique do dinheiro da sua receita dar aos religiosos de São João de Deos quinhentos cruzados de ajuda de custo por cada lanço da caza da infirmeria que levantarem," January 14, 1703, AHU, Conselho Ultramarino, cod. 1545, fol. 13.
58. "Carta do governador Francisco de Melo e Castro para o secretário de estado," July 28, 1753, AHU, Conselho Ultramarino, cod. 1310, fol. 11v; "Carta do governador Francisco de Melo e Castro para o secretário de estado," December 30, 1753, AHU, Moçambique, cx. 9, doc. 32; "Carta de Frei Vicente da Encarnação para o rei," December 23, 1758, AHU, Moçambique, cx. 15, doc. 39.
59. "Carta topografica da ilha de Mossambique," 1754, Capitão de infantaria e engenheiro Gregório Taumaturgo de Brito, AHU, Cartografia Manuscrita, D.518.
60. Lindemann, *Medicine and Society*, 166–7.
61. Andrade, "O hospital de Moçambique durante a administração dos Almoxarifes."
62. George Rosen, *From Medical Police to Social Medicine: Essays on the History of Health Care* (New York: Science History Publications, 1974); Roy Porter, "The Eighteenth Century," in *The Western Medical Tradition*, 465–6; Risse, *Mending Bodies*, 236–43.
63. Laurinda Abreu, *Pina Manique. Um reformador no Portugal das Luzes* (Lisbon: Gradiva, 2013).
64. Ludmilla Jordanova, "Earth Science and Environmental Medicine: The Synthesis of the Late Enlightenment," in *Images of the Earth: Eessay in the History of the Environmental Sciences*, ed. Ludmilla Jordanova and Roy Porter (Chalfont St. Giles: British Society for the History of Science, 1979), 119–46; Anthony Kessel, *Air, the Environment and Public Health* (Cambridge: Cambridge University Press, 2010); Lindemann, *Medicine and Society*, 109–12.
65. Arnold, "The Place of 'the tropics.'"
66. See, for example, David Arnold, "Introduction. Tropical Medicine before Manson," in *Warm Climates and Western Medicine: The Emergence of Tropical Medicine, 1500–1900*, ed. David Arnold (Amsterdam and Atlanta: Rodopi 1996), 1–19; David Arnold, *Science, Technology and Medicine in Colonial India* (Cambridge: Cambridge University Press, 2004), 50–76; Mark Harrison, *Climates and Constitutions: Health, Race, Environment and British Imperialism in India, 1600–1850* (New Delhi: Oxford University Press, 1999).
67. For similar topics in the British Empire see, for example, Pratik Chakrabarti, "'Neither of meate nor drink, but what the Doctor alloweth': Medicine amidst War and Commerce in Eighteenth-Century Madras," *Bulletin of the History of Medicine* 80, no. 1 (2006): 1–38.
68. Lindemann, *Medicine and Society*, 160; Risse, *Mending Bodies*, 5.

69. "Carta do governador Francisco de Melo e Castro para o secretário de estado," December 20, 1753, AHU, Moçambique, cx. 9, doc. 4. See also, "Carta do governador Francisco de Melo e Castro para o secretário de estado," July 28, 1753, AHU, Conselho Ultramarino, cod. 1310, fol. 11v.
70. "Carta de Frei Vicente da Encarnação para o rei," December 23, 1758, AHU, Moçambique, cx. 15, doc. 39. See also Andrade, "O hospital de Moçambique durante a administração dos Almoxarifes."
71. "Carta do cirurgião José Álvares," December 22, 1758, AHU, Moçambique, cx. 15, doc. 39.
72. On Europe, see, for example, Lindemann, *Medicine and Society*, 161; Foucault, "The Politics of Health," 180.
73. On hospital in Lisbon, see Abreu, "Training Health Professionals."
74. "Consulta do Conselho Ultramarino," October 14, 1754, AHU, Moçambique, cx. 10, doc. 14. See also "Carta régia," April 14, 1755, AHU, Conselho Ultramarino, cod. 1327, fol. 155.
75. "Instrução ao governador de Moçambique Calixto Rangel Pereira de Sá," May 7, 1761, AHU, Moçambique, cx. 19, doc. 63-A.
76. Rodrigues, "Moçambique e o Índico."
77. Arnold, *Spaces of the Hospital*, 7. See also Lindemann, *Medicine and Society*, 161
78. "Carta do governador Baltazar Pereira do Lago para o secretário de estado," August 24, 1766, AHU, Moçambique, cx. 25, doc. 69.
79. "Instrução do governador Baltazar Manuel Pereira do Lago ao seu sucessor," AHU, Conselho Ultramarino, cod. 1325, fols. 176–9. On hospitals in Portugal, see Abreu, "Training Health Professionals."
80. Richardson, *English Hospitals, 1660–1948*, 15.
81. "Instrução do governador Baltazar Manuel Pereira do Lago ao seu sucessor," AHU, Conselho Ultramarino, cod. 1325, fols. 176–9.
82. Risse, *Mending Bodies*, 7.
83. "Instrução do governador Baltazar Manuel Pereira do Lago ao seu sucessor," AHU, Conselho Ultramarino, cod. 1325, fols. 176–9. See also "Carta do governador Moçambique Baltazar Pereira do Lago para o secretário de estado," August 20, 1766, AHU, Moçambique, cx. 26, doc. 83
84. Ibid.
85. The Jesuits had been expelled from Portugal and its empire in 1759.
86. "Bando do governador António de Melo e Castro," June 8, 1789, AHU, Moçambique, cx. 58, doc. 16. For more about the slave trade, see José Capela, *O tráfico de escravos nos portos de Moçambique, 1733–1904* (Porto: Afrontamento, 2002).
87. "Certidão passada por Frei Bernardo da Anunciação," June 20, 1773, AHU, Conselho Ultramarino, cod. 1332, fols. 111v–12.
88. On Europe, see Lindemann, *Medicine and Society*, 161.
89. "Alvará do governador António de Melo e Castro," June 5, 1789, AHU, Moçambique, cx. 58, doc. 14.
90. "Carta do governador José Vasconcelos e Almeida para o Marquês de Angeja," August 26, 1780, AHU, Moçambique, cx. 34, doc. 53. See also "Carta do governador José Vasconcelos e Almeida," February 21, 1780, AHU, Conselho Ultramarino, cod. 1339, fol. 236.
91. "Regimento do Hospital," December 30, 1788, AHU, Moçambique, cx. 56, doc. 72. See also "Regimento do Hospital," August 1, 1783, AHU, Moçambique, cx. 43, doc. 12.
92. See, for example, Christian Cheminade, "Architecture and Medecine in the Late 18th Century: Ventilation in Hospitals, from the Encyclopédie to the Debate on the Hôtel-Dieu in Paris," *Recherches sur Diderot et sur l'Encyclopédie* 14 (1993): 85–109; Risse, *Mending Bodies*, 151, 242–3.
93. "Carta do governador interino Vicente Caetano de Maia e Vasconcelos para o secretário de estado," August 18, 1781, AHU, Conselho Ultramarino, cod. 1345, fols. 96v–100v. Syphilis treatments required a mercury pomade to be applied all over the patient's body in a heated room in order to induce sweating and thus expel noxious humors. Jon Arrizabalaga, John Henderson, and Roger French, *The Great Pox. The French Disease in Renaissance Europe* (New Haven and London: Yale University Press, 1997). All Saints Hospital in Lisbon also had a pox house from the early sixteenth century. Arrizabalaga, "Medical Theory," 94. The same kind of medicine was used in hospitals in colonial India. Erica Wald, *Vice in the Barracks: Medicine, the Military and the Making of Colonial India, 1780–1868* (Basingstoke: Palgrave Macmillan, 2014).
94. "Representação do governador interino Vicente da Maia Caetano de Vasconcelos aos outros governadores," January 17, 1784, AHU, Conselho Ultramarino, cod. 1352, fols. 6v–8v; "Regimento do Hospital," December 30, 1788, AHU, Moçambique, cx. 56, doc. 72.

95. "Carta do governador D. Diogo de Sousa para o secretário de estado," August 22, 1794, AHU, Moçambique, cx. 68, doc. 60.
96. Lindemann, *Medicine and Society*, 159–61.
97. "Regimento do Hospital," December 30, 1788, AHU, Moçambique, cx. 56, doc. 72.
98. Foucault, *The Birth*; Kisacky, *Rise of the Modern Hospital*, 18.
99. For more about the profile of the medical staff, see Rodrigues, "Moçambique e o Índico"; Eugénia Rodrigues, "Eating and Drinking at the Royal Hospital of Mozambique Island: Medicine and Diet Change between the End of the 18th and the Early 19th Century," *Afriques. Débats, méthodes et terrains d'histoire* 5 (2014), accessed January 30, 2015. http://afriques.revues.org/1553.
100. Foucault, *The Birth*, 139–87. However, the pattern of separate beds had already been adopted in All Saints Hospital in Lisbon during the sixteenth century. Pacheco, "De Todos-Os-Santos a São José," 50.
101. "Carta do governador João Manuel da Silva para o secretário de estado," November 27, 1821, AHU, Moçambique, cx. 181, doc. 121. On the number of the military patients, see Rodrigues, "Eating and Drinking."
102. "Planta do Hospital Militar da Cidade de Mossambique," n.a. [Xavier Shmid von Belliken], n.d. [1821], Ministério da Defesa, Direcção de Infra-estruturas do Exército (Ministry of Defense, Directorate of Infrastructures of the Army, Lisbon), GEAM/DIE, 1218–2A-24A-111.
103. Luís Vicente de Simoni, "Tratado Medico sobre o Clima e Enfermidades de Moçambique," 1821, Biblioteca Nacional (National Library, Rio de Janeiro), Secção de Manuscritos, cod. I–47, 23, 17, fol. 12.
104. Rodrigues, "Moçambique e o Índico."
105. "Carta do governo interino para o administrador do hospital Matias Antunes de Sousa," May 3, 1838, AHM, Fundo Século XIX, cod. 11–6 Da6, fol. 67.
106. Sebastião Xavier Botelho, *Memória estatística sobre os domínios portugueses na África Oriental* (Lisbon: Tipografia José Baptista Morando, 1835), 330–2.
107. Ibid., 334.
108. Foucault, "The Politics of Health," 175.
109. James Prior, *Voyage Along the Eastern Coast of Africa, to Mosambique, Johanna and Quilloa; St. Helena; to Rio de Janeiro, Bahia, and Pernambuco in Brazil in the Nisus Frigate* (London: Printed for Sir Richard Phillips and Co, 1819), 34.