

Mapping the Invisible: Problems of Interpretation and Representation of Hormuz Island, Iran

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The article discusses methods of combining visual and literary sources to study heritage sites with rich narratives and scarce material traces. It also examines the use of GIS in historical research and the challenges of integrating historical sources with digital mapping technologies. Taking as a case study the European maps and description of Hormuz Island, Iran, and their impact on the perception of that emporium in a global trade network, the ideological agency of representations can be approached by studying the untold, the invisible. Two main spatial practices have been analysed: the organisation of the built environment due to the lack of fresh water on the island and the disappearance of its main architectural landmark, a monumental minaret represented in many travellers' accounts. The research problem is approached in a three-stage methodology: comparative analysis of historical maps and descriptions dating from the sixteenth to the nineteenth century; visual material analysis by redrawing architectural features; GIS-based spatial analysis. Overall, the article emphasises the importance of critically examining historical maps, integrating various sources of information, and employing multidisciplinary approaches to gain a deeper understanding of the historical urban pattern and cultural significance of heritage sites. This perspective provides scientific knowledge but also leaves space for imagination, hinging on the state of latency historical artifacts provide.

Introduction

Cartographic representation visually reflects the ways of thinking or interpreting our existence in the world; however, like other forms of expression, it is a non-integral reproduction of reality, with gaps that expose deliberate biases and limitations. Several cartographers addressed the bias of the mapmaker, challenging how Modernist cartography professed to have reached the stage of a neutral science. Selectivity, as put in the seminal work of Denis Wood¹ on the power of maps, is how social constructs act on the representation. What is left out, the blanks, lack a legitimisation that postmodern thinkers connected with the very condition of existence. In this vein, Geoff King clearly translates Jean Baudrillard's formula that the map precedes a territory into the unfoldings cartography has in its practice.² Mapmakers are important members of the community because they affirm the existence of this or that entity; what is not on the map has no voice and is often forgotten. Beyond King's deconstructionist thesis, it is now hard to deny that maps retain a discursive agency. John Brian Harley, the curator of the *History of Cartography* project together with

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1. D. Wood, *The power of maps* (New York, 1992); D. Wood, *Rethinking the power of maps* (New York, 2010).

2. G. King, *Mapping reality. An exploration of cultural cartographies* (New York, 1996).

David Woodward, which will be referenced later in the text regarding Portuguese cartography, developed the idea that cartography not only represents places, but creates them.

In this frame, this essay intends to explore the gaps, the lack of information in historical maps of Hormuz Island, Iran, as potentially active agencies, thereby contributing to a more balanced and nuanced understanding of its cultural heritage. The combination of early-modern representations with accounts written by travellers and merchants could widen the interpretational perspectives through which the Portuguese presence in Hormuz is usually addressed in the field of architectural history, hinging on viewpoints intrinsic to European expansionist politics. Namely, the fact that Portuguese buildings or settlements are usually seen as isolated facts from the less detailed hinterland that surrounds them. This approach sees heritage entangled with the narrative space in line with what Ali Reza Shahbazin argues in his article in *Athens Journal of Architecture*: place is not simply the outcome of material transformations, but rather a space that co-emerges with narratives. Through narrative, a place becomes meaningful and is imbued with a sense of identity and history. Naming a landscape or associating it with an origin story, for example, can contribute to the creation of a meaningful place.³ From this perspective, I will take the story of Hormuz as a case study to explore the visibility of travel narratives and obtain a fresh spatial understanding of the ruined city.

Some authors have suggested the curation of digital assets for GIS-based research as a gap-finder strategy in contexts such as urban planning⁴ or mobility studies.⁵ In this essay, I point towards a qualitative, critical use of GIS for studies with a historical perspective. But on the downside of the widespread use of GIS, Harley foresaw a possible return to scientific positivism while cartographers started to embrace the use of Geographical Information Systems.⁶ In the 1980s, normativity and standardisations threatened once again the impervious path towards a new epistemology, grounded in social theories that were being developed by historians of cartography. And critiques of employing GIS, even more trenchant than Harley's, came from many scholars encompassing a wide range of motives.⁷ For what concerns our aim, I tend to agree with those positions that see Historical GIS (HGIS) as a common ground for interdisciplinary studies across history, architecture, geography, and archaeology, rather than a standalone evolution of digital humanities.⁸

3. A. R. Shahbazin, "Placed Appearances: Narrative, the Space of Appearance, Place," *Athens Journal of Architecture*, 7, 3 (2021), 403-14.

4. C. Hein and Y. van Mil, "Mapping as Gap-Finder: Geddes, Tyrwhitt, and the Comparative Spatial Analysis of Port City Regions," *2020*, 5, 2 (2020), 152-66.

5. R. D. Wikstrøm, "The potential of combining qualitative GIS and map elicitation in daily mobility studies," *Journal of Transport Geography*, 108, (2023), 103573.

6. J. B. Harley, "Deconstructing the Map," *Cartographica: The International Journal for Geographic Information and Geovisualization*, 26, 2 (1989), 1-20.

7. J. W. Crampton and J. Krygier, "An Introduction to Critical Cartography," *ACME: An International Journal for Critical Geographies*, 4, 1 (2015), 11-33.

8. V. Maluly, T. Gil and M. Grava, "Do Historical GIS and Digital Humanities Walk Hand in Hand?," *Cartographica: The International Journal for Geographic Information and Geovisualization*, 58, 2 (2023), 59-63.

This quest for a qualitative approach is immersed in the climate of the seventeenth century, when maps became truly available to many people, but before their normativisation through scientific models. Early modern period travellers relied on advanced devices to navigate various territories. They combined visual elements and text, using itineraries, bird's-eye views, and symbolic systems to provide qualitative information. Where cartography and literature overlap, the results "mix observation and fantasy, elements vital to poetry and fiction and to representation in general."⁹ Indeed, the fact that we started to call complex graphic notation systems "maps" is an oversimplification of older artefacts that probably were not distinguished from other outputs mixing text and images.¹⁰ A pre-modern map and a modern one are ontologically different. The hybrid nature¹¹ of the former calls for studies that analyse the artefact as a rhetorical device, something that resembles a cultural text open to interpretations and re-elaborations, including myths or invented facts.¹² Whether such creative, artistic components are compatible with GIS is a matter of experimentation.

Understanding Hormuz by what is missing in early-modern representations is a slippery task. The reasons for something to be invisible are manifold: technological limitations, ideological postures, thematic focus, lack of knowledge, and secrecy, among others. However, methods have been developed to interpret latent contents. One way to examine the margins of a map is by analysing the cartouche, including its decorations, emblems, and the text that accompanies the main image. Clarke interprets eighteenth-century colonial maps by reconstructing the claims made within them, treating the decorative elements as a cultural text.¹³ The discourse on invisibility for archaeological research has been debated in the pages of *Athens Journal of Architecture* with a special reference to interdisciplinary approaches to reveal the potential of hidden sites as ongoing "building sites of knowledge."¹⁴ In addition to material traces, which are scarce in some cases as Hormuz's, it is crucial to resort to memories, imagery, and imagination. A combination of visual materials analysis, literature review, and observation aids the analysis of relationships and contradictions between the historical urban pattern and the current image of the city.¹⁵

This encourages us to look at the evolution of spatialised behaviours in terms of cultural interactions between people and their resources, beyond what is visible. Human geography demonstrated, on one hand, the importance of social practices in

9. T. Conley, "Early Modern Literature and Cartography: An Overview" (2007), in *The History of Cartography. Cartography in the European Renaissance*, Woodward (ed.) (Chicago, 2007), 401-11, 401.

10. Wood, *Rethinking the power of maps*.

11. The word hybrid is used to underline that pre-modern maps are not bound to the geometrical representation of the world, but combine artistic qualities and narrative aims. See the cited volume 3 of *History of Cartography* for a complete overview.

12. Harley, "Deconstructing the Map," 1-20.

13. G. N. G. Clarke, "Taking possession: the cartouche as cultural text in eighteenth-century American maps," *Word & Image*, 4, 2 (1988), 455-74.

14. P. Miano and F. Coppolino, "Architecture as Infrastructure for Archaeology: A Design Strategy for Crapolla's Abbey in the Sorrento Peninsula Landscape," *Athens Journal of Architecture*, 10, 1 (2024), 35-54.

15. T. Sari, "Changing Urban Pattern of Eminönü: Reproduction of Urban Space via Current Images and Function," *ibid.*, 4, (2018), 115-32.

the production of places, on the other hand, that maps are embedded in a network of relations between people that should be studied together with the artefact. With a more localised approach, one can cross-reference sources of different domains, and look at conflicts between societal actors, to capture such social topography composed of human and non-human actors immersed in their diachronic existence. It is now clear that micro histories in overseas territories¹⁶ like Hormuz's are so complex that the essay will try to focus only on two invisibilities of a different nature. One is related to the lack of fresh water on the island, and the other to the disappearance of its main architectural landmark. The spatialisation of these phenomena, among others, will be tackled in a second stage of the research in which the tension between visible and non-visible aspects of the Portuguese expansionist agenda will be formulated in original outputs with the help of HGIS. This contribution stems from the PORTofCALL research project¹⁷ that examines the impact of African-Asian-European encounters during the Early Modern period on the cultural heritage of the Indian Ocean's port settlements with Portuguese influence. The project focuses on how cultural encounters and negotiation impacted and shaped the built environments and the landscape of the *Estado da Índia*'s network of port settlements, and their respective hinterlands. Looking at aspects such as indigenous agency, settlement patterns, building technologies, spatial traditions, arts, and agrarian customs, PORTofCALL proposes new readings for cultural heritage via digital and hard-copy maps of five representative case studies. Hormuz is one of the port cities and was selected for this essay because it resonates with methodologies and places previously addressed in the *Athens Journal of Architecture*. Additionally, port cities like Hormuz facilitated the connection between local networks of settlements and global routes such as Portugal's *carreira da Índia*, highlighting the often conflicted nature of cultural encounters across different scales.

As mentioned above, I will focus on travellers and their writings. The development of a travel account is driven by the desire to discover diversity in all forms.¹⁸ The social construct of a city is shaped by the memories of those who live in or visit it. This has led to the development of various interpretative models of Middle Eastern cities since the early-modern explorations. Accounts on Hormuz are inevitably partisan, drafted from the "superior" perspective of the European visitor, but are produced by multiple authors in different circumstances, which still give a multifarious image of the island. At the end of the fifteenth century, southern Iran was an unstable, depopulating territory, in which the bureaucratic elite had little time to spare for chronicles. Regarding the life in Hormuz, if not for the Portuguese

16. It refers to the territories beyond Europe affected by European colonial expansion.

17. PORTofCALL: African-Asian-European Encounters (<https://doi.org/10.54499/PTDC/AR-T-DAQ/4357/2021>), is funded by the Portuguese Science and Technology Foundation through 2022-2024, and is based in the Faculty of Architecture of University of Porto, with the Centre for Social Studies of the University of Coimbra as its main partner institution. The project mainly focuses on Sofala, Hormuz, Chaul, Jaffna, and Mylapore/São Tomé during the early modern period.

18. M. Gharipour and N. Ozlu (ed.), *The City in the Muslim World. Depictions by Western Travel Writers* (London - New York, 2015); G. Resta and B. Göl, "The City and the Myth: Narrating Heritage through a Travelogue," *The Plan Journal*, 9, 1 (2024), 271-93..

records, on the Muslim side, “we have neither family journals nor merchant archives, whether Arab or Persian.”¹⁹

Hormuz island has another peculiarity: the city started to be populated at the beginning of the fourteenth century when people fled from a location on the mainland known today as Minab.²⁰ However, following an Anglo-Persian campaign that captured the island in 1622, the settlement reverted back to a small village.²¹ Flourishing and decay were closely linked to its positional value across trading routes, so the life of the settlement was dependent on the success of the emporium linking the Persian Gulf to South Asia. Pietro Della Valle, as we will see later, visited the city in December 1622 and saw only ruined houses right after the siege. Together with the collapse of its buildings, economic and religious activities decayed as well. The disappearance of Hormuz has two main points open for discussion: one concerns whether the decay started after the Portuguese departure, or way before, as Steensgaard suggests;²² the other is a redistribution of the merits between the British and the Safavids forces in the successful siege, considering that sources like Jean Baptiste Tavernier’s travelogue and Persian poems tend to reinforce the Safavid’s effort.²³ Today, Hormuz is a crucial choke point for worldwide traffic of oil tankers departing from ports on the Persian Gulf. The island has a population of 6000 and is being re-discovered as a tourist destination due to its geological formations, despite controversies on new developments for hospitality.²⁴

Having set the general framework, I will now focus on two local facts that happened during the Portuguese presence on the island, following the assumption that collective actions shape the landscape and leave traces. The reconstruction of the historical dimension that formed Hormuz’s landscape will be later essential to chart how spatial practices are reflected in the territory. The methodology of an archaeology of invisibility has been explored in multidisciplinary studies across archaeology, architectural design, and landscape. Caravaggi and Morelli²⁵ offer a concrete demonstration of how the reconstruction of historical territories through documentation can be part of a valorisation project for sites that cannot be

19. J. Aubin, "Merchants in the Red Sea and the Persian Gulf at the Turn of the Fifteenth and Sixteenth Centuries" (2000), in *Asian Merchants and Businessmen in the Indian Ocean and the China Sea*, Lombard and Aubin (ed.) (Oxford, 2000), 79-86, 84.

20. A.T. Wilson, *The Persian Gulf; an historical sketch from the earliest times to the beginning of the twentieth century* (Oxford, 1928).

21. Jan Aubin introduces his study on Hormuz stressing this transitory nature, “a city without precedents, of circumscribed duration, belonging to a single age of urban evolution; a frontier city, at the meeting point of the Iranian world, the Arab world and the Indian world” J. Aubin, "Le royaume d’Ormuz au début du XVIe siècle," *Mare Luso-Indicum*, 2, (1973), 77-179, 79.. The demotion of Hormuz corresponded to the rise of the port of Bandar Abbas.

22. N. Steensgaard, *The Asian trade revolution of the seventeenth century: the East India companies and the decline of the caravan trade* (Chicago, 1974).

23. H. Asadpour, A. Kajbaf and H. Eskandari, "Rereading the narrative of liberating Hormuz based on historical texts in Persian language," *Journal of Historical Researches*, 15, 1 (2023), 1-16.

24. S. Hosseini, A. Siyamiyan Gorji, T. Vo-Thanh and M. Zaman, "Behind the hashtags: exploring tourists’ motivations in a social media-centred boycott campaign," *Tourism Recreation Research*, (2023), 1-13.

25. L. Caravaggi and C. Morelli, *Paesaggi dell’archeologia invisibile: il caso del distretto Portuense* (Macerata, 2014).

excavated, or not yet excavated. This approach favours multiple immaterial assets of information in addition to studies on physical evidence. Along the same lines, Miano and Coppolino²⁶ explore this angle in a site, Massa Lubrense, Italy, where the natural and the human-made are blended. Their strategy based on the collection of local memories enhances a dialogue between the stakeholders of an archaeological site. Similarly, Hormuz has the potential to unearth many layers from the past, allowing an increased awareness of the richness the island can offer as a heritage site.

The following paragraph reviews the trans-scalar dimension of Hormuz as a space of exchange across global networks and local actors, looking at the most relevant works produced on the topic. The text will highlight the organisational aspects that have an impact on the built environment to introduce the two sections dedicated to invisibility. First is the lack of fresh water and how this affects the domestic life, architectural features, and perception of the city from the sea; second is a disappeared minaret, the landmark that once emerged from the city profile, studied through views and literary sources. Finally, I will attempt a conclusion on possible methodologies to integrate historical sources with GIS, exemplified via elaborations realised in the frame of the PORTofCALL project.

Spaces of Conquest: The Global and the Local

The Portuguese enterprise overseas is widely studied. A recent comprehensive historiographic work has been published in the three-volume *Heritage of Portuguese Origin in the World*, a project coordinated by José Mattoso between 2007 and 2012 for the Calouste Gulbenkian Foundation. The encyclopaedic nature of the work provides systematised case studies organised geographically. A broader history of Portuguese expansion, from the conquest of Ceuta (1415) to the twentieth century, is surveyed in the five volumes of *História da Expansão Portuguesa* (1998) edited by Francisco Bethencourt and Kirti Chaudhuri. Analyses of maritime regional networks of the Indian Ocean region include Sanjay Subrahmanyam's *The Portuguese Empire in Asia, 1500-1700* (1993) on the economic and political trajectory of the Portuguese in Asia reviewing the role of the fall of Hormuz and the importance of local powers; the articles published by Luís Filipe Thomaz collected in *De Ceuta a Timor* (1994), together with the latest *L'expansion portugaise dans le monde* (2017), on the entanglements between proselytism and mercantilism; and the landmark exhibition *Encounters: The Meeting of Asia and Europe 1500 – 1800* (2004) at the Victoria and Albert Museum, London. The aspect of cultural encounters and violence is more emphasised in the seminal *The Portuguese Seaborne Empire, 1415-1825* (1969) by Charles Boxer and later in Michael Pearson's *The Portuguese in India* (1987). Starting in the 1980s, a growing sensibility towards intangible heritage posed new challenges to studies on the history of the living environment. This includes the

26. P. Miano and F. Coppolino, "Coastal Landscapes and Invisible Archaeology. The Case of Crapolla Abbey in Massa Lubrense," *JOELHO - Journal of Architectural Culture*, 11-12 (2021), 203-22.

planning principles employed for Indo-Portuguese cities,²⁷ strategies of fortification of strongpoints,²⁸ cultural encounters studied according to their representations²⁹ and hybridisation of language,³⁰ law making and normativities applied to rural areas,³¹ and the Christianisation of villages.³²

In the sphere of Portuguese presence in Iran, it should be mentioned the work of Jean Aubin, whose first publication was dedicated to the Hormuzian kingdom before the Portuguese interference (*Les princes d'Ormuz du XIII^e au XV^e siècle*, 1953). His analytical attention to the local scale focuses on personal relations in the cities and the counties, grasping fragments of complex histories. His interest in the island was key in expanding his studies from the medieval Iranian-Turkish society to Portugal's *Descobrimentos*, because Hormuz was geographically modest in scale, but the echo of regional facts led to global concerns. Aubin published various works in *Arquivos do Centro Cultural Português*, *Studia*, and especially *Mare Luso-Indicum* with the classic article *Le royaume d'Ormuz au début du XVI^e siècle* in 1973. Most of the authors that have worked on Hormuz since Aubin are present in the volume *Revisiting Hormuz* (2008), Edited by Dejanirah Couto and Rui Manuel Loureiro; the Iranian scholar Mohammad Bagher Vosoughi has also dedicated consistent attention to the matter. A wider perspective on the interaction between Safavid Persia and the Portuguese in the Persian Gulf is provided in *Portugal, the Persian Gulf and the Safavid Persia* (2011) edited by Jorge Flores and Rudi Matthee. The latter addresses the incredible difficulty in delineating such encounters due to nationalist historiographies that polarised Portuguese and Iranian scholars. Lastly, the edited book *The Persian Gulf in History* (2009) reviews the terraqueous space of the Gulf as an agency that produced its own history.

Hormuz is currently a 42-square-kilometre island located in the Persian Gulf. Historically, however, the name "Hormuz" referred to a larger kingdom that extended to the mainland,³³ formed in the late eleventh century under Muhammad Diramku

27. W. Rossa, *Cidades Indo-Portuguesas: contribuição para o estudo do urbanismo português no Hindustão Ocidental / Indo-Portuguese Cities: a contribution to the study of Portuguese urbanism in the Western Hindustan* (Lisboa, 1997).

28. S. D. L. Mendiratta, "Dispositivos do sistema defensivo da Província do Norte do Estado da Índia, 1521-1739," Universidade de Coimbra, PhD, 2012.

29. J. P. O. e. Costa (ed.), *The Codex Casanatense 1889: open questions and new perspectives* (Lisboa, 2012).

30. J. Clancy Clements, "Portuguese Settlement of the Chaul/Korlai area and the Formation of Korlai Creole Portuguese," *Journal of Language Contact*, 8, 1 (2015), 13-35.

31. M. Bastias Saavedra (ed.), *Norms beyond Empire: Law-Making and Local Normativities in Iberian Asia, 1500-1800* (Leiden, 2021).

32. A. Barreto Xavier, *Religion and Empire in Portuguese India* (Albany, NY, 2022).

33. The city of Hormuz, at the beginning of the fourteenth century, was being transferred from the mainland, close to a location that today is called Minab (Wilson, 1928), to its current position on the northern tip of the island, previously called Ġarūn. Aubin J. Aubin, "Les Princes d'Ormuz du XIII^e au XV^e siècle," *Journal Asiatique*, 241 (1953), 129-37. and Vosoughi M.B. Vosoughi, "The Kings of Hormuz: From the Beginning until the Arrival of the Portuguese" (2009), in *The Persian Gulf in History*, Potter (ed.) (New York, 2009), 89–104. traced the succession of kings until the Portuguese arrival. Despite their transfer to the island, the city's administrative system included Bandar Abbas on the mainland, and the two islands of Qeshm and Larak. Hence, the notion of the hinterland is not limited to the part of the island outside the urban centre, but comprised of a network of outposts that would allow Hormuz to oversee the maritime traffic.

from Oman.³⁴ The island occupies a strategic position along the Strait of Hormuz, which shares the same name. Portugal's second governor of India Afonso de Albuquerque implemented a plan to conquer strategic emporia in Asia, and, among these, Hormuz Island, with its port city, played a crucial role in the king's seafaring strategy. Indeed, commentators agree that the Portuguese presence in the area developed into a thalassocracy, with only episodic militarisation of coastal hotspots, as it was mainly focused on commercial trading rather than expansionist claims in its first phase.³⁵ The island was controlled for one century, conventionally in the period 1515–1622, and the construction of the fort of Nossa Senhora da Conceição de Ormuz became its most imposing physical manifestation. From that moment, the building positioned on the northern tip of the Island, closest to the Persian coast, was portrayed in most of the maps and views elaborated by travellers and cartographers. Hormuz combines most of the recurring features of *Estado's* port cities: scarce territory, identification of the urban settlement with its port (not as a specialised area), the presence of a multiethnic and multilingual society, and a layout of houses with walled gardens that could facilitate defensive needs. In an era of commerce influenced mainly by the spice trade, there were ports connecting well-known global routes with smaller local networks. The island was instrumental to such transshipment activities as it established a trading link with overland routes to the Middle East and the Mediterranean, from ships to caravans, requiring many pilgrims and merchants to maintain this business. As per the local network, inter-Asian commerce is demonstrated by the amount of customs duties collected at the beginning of the sixteenth century, paradoxically concentrated on imports because "the bulk of Hurmuz's trade was a re-export trade."³⁶ In fact, Albuquerque sought to strengthen the connections between the Gulf and Goa. This effort was evident in the flourishing horse trade that flowed from the Gulf regions to the rulers of Vijayanagar and Bijapur in southern India, facilitated by Hormuz. Horses were essential for successful military operations, making this trade particularly significant.³⁷ Hence, Hormuz intertwined the *Carreira's* long-distance spice trades with complementary country-to-country shipments of local interest, up to quests of a personal nature in acquiring luxury commodities with cultural or symbolic value. One example is the body of Persian literature and illuminated manuscripts collected by Governor João de Castro in the 1540s thanks to the captain

34. Vosoughi, "The Kings of Hormuz: From the Beginning until the Arrival of the Portuguese" (2009).

35. J. Teles e Cunha, "The Portuguese Presence in the Persian Gulf" *ibid.*, 207-34; A. Martínez d'Alòs-Moner, "Conquistadores, Mercenaries, and Missionaries: The Failed Portuguese Dominion of the Red Sea," *Northeast African Studies*, 12, 1 (2012), 1-28; G. Tazmini, "The Persian–Portuguese Encounter in Hormuz: Orientalism Reconsidered," *Iranian Studies*, 50, 2 (2017), 271-92; S. Subrahmanyam and L.F. Thomaz, "Evolution of Empire: The Portuguese in the Indian Ocean During the Sixteenth Century" (1991), in *The Political Economy of Merchant Empire*, Tracy (ed.) (Cambridge, 1991), 298-332.

36. S. Subrahmanyam, *The Portuguese empire in Asia, 1500-1700: a political and economic history* (Chichester, 2012), 18.

37. Aubin, "Le royaume d'Ormuz au début du XVIe siècle," 77-179; S. Subrahmanyam, *The political economy of commerce: Southern India, 1500-1650* (Cambridge, 1990).

on the island.³⁸ In contrast, the Indo-Muslim merchant class in the Gulf was traditionalist, often having received religious education, and heavily dependent on the authority of the sovereign.³⁹ These players composed a loose network of people that operated between monopolies and grants over certain concession routes. However, another unofficial network was equally active at the local level, based on private interests. For Hormuz, one case is that of the illicit trade that the island captain maintained with the Ottoman-captured Basra in the 1540s-50s, bypassing any warning from the viceroy in Goa to impede such activities, and establishing a parallel diplomatic channel with the Ottoman rulers.⁴⁰

Therefore, the balance between the local and the global highlights the role of the non-Portuguese actors in the functioning of the *Estado*, the dependence the daily administration had on local relations and collaborations, and the circumstances in which the travellers recorded their visits moving across political sides.⁴¹ Being a trading outpost, the local governance of the island held a relatively independent status, also demonstrated by religious tolerance (i.e., the coexistence of religious buildings and communities). In the history of the European commercial capitalism at sea, the Portuguese modes of wealth extraction can be seen as a transition from the Italian medieval associations, based on *commendas*,⁴² to English and Dutch chartered trading companies.⁴³ Thomaz⁴⁴ problematises this transition by looking at the Portuguese empire in Asia as a maritime network, rather than a continuous structure, in which fragmented entities communicating from a distance acquired non-standardised statuses of governance. A network of dispersed possessions required custom devices to support sovereignty claims over open seas: on the ground, the establishment of fortified trading posts (*feitorias*); in the political and legal sphere, the employment of the *cartaz* system introduced in 1502, granting safe conduct to ships in exchange for a fee. Beyond their immediate advantage of funnelling customs duties, *cartazes* and the threat of naval blockades became a diplomatic leverage for negotiations with local rulers. This also happened on routes to Hormuz

38. J. Teles e Cunha, "The eye of the Beholder: The Creation of a Portuguese Discourse on Safavid Iran" (2011), in *Portugal, The Persian Gulf and Safavid Persia*, Matthee and Flores (ed.) (Leuven, 2011), 11-50.

39. Aubin, "Merchants in the Red Sea and the Persian Gulf at the Turn of the Fifteenth and Sixteenth Centuries" (2000).

40. G. Casale, *The Ottoman age of exploration* (Oxford, 2010).

41. Tazmini, "The Persian-Portuguese Encounter in Hormuz: Orientalism Reconsidered," 271-92, 288.

42. *Commenda* is a form of agreement, that emerged already during the Roman Republic, in which one person entrusts someone else with a capital or position. Used in medieval maritime trading, one investing party on the land entrusts the sailing party to deliver goods and return with some form of profit. In essence, it was a financial investment. In the case of the Portuguese crown, in the sixteenth century, individuals were granted concessions, *viagens dos lugares*, over specific routes, hence separating sovereignty from part of the trading activities in southeast Asia; see *Aspects of Portuguese Rule in the Arabian Gulf, 1521-1622* M. Hameed Salman, "Aspects of Portuguese Rule in the Arabian Gulf, 1521-1622," The University of Hull, PhD, 2004.

43. L. Campling and A. Colás, *Capitalism and the sea: the maritime factor in the making of the modern world* (London-New York, 2021).

44. L. F. Thomaz, "Estrutura Política e Administrativa do Estado da Índia no Século XVI" (1994), in *De Ceuta a Timor* (Lisbon, 1994), 207-43.

when the Bijapur sultanate obtained a pass to send ships to the island in 1613.⁴⁵ The anonymous author of the *Livro das cidades, e fortalezas* (1582), compiled for the new king Philip II, underlines the trading success of the emporium and, as a consequence, the strategic importance of holding that fortress.⁴⁶

Restricting the analysis to our subject of interest, that of the spatialisation of knowledge deriving from distant territories, mapmaking in early modern Europe was closely linked to the process of formation of new nation-states. In the sixteenth century and later on, this new cartographic consciousness led monarchs to appreciate the importance of maps for the administration of their territories and for the planning of overseas exploration and expansion.⁴⁷ The ideological agency of representations can be approached by studying the untold, the invisible, what has been kept out of the frame. Part of it is due to the technological limitations of early modern maps, and their need to set a degree of selection and definition, which is a problem that is ideally non-existent in the infinite digital space of contemporary tools of representation (i.e., GIS, Autocad). But another aspect affects the interpretative position of the mapmaker, what Brian Harley calls cartographic silence.⁴⁸ Drawing from Foucauldian positions on the connection between power and knowledge, Harley investigates absences and their possible causes. The range goes from state-solicited secrecy and censorship to unintentional biases and cultural backgrounds. Blank spaces are seen as a positive affirmation, not a technical circumstance. Also, Portugal was careful in concealing information on overseas territories because it provided a competitive advantage over commercial routes.⁴⁹ For the study of Portuguese encounters in Africa and Asia, this position may lead to a better understanding of how travellers perceived the pre-existing communities, their ways of life, and their built environment. In this stance, I will be analysing recurrences and patterns in representations of Hormuz Island, looking at how they overlap with literary descriptions of that period, and finally laying out provisional considerations on ways to prepare new maps of the island.

45. Steensgaard, *The Asian trade revolution of the seventeenth century: the East India companies and the decline of the caravan trade*.

46. Anonymous, *Livro das cidades, e fortalezas, que a Coroa de Portugal tem nas partes da Índia*, in *Livro das cidades, e fortalezas*, Luz (ed.) (Lisboa, 1582). According to the accounted expenses and revenues of Estado da Índia compiled by António Abreu Mergulhão in 1571, Hormuz totalled a positive income of 35.748.373 reis, the highest among all possessions. Biblioteca de Ajuda (Lisboa), "Orçamento do que rende o Estado da Índia [...]" ref. BA, 51-VII-32, fls.2 v - 40v.

47. D. Buisseret, *Monarchs, ministers, and maps: the emergence of cartography as a tool of government in early modern Europe* (Chicago, 1992).

48. J. B. Harley, "Silences and Secrecy: The Hidden Agenda of Cartography in Early Modern Europe," *Imago Mundi*, 40, (1988), 57-76.

49. D. V. Alves, "Reconsiderações Historiográficas sobre a Teoria do Sigilo de Jaime Cortesão," *Expedições: Teoria da História e da Historiografia*, 9, 3 (2018), 36-57. The degree of control on the secrecy of Portuguese cartography is disputed. Alves presents a review of the *teoria do sigilo* developed by Jaime Zuzarte Cortesão.

Mapping the Invisible: Fresh Water and Unbearable Heat

Together with the concealment of the visible, for the reasons outlined above, a complementary problem of mapmaking is the representation of the invisible: relations, movements, customs, or even settlements that are not built to last for centuries. The mapmaker in the well-known paradox formulated by Jorge Luis Borges on the exactitude of science attains perfection when they can show as many details as possible, producing a map of the empire with the same scale as the empire itself, a full-size representation. However, that map becomes impractical, as it is as large as the object that represents, and therefore superfluous.⁵⁰ Nonetheless, the suffocating horizon of a geographical twin is still not enough to show the immaterialities of an environment. Informative representations are also narrative devices, embedding stories and histories. Historical cartography may not be accurate enough to help navigate ships, but still has great relevance for scientific reasoning. Luciano Lago⁵¹ highlights the importance of using historical cartography in the study and preservation of heritage sites. One example is Maurizio Michelucci's archival research on representations and descriptions of Caletta, an Etruscan settlement in the Albegna Valley, Italy, whose exact location led to relevant archaeological findings.⁵²

Several scholars have researched ways to represent the ephemeral, especially after wide-ranging quantitative datasets became available. The field of ephemerality extends from olfactory charts⁵³ to statistical urban data.⁵⁴ However, the phenomena to be addressed for Hormuz need to be investigated using historical research tools as well.

One of the main factors that influenced the island's built environment is the arid climate and the lack of fresh water. In an anonymous Portuguese codex of the sixteenth century, later labelled *Codice Casanatense*,⁵⁵ the illustrations show various moments in which the Portuguese encountered African and Asian cultures. The watercolour painting nr. 29 depicts an interesting scene with Portuguese men and women dining in Hormuz, served by a group of domestics (Figure 1). Also, the representation is so detailed that it might have been captured on-site, including Chinese porcelain wares hinting at the close relations between Portuguese noblemen in Hormuz and China.⁵⁶ In the frame we can read the inscription "Jente portuguesa

50. J. L. Borges, *Historia universal de la infamia* (Buenos Aires, 1954).

51. L. Lago, "Il contributo della cartografia storica" (2004), in *Italia. Atlante dei tipi geografici*, Istituto Geografico Militare (ed.) (Firenze, 2004), 21-27.

52. M. Michelucci, "Caletta, Καλουσιον, Heba. Indagini sugli insediamenti etruschi nella bassa valle dell'Albegna" (1984), in *Studi di antichità in onore di G. Maetzke*, Marzi Costagli and Tamagno Perna (ed.) (Roma, 1984), 377-92.

53. K. McLean, "Mapping the invisible and the ephemeral" (2017), in *The Routledge Handbook of Mapping and Cartography*, Kent and Vujakovic (ed.) (London, 2017), 500-15.

54. N. Amoroso, *The exposed city: mapping the urban invisibles* (New York, 2010).

55. Its name derives from the historic library Biblioteca Casanatense in Rome, Italy, where the codex is kept. It was probably painted in the sixteenth century by an Indian artist based in Goa. For an in-depth analysis of the codex see the XIII volume of *Anais de História de Além-Mar Costa, The Codex Casanatense 1889: open questions and new perspectives*, ed. Costa.

56. R. M. Loureiro, "The Portuguese in Hormuz and the Trade in Chinese Porcelain," *Bulletin of Portuguese/Japanese Studies*, 1, (2015), 5-26.

de ormuz estão comendo dentro d'ágoa por ser a terra muito calmosa."⁵⁷ Indeed, there is a rectangular area with a stepped floor decorated with planted vases, and four staircases reaching a lower level. There, the floor is flooded. At the centre is the dining table with four commensals that have their feet in water. This fragment of domestic life suggests that houses had built-in spaces similar to pools to bear the high temperatures, "in India a tank is any man-made enclosure of water, normally rectangular and with stone sides and base, that is attached most often to a temple."⁵⁸ Losty notes that the subject and the geometrical construction of the scene, in which plan and elevations are combined in an overhead view, can be found in Buddhist and Hindu representations of the same period.



Figure 1. Anonymous Artist, *Scene of a Meal in Hormuz*, *Codice Casanatense 1889* (Sixteenth Century)

Source: Biblioteca Casanatense, Rome, id. MS1889C00029.

Friar Odoric of Pordenone is believed to have provided the first account of the city after its population was relocated to the island.⁵⁹ He began his journey in 1314 to Constantinople and the Persian region, and set out from Hormuz in 1320-21 to India and China, with the Franciscan James of Ireland. He visited a strong-walled city where "grows no tree, and there is no fresh water", and notwithstanding the valuable

57. It can be translated as "Portuguese people of Hormuz that are eating in water for the land is very warm". It has the features of a stepped tank, reminiscent of garden landscapes possibly influenced by Mughal gardens.

58. J. P. Losty, "Identifying the artist of Codex Casanatense 1889," *Anais de História de Além-Mar*, 13, (2012), 13-40, 26.

59. V. Liščák, "Catalan Atlas of 1375 and Hormuz around 1300," *Advances in Cartography and GIScience of the International Cartographic Association*, 1, (2019), 1-7.

goods to be found there, “it is not a healthy place nor safe for life, and the heat is something incredible.”⁶⁰ Several travellers described the water cisterns as an integral part of the living space in Hormuz. Around one decade after Odoric, Tangier-born explorer Ibn Battūta writes that “on this island water is an article of price; it has water-springs and artificial cisterns in which rain-water is collected, at some distance from the city. The inhabitants go there with waterskins, which they fill and carry on their backs to the sea [shore], load them on boats, and bring them to the city.”⁶¹ Battūta describes the landscape as comprising mostly “salt marshes and hills of salt.”⁶² The *Livro das cidades, e fortalezas* reports the absence of vegetation, mines and three ponds of brackish water.⁶³ Along the same lines, the Londoner merchant Ralph Fitch, visiting the island in 1583 when Portuguese were already well established, says that “it is the dryest Iland in the world: for there is nothing growing in it but onely Salt; for there is neither water, wood, or victuals, and all things necessary come out of Persia.”⁶⁴ Jan Huygen van Linschoten writes in his 1596 *Itinerario* that “in Sommer time is so unreasonable and intollerable hotte, that they are forced to lie and sléepe in wooden Cesterns made for the purpose full of water, and all naked both men and women, lying cleane under water saving only their heads.”⁶⁵ Hence, the inconvenient location of the settlement, depending on the mainland for basic needs, was counterbalanced by great strategic advantages.⁶⁶ Marco Polo visited the old Hormuz two times, in 1272 and 1293, right before the population fled to the island. In his journal, he notes how inhabitants cope with the heat:

In summer they do not live in the cities, for the heat is such that they would all die. They go outside, to their gardens, wherever there is abundance of rivers and water. They are wont to make platforms on the water, with hurdles, one end of which rests on the bank, and the other is lashed to poles sunk into the river-bed.⁶⁷

60. H. Yule and H. Cordier, *Cathay and the way thither: being a collection of medieval notices of China. Vol. II Odoric of Pordenone* (London, 1913), 112. The original text is much more graphic and has been polished in the English translation “In ea tantus et ita immensus calor est quod pilia et testiculi homini exeunt coram et descendant usque ad dimidium tibiarum. Idee que gens illius contratae si vivere volant sibi faciunt unam unctionem qua ilia ungunť” (Yule and Cordier, 1913: 283). Despite the majority of accounts referring to the island’s drought, there are still few contrasting accounts, i.e. Silva y Figueroa’s “en muchas partes della arboles frondosos y grandes algunos dellos, contra la opinion de todos los demas que della an hecho relacion” in G.d. Silva y Figueroa, *Comentarios de don García de Silva que contienen su viaje a la India y de ella a Persia, cosas notables que vió en él y los sucesos de la embajada al Sophi*, in *Don García de Silva y Figueroa e os «Comentarios de la Embaxada al Rey Xa Abbas de Persia» (1614-1624)*, Loureiro, Costa Gomes and Resende (ed.), 4 vols. (Lisboa, 2011), 186.

61. I. Battūta, *The travels of Ibn Battūta, A.D. 1325-1354* (London, 1962), 400.

62. *Ibid.*

63. Anonymous, “Livro das cidades, e fortalezas, que a Coroa de Portugal tem nas partes da India” (1582) 32.

64. Wilson, *The Persian Gulf; an historical sketch from the earliest times to the beginning of the twentieth century*, 108.

65. J. H. van Linschoten, *Itinerario. John Huighen van Linschoten, his discours of voyages into ye Easte & West Indies Deuded into foure bookes* (London, 1598), 16.

66. J. Campos, “Some notes on Portuguese military architecture in the Persian Gulf: Hormuz, Keshm and Larak” (2008), in *Revisiting Hormuz: Portuguese Interactions in the Persian Gulf Region in the Early Modern Period*, Couto and Loureiro (ed.) (Wiesbaden, 2008), 149-62.

67. M. Polo, *The travels of Marco Polo* (New Delhi, 2001), 45.

Most probably such practices were entertained on the island as well, together with the need to live outside the city, possibly screened from the sun. On his way back to Venice, Polo also describes an important architectural detail: “their houses are built with wind-chimneys, in order to catch the wind; they place the wind-chimney on the side whence the wind comes, and so bring the wind into the house. This they do because they could not otherwise endure the great heat.”⁶⁸ The most detailed views of the island, such as the one published in Cologne in 1612 for the *Civitates Orbis Terrarvm* (Figure 2), also show the wind catchers that characterised the profile of the settlement. All buildings have tower-like proportions, square openings on the façade with a low window-to-wall ratio, and two to three levels. Although this representation bears evident problems of accuracy, it probably exemplifies how houses looked like in the area. A similar city layout is also visible in views that will be analysed later, such as the profile drafted by the Dutch official Pieter van den Broecke in 1629: flat roofs, small windows, and numerous wind catchers. It seems that “the streets are so small and narrow that no more than two men can walk side by side on any of them, and only one man on horseback.”⁶⁹

Linschoten compares the architectural features of the Hormuzian houses to those in Cairo, “al their houses are flat above, and in the toppes thereof they make holes to let the ayre come in, like those of Cayro, and they use certaine instruments like Waggings with bellowes, to beare the people in, and to gather winde to coole them withall, which they call Cattaventos.”⁷⁰ Another Italian explorer, Pietro Della Valle⁷¹, who visited Hormuz at the time of the 1622 Anglo-Persian siege, reports on the integration between domestic spaces and water tanks.

Because of the quality of the land of Hormuz, which is all salt, [...] at certain times of the year, the people of Hormuz could not live without being immersed up to their neck in water for a few hours a day. For this purpose, they all have in their houses custom-made cisterns; and even the strictest religious men had to use them⁷²

68. *Ibid.*

69. G. d. Silva y Figueroa, *The commentaries of D. García de Silva y Figueroa on his embassy to Shah 'Abbās I of Persia on behalf of Philip III, King of Spain* (Lisboa, 2017), 278.

70. van Linschoten, *Itinerario. John Huighen van Linschoten, his discours of voyages into ye Easte & West Indies Deuided into foure bookes*, 16. Arthur Burnell, who edited the English edition of 1885, notes that the word “Waggings” should be intended as “swings”, “Bellows” as “fans”, and the word “Cattavento” as wind catchers or masonry ventilators that were commonly built in Oman to cool the air in living spaces.

71. Pietro Della Valle (1586-1652) embarked in his explorations of the East following the advice of his friend Mario Schipano, to whom the letters that form Della Valle’s book *Viaggi di Pietro della Valle il Pellegrino* are addressed. His account is relevant because he was probably in Hormuz in 1622, during the siege of the Portuguese fort. In his letters, he specified the exact date when the city surrendered. Additionally, his wife died in December 1621 in Minab, Iran, and we know that he visited Hormuz after that and before his departure to India one year later. His letters span from 1617 to 1622: this agility in liaising with Portuguese, Persian, and English people is due to his neutrality.

72. P. Della Valle, *Viaggi di Pietro della Valle il Pellegrino. La Persia - parte seconda* (Brighton, 1845), 471. Author’s translation of “per la qualità propria della terra di Hormuz che è tutta sale, [...] in certo tempo dell'anno, le genti di Hormuz non potrebbero vivere, se non vi stessero qualche ora del giorno immersi fin alla gola nell'acqua, che a questo fine, in tutte le case, tengono in alcune vasche fatte a posta; e fin i più stretti religiosi eran forzati a farlo”.

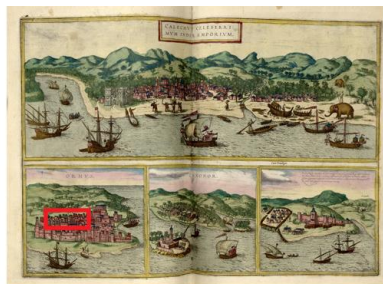


Figure 2. Georg Braun and Frans Hogenberg, *Detail of Hormuz from the Spread Calechvt Celeberrimvm Indiae Emporivm; Ormvvs; Canonor; S. Georgii Oppidum Mina, Civitates Orbis Terrarvm, Vol. 1 [Köln: Petrum à Brachel] (1612)*

Source: Library of Congress, Geography and Map Division, Washington, id. 2008627031.

Della Valle confirms what Linschoten wrote regarding the fact that the inhabitants used light pumice-like stones retrieved from the sea to build their houses, “The walls of the buildings are all either made of pumice or salt, the weakest; no other kind of stone can be found on the island.”⁷³ Nicolau de Orta Rebelo, a soldier and later a civil servant who visited Hormuz in 1606, also notes the peculiarity of building materials employed on the island

In this Island there is a kind of stone called fish stone [*pedra peixe*] used to make houses, that stays above water like cork, and there is a wood called *cera*, that sinks like lead, and from this wood is the firewood used in this city, and it springs from the sea: so that in this Island, salt is fetched from the mountain and firewood from the sea

Indeed, fresh water became the most crucial resource to sustain the emporium, eventually contributing to its capitulation after the Persians cut off the water supply in the cisterns. Travellers reported that drinking water had to be brought from the mainland and from the closest island to the south-west, Qeshm⁷⁴. In January 1622, the English fleet first attacked the Portuguese fort on Qeshm, which was already being attacked by Persia from the mainland, then they prepared for the joint offensive

73. *Ibid.* Author’s translation of “I muri poi delle fabbriche son tutti, o di pomice, o di sale, i più fievoli; che sassi di altra sorte nell’isola non si cavano.”

74. This information is also present in Manuel Godinho de Erédia’s map, c. 1620, referenced in the following section, and in many following maps of Hormuz. At the easternmost tip of Qeshm is represented a “poço”, well, whence fresh water was collected and transported by boat. See Battūta, *The travels of Ibn Battūta, A.D. 1325-1354*.

against Hormuz.⁷⁵ At that time, Della Valle was a guest of Veled Chan Sultan, appointed governor of Hormuz, whose soldiers accompanied him to see the city in the aftermath of the war: the destruction in the Portuguese fort and the Misericórdia complex, which was the best-preserved building of Portuguese commission outside the fort after 1622, although half-collapsed and raided.⁷⁶

Campos examines the close relation between the fortification and water provisions that were protected on the ground floor: “Albuquerque had two underground reservoirs with an enormous storage capacity built [...] in 1515.”⁷⁷ Additionally, tanks are found in the donjon and in the south-western bastion, with the large Manueline cistern in the courtyard of the fort. Cisterns were so important that they are mentioned in the first accurate survey of the island, the British historical map of Hormuz, issued in 1874 by T. Pettitt on the base of a survey by commander Arthur William Stiffe. At that time, the city had completely lost its trading role and was scarcely inhabited by fishermen. The map sheet is divided into four quadrants. In the upper left quadrant is an enlarged plan of the northern tip, conveying, in an archaeological fashion, labelled areas and the indication of buildings of interest. The Portuguese fort and its adjacent moat are located with precision.⁷⁸

In between the fort and the foothill of the Island’s mountainous area, where the territory is almost flat, the surveyor has identified three concentric ranges: within 300m from the fort, is the “present village”; 300m to 600m from the fort with the “probable extent of the Portuguese town”; 600m to 1600m from the fort with the “approximate extent of ruins of old city” and the specification of “many old water cisterns” (Figure 3). The same information is given by Jacques de Morgan in 1895, “un peu plus au sud sont les citernes qui permettaient d’amasser au printemps et en hiver les eaux pour la consommation de la cite.”⁷⁹ In the article that accompanies the map in *The Geographical Magazine*, Stiffe writes that this vast number of water cisterns is “mostly choked with earth, in many of which small crops of vegetables are now raised”, and only half a mile to the south of the minaret “are a number of Arab tombs of some pretensions to architecture, some of which have been of two stories.”⁸⁰

In the last fifty years, the island has been surveyed for archaeological evidence by Allah-Ali Eslami and Cereno de Fonseca in 1973 to gather archaeological evidence and plan restoration works for the castle. Babak Rad, in 1974, inspected and photographed the remains, compiling a report that proposed the site to be listed as

75. Wilson, *The Persian Gulf; an historical sketch from the earliest times to the beginning of the twentieth century*, 146.

76. For a detailed account of Della Valle’s stay in Hormuz see E.C. Brancaforte, "The Italian Connection: Pietro Della Valle's account of the fall of Hormuz (1622)" (2008), in *Revisiting Hormuz: Portuguese Interactions in the Persian Gulf Region in the Early Modern Period*, Couto and Loureiro (ed.) (Wiesbaden, 2008), 191-204. He spent almost six years in Persia, which gives him a different status among other travelers due to his well-informed accounts.

77. Campos, "Some notes on Portuguese military architecture in the Persian Gulf: Hormuz, Keshm and Larak" (2008), 155.

78. Overlapping Stiffe’s survey with the contemporary aerial satellite imagery of Hormuz in a GIS workspace, the orientation and the outline of the building in the British map show high accuracy.

79. J. d. Morgan, *Mission scientifique en Perse* (Paris, 1895), 288.

80. A. W. Stiffe, "The Island of Hormuz," *The Geographical Magazine*, 1, (1874), 12-17, 13.

national heritage for the first time. Hossein Bakhtiari started the first systematic excavations on the island, while Wolfram Kleiss surveyed the castle in 1977. In the same year, Ulrich Wiesner completed a report on ruins in the Hormozgan region commissioned by the Museum für Ostasiatische Kunst Köln. After the Iranian revolution, Fatemeh Karimi resumed the study of archaeological remains in 1994, but the results were never published. More recently, Sepehr Zarei and Marjan Ravai studied artefacts found on the eastern coast.⁸¹

The documents and their interpretation presented in this section demonstrate how the built environment was shaped by the “unbearable heat” of the island, and that the lack of fresh water could be an advantage for attacking enemies. In the case study of Hormuz, PORTofCALL is working on methodologies to represent such a relevant agency in the history of the island.

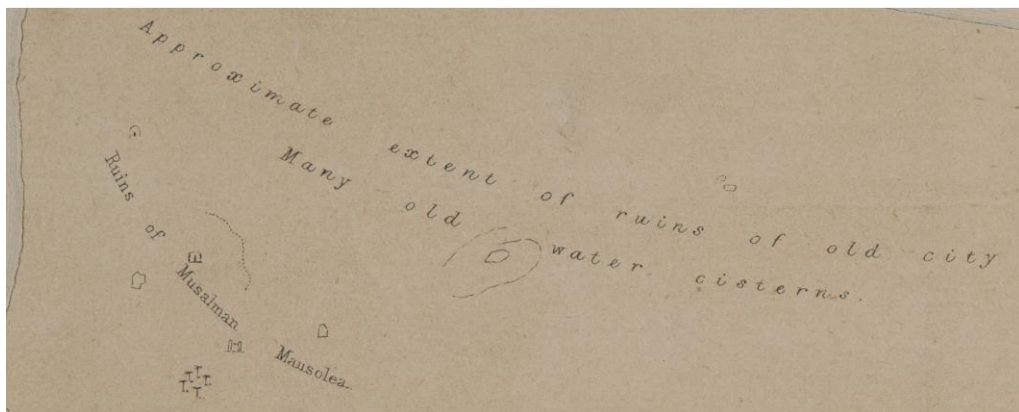


Figure 3. Arthur William Stiffe, *Detail of the British Historical Map of Hormuz, Issued in London by T. Pettitt (1874)*

Source: Qatar Digital Library, id. IOR/X/3127.

81. S. Zarei, "A Historical Account of Archaeological Research on the Islands of the Province of Hormozgan" (2020), in *Human and the Sea. A Review of Thousands of Years of Relationship between Humans and the Sea in Iran*, Biglari, Nokandehm, Naderi Beni and Hozhabri (ed.) (Tehran, 2020), 174-95.

Drawing the Invisible: A Disappeared Landmark of Hormuz

Focusing our attention on the urban morphology of Hormuz, all maps and vistas depict two main recognisable landmarks: the Portuguese fort and a tower that is often labelled as minaret.⁸² The historical evolution of the fortification has been studied extensively in literature because the ruins are still visible on the site and allow in-depth fieldwork.⁸³ In the first archaeological study of the island published in 1937, Aurel Stein recorded only mounds of debris and two ruined structures around what was left of the fortification.⁸⁴ The Hungarian-British archaeologist would have mentioned the tower if he had seen it still standing. On the other hand, there is a photo of a dilapidated tower taken in, the 1860s-1880s, labelled as “minaret of Hormuz”, in the *Sir Charles Aitchison Album of Views in India and Burma* available at the Qatar Digital Library. Hence, the landmark had already collapsed by the thirties of the twentieth century.

A preliminary approach for the rediscovery of the vanished minaret is to analyse the urban morphology of Hormuz in selected historical maps, and retrace the various architectural features of the tower in the most detailed views. The towering building was the most recognisable construction from the sea, even more than the fort.⁸⁵ It should be noted that some drawings of the building were not sketched by direct observation, and others relied on established archetypes of towers. Nonetheless, I will highlight where representations overlap in an attempt to set the field of reasoning that will be developed in future research.

Early-modern Portuguese cartography of overseas territories mainly produced two typologies of representations: views from the sea, especially useful for navigation, and maps of the city/fortress where they established their presence. It was important to visualise the quality of the landscape, the consistency of the ground, and the relevance of architectural landmarks, often resulting in the combination of different viewpoints. The coastline is seen in plan; buildings are depicted with an oblique view with an elevated standpoint, similar to a military axonometry; and the natural features are seen in elevation from close distance, resembling the point of view of an observer on site. In 1538, the arrival of João de Castro in India marked a turning point in the quality and quantity of maps that were being drafted.⁸⁶ The difficulty in

82. In addition to the Hormuz tower, the urban morphology of the city opens questions on the location and presence of city walls; on the possible presence of a fortification before the Portuguese; the demolition of the royal palace; a porticoed structure on the eastern shore; the functioning of the two docking locations mentioned in the text and their relationship with the typology of goods that was unloaded.

83. W. Kleiss, "Die portugiesische Seefestung auf der Inseln Hormuz am Persischen Golf," *Architectura*, 8 (1978), 166-83; Zarei, "A Historical Account of Archaeological Research on the Islands of the Province of Hormozgan" (2020); D. Couto and R.M. Loureiro (ed.), *Revisiting Hormuz: Portuguese Interactions in the Persian Gulf Region in the Early Modern Period* (Wiesbaden, 2008).

84. A. Stein, *Archaeological reconnaissances in north-western India and south-eastern Irān* (London, 1937).

85. Silva y Figueroa, "Comentarios de don García de Silva que contienen su viaje a la India y de ella a Persia, cosas notables que vió en él y los sucesos de la embajada al Sophi" (2011) 187.

86. M. F. Alegria, S. Daveau, J.C. Garcia and F. Relaño, "Portuguese Cartography in the Renaissance" (2007), in *The History of Cartography. Cartography in the European Renaissance*, Woodward (ed.) (Chicago, 2007), 975-1068.

attributing authorship to visual documents demonstrates how the fluid local network affected mapmaking. Castro collected maps from Arab, Gujarati, and Malabar pilots⁸⁷ because it was customary for Western explorers to rely on local knowledge. This happened also with Vasco da Gama, and in the Pacific between James Cook and the Tahitian pilot Tupaia. According to Di Piazza and Pearthree,⁸⁸ Tupaia's map of the Pacific Islands was not only the outcome of merging information, but an encounter between two different ways of understanding geographical knowledge. It was the product of social relations, sometimes asymmetrical, that generated epistemological shifts in which the rational European conception blended with in situ practices of navigation. The hybridisation of the Portuguese map is seen in the work of Gaspar Correia (map a), who was commissioned by Castro to produce the portraits of previous viceroys and governors of the Estado da Índia, assisted by a Hindu painter.⁸⁹ Another case is the series of city maps reproduced in the books of Antonio Bocarro and Pedro Barreto de Resende (map c). The maps circulated from Goa in many versions, reproduced by different authors. Because of the discrepancies between the accompanying text and the drawings, it is likely that the maps were collected by Resende separately, maybe partially copied, but the bulk of the work was done by Goan artists.⁹⁰ The geographical forms and coloring techniques closely align with Indian traditions. In particular, the depiction of mountains and vegetation resembles those found in the Codice Casanatense mentioned earlier.⁹¹ Which is another hybrid artistic artefact itself.

Regarding Hormuz, three main genealogies of drawings were published during the Portuguese presence: one is a view of the fort and the city from the eastern shore, based on Gaspar Correia's *Lendas da Índia* (a); another is a panoramic view of the whole island in relation to the Gulf area, based on Manuel Godinho de Erédia (b); finally is a set of illustrations based on Braun and Hogenberg's *Civitates Orbis Terrarum*, though this view was hardly drafted on site because the Portuguese fort is not present. Erédia also produced a detailed plan of the fortification and part of the surroundings, today accessible in the collection of the Biblioteca Nacional of Rio de Janeiro, Brazil. Others followed immediately after the 1622 capitulation (c-g).

87. See Alegria, Daveau, Garcia, & Relação's (2007) account on Castro's activities.

88. A. Di Piazza and E. Pearthree, "Il cartografo Tupaia, James Cook e il confronto tra due saperi geografici," *Quaderni Storici*, 43, 129 (2008), 575-92.

89. Pearson writes that the first thirteen paintings to be hung in the Palace of Governors in Goa were actually painted by a local M.N. Pearson, *The Portuguese in India* (Cambridge, 1987), 94.

90. Alegria, Daveau, Garcia and Relação, "Portuguese Cartography in the Renaissance" (2007).

91. S. Krtalic, "Materials and production methods in 17th century portuguese illuminated cartography: a study of the maps in António Bocarro's "Book of the Plans of all Fortresses, Towns and Villages of the East Indies", " Universidade de Évora, Erasmus Mundus Master in Archaeological Materials Science, 2018.

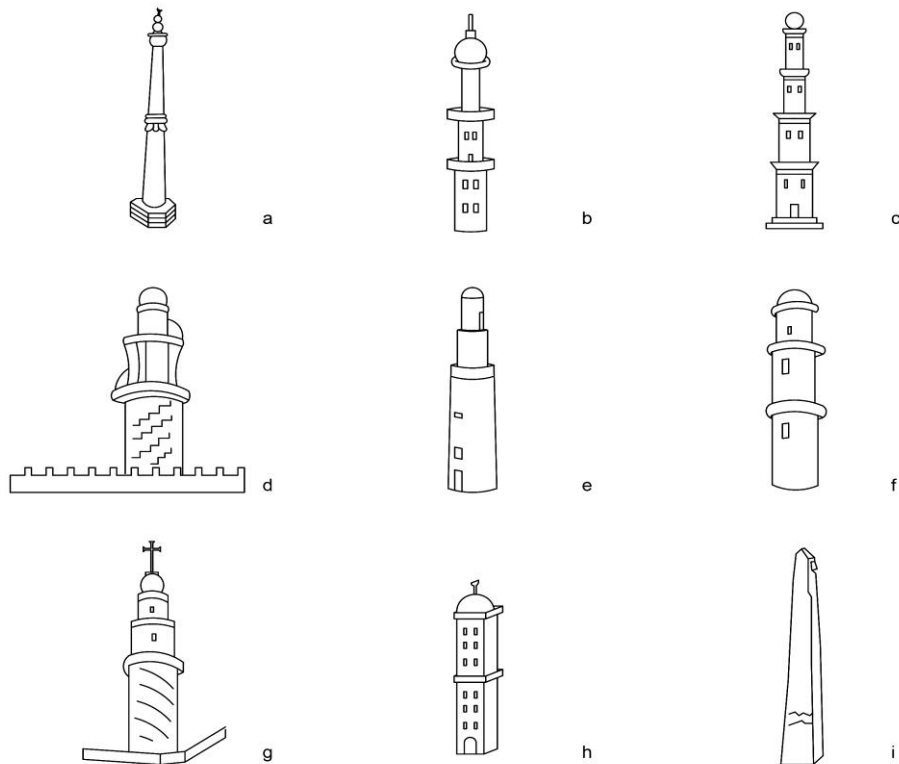


Figure 4. Author; Renderings of the Minaret in Hormuz Retraced from Historical Views
Sources: mentioned above from a) to i).

- a) Gaspar Correia, Ormuz, c. 1560, in Rodrigo José de Lima (ed.) *Lendas da Índia*, Felner, Lisboa: Typographia da Academia Real das Sciencias, Vol. 2, 1858-1866, p. 439.
- b) Manuel Godinho de Erédia, Fortaleza de Ormus, c. 1620, in *Livro de Plantaforma das Fortalezas da Índia*. Source: Fortaleza de S. Julião da Barra, Oeiras.
- c) Anonymous, plan of Hormuz, 1635, in Pedro Barreto de Resende, *Livro do Estado da India Oriental*, c. 1646. Source: British Library, London, id. Ms. Sloane 197, f.155 v/156.
- d) Adriaen Matham, *Het Eylandt Ormous, en Gomeron, op 't vaste landt van Persien* (1629). Source: Rijksmuseum, Amsterdam, id. RP-P-OB-75.464.
- e) Jan van Kessel the Elder, *Les 4 Continents – Asie*, nr. 8 Oosmus Ormuz (The four Continents – Asia, nr. 8 Hormuz), 1664-1666, Alte Pinakothek, Munich, id. 1911.
- f) Pieter van den Broecke, view of Ormus from the west, 1664, in *Vijf verscheyde journalen van Pieter van den Broeck, gehouden op zijne reyzen na Cabo-Verde, Congo, Angola en Guinea*, Amsterdam: Gillis Joosten Saeghman, p. 102.
- g) Luycken, *Costumes des quatre parties du monde/gravés dans la manière de Luycken*, c. 1670, source: Bibliothèque Nationale de France, département Estampes et photographie, id. ark:/12148/btv1b8447130t.

- h) Jacques Nicolas Bellin, Das Eyland Ormus oder Jerun, in *Allgemeine Historie der Reisen zu Wasser und Lande* (1748). Source: Landesbibliothek, Oldenburg, id. urn:nbn:de:gbv:45:1-14148.
- i) James Baillie Fraser, Ruins of Hormuz, 1820s, in James Silk Buckingham, *Travels in Assyria, Media, and Persia*, 1829, London: Henry Colburn and Richard Bentley, p. 251.

Portuguese historian Gaspar Correia accompanied Afonso de Albuquerque and compiled the well-known manuscript *Lendas da Índia* (1550-60s), based on his extensive stay in Estado da Índia until his death. His depiction of Hormuz seems very much focused on the fort, and less concerned with the rest of the city. The built environment is shown as a continuum of one or two-story houses, and two towers. The one on the left should be the minaret (Figure 4, a).⁹² It is extremely elongated, almost like a pinnacle: on a polygonal base placed on the roof of a large edifice, a tapered column ends with three spherical decorative elements on the tip.

Interestingly, Manuel Godinho de Erédia shows very few details in his rendering of the island in *Livro de Plantaforma das Fortalezas da Índia* (c. 1620). The urban morphology is the same as reproduced later in Bellin's map. The "alcoran" tower is at the northern end of the main street block, elevated on a circular plan with an elevation partitioned in three (Figure 4, b).

In another collection of drawings of the same period attributed to Portuguese secretary to the viceroy Miguel de Noronha Pedro Barreto de Resende, the *Livro do Estado da India Oriental*, a similar circular tower is represented with a stepped base, next to or part of a walled area, divided in four parts and with a spherical culmination. Its exaggerated proportions, when compared to other elements on the island, demonstrate the significant role the minaret played as a landmark in the built environment (Figure 4, c).

The view of Hormuz from the sea attributed to Adriaen Matham (1629) delineates a profile of the city characterised by wind catchers. The tower seems to be isolated in a walled area and has bulky proportions (Figure 4, d). The plan is circular. The elevation has two cantilevered cornices, maybe balconies, and an element crowning the tower visible in other representations. Given the marks on the exterior, Matham's drawing may imply a helical stair inside.

A very similar configuration is visible in the painting series *The Four Continents* by Jan van Kessel the Elder. In the series on Asia, painting number eight portrays a naturalistic view of the island, from the hills and looking towards the city. The tower is composed of three circular masses of decreasing size, very few openings aligned vertically with the ground floor entrance, and a dome termination (Figure 4, e).

The view of Hormuz presented in Pieter van den Broeck's travel journal (1664) has a similar visual structure to that of Adriaen Matham but is portrayed from the west. The tower is circular, divided into three parts with a decorative fascia and semi-spherical termination (Figure 4, f). Here, the landmark is isolated in an area surrounded by crenellated walls. The houses in the city have wind catchers and flat roofs.

92. The landmark on the right is either the *pelourinho*, pillory, or a votive cross. Similar representations can be found in Pedro Barreto de Resende's maps *ibid*.

Analogous details appear in several other Dutch illustrations⁹³, in which the tower seems to be consistently replicated. In *Costumes des quatre parties du monde*, illustrations combine places and costumes of the world. Hormuz then counts as a representative and important centre among the others included in the collection (i.e., Paris, Canton, New York). The city shows wind catchers and pitched roofs as a combination of local features with imagined architectural typologies. The tower has the same characteristics as seen in *Het Eylandt Ormous, en Gomeron* (shape, walled area, and subdivision) but with a Portuguese cross on top of the globe tip (Figure 4, g).

In Bellin's map (1748), one can see four main street blocks, two in the centre and two by the coast, another row of four street blocks is peripheral and just outside the core of the city, also delimited by a city wall fragment to the east that stretches to the strait. Among the rich details offered in the representation, the "Alcoran" tower stands out against the central residential block, overlooking a large square called "Waffenplatz". The tower is erected on a square base, with two cornices in the middle and on the top of the building, crowned with a rounded dome (Figure 4, h).

Finally is a series of drawings that render Hormuz in a ruined state. One of the most detailed in terms of urban morphology is the view illustrated by James Baillie Fraser at the beginning of the nineteenth century and published in James Silk Buckingham's *Travels in Assyria, Media, and Persia*. The viewpoint is situated atop the fort, facing south. Wind catchers seem to be still in place. In the representation, the ruined tower is sketched as a plain monolith, whose mass dominates the landscape (Figure 4, i). But Fraser's account in his travel journal complements the visual information after on-site observations covering function, form, material, and decoration:

The only remarkable object is a *minār* or tower near the mud wall, which some conjecture to have been a light-house; although neither its situation nor form, in my opinion, warrant the supposition. It is a round tower which has been encircled at intervals with galleries, the wood work of which, formed of the date tree, having given way, they have also fallen to pieces. A winding staircase of the same perishable materials and consequently very ruinous, conducts to the top. The exterior has once been ornamented with Mosaic work in coloured tiles, the greater part of which have fallen off. Its appearance, as far as I can judge, very satisfactorily confirms the tradition of the country, that it was a minaret, built by Shah Abbas, after the capture of the place, to call the faithful to prayer. The Mosaic work, in particular, is quite in conformity with the taste of that period; there are, indeed, no remains of a mosque; but that might have been built of less substantial materials; and it is far from uncommon in Persia, to see minarets erected quite distinct from, and of superior architecture to the mosques they belong to.⁹⁴

93. See the painting *The Dutch Ambassador on his Way to Isfahan* (1653 – 1659) by Jan Baptist Weenix; the representation of Hormuz in *Begin ende voortgangh, van de Vereenighde Nederlantsche Geocroyeerde Oost-Indische Compagnie* (1646) by Isaac Commelin; and the anonymous view published by Frederick de Wit 1700 as *Gezichten en plattegronden van acht steden*.

94. J. B. Fraser, *Narrative of a Journey Into Khorasān: In the Years 1821 and 1822. Including Some Account of the Countries to the North-east of Persia; with Remarks Upon the National Character, Government, and Resources of that Kingdom* (London, 1825), 47-48.

All that remains of the mosque at the end of the nineteenth century, Morgan explains, is a ruined minaret that used to be decorated with “briques émaillées en couleur.”⁹⁵

Other representations, such as the one by João Teixeira Albernaz, show a similar morphology as in maps b) and h): four main street blocks and four additional blocks reaching the foothills, a fragment of a defensive wall stretching East, an extensive esplanade to the north where ships dock on both sides (“Porto de Ponente” and “Porto de Levante”). This space was cleared during the renovation of the fort in 1539-40, when the adjacent palatine complex of the local king was demolished.⁹⁶ The area now provided visibility from all directions, stables for horses, and the *alfandega* to collect customs duties. Almost symbolically, the void left by the demolition of the king’s palace was replaced with a trading space controlled by the Portuguese. The maps also visualise that shallow waters prevent ships from docking, so merchandise has to be shuttled to the shore by small boats (see maps b, d, g, h).

The fifteenth-century chronicler Abd al-Karim Nimdihi⁹⁷ writes that Turan Shah I (1347-77) built, in front of the palace mentioned above, a madrasa with a minaret, a mosque, and a bazaar.⁹⁸ The madrasa, or part of it, probably served as a makeshift hospital. Nimdihi reports two seismic events that hit Hormuz at the end of the 1480s, and he mentions damages to tall buildings, ventilation shafts and minarets, thus confirming the morphology of the city reproduced in the views b, d, g, h. Given the positional information, it is possible to assume that the minaret is the same tower depicted in the maps, and the large, flat building in Correia’s drawing is a different mosque from that of the king’s complex. If the latter was adjacent to the castle, Stiffe estimates the distance of the tall minaret from the castle as 365 metres. Indeed, the adaptation of the historical maps on the GIS base returns a distance of 362 metres. This means that the cathedral mosque was in the middle of the city, spaced 250 metres apart from the palace.⁹⁹ When Stiffe visited the site, he assessed the tower to be around 21 metres high, made of bricks with glazed tiles “in the manner which renders the mosques of Baghdad such striking objects,”¹⁰⁰ and about to collapse. The two broken spiral staircases he saw inside are echoed in some representations (d, g). Assuming a point of view from the deck of a ship at 4m above sea level, the tip should be visible from 24km.¹⁰¹ A viewshed analysis performed with these dimensions and the topography suggests that the landmark was visible, and in turn

95. Morgan, *Mission scientifique en Perse*, 288.

96. Aubin notes that the royal palace was already built at the time of Ibn Battūta’s visit. The building measured between 80 and 100 meters on the eastern façade, which is the distance, through the esplanade, between the Portuguese fort and the city Aubin, “Le royaume d’Ormuz au début du XVIe siècle,” 77-179.

97. Nimdihi acted as a secretary of the prime minister of the sultanate, Mahmud Gawan, thence under the king of Hormuz, and finally composed the *Tabaqat-i Mahmud Shahi* commissioned by Mahmud Shah I. Nimdihi left an invaluable and rare inside view from the Hormuzi court right before the Portuguese aggression. For a complete account see the cited article by Aubin.

98. J. Aubin, “La Vie et Oeuvre de Nimdihi,” *Revue des Études Islamiques*, (1966), 61-81.

99. Aubin, “Le royaume d’Ormuz au début du XVIe siècle,” 77-179.

100. Stiffe, “The Island of Hormuz,” 12-17, 13.

101. To calculate the maximum distance D at which an observer with a height of H_o can see the top of the minaret at H_m , the expression is $D \cong 3.57 (\sqrt{H_o} + \sqrt{H_m})$.

controlled, in a sea area with a radius of roughly 270°. It spotted the northern area of the island, the eastern extension of Qeshm, and Bandar Abbas with areas of the Kuh-e Geno mountain behind it (Figure 5).



Figure 5. Author; Viewshed Analysis of the Visibility of the Minaret Performed in QGIS (In Orange, the Areas that Entertain Visual Contact with the Tip of the Tower)

Baṭṭūṭa mentions the cathedral mosque as well, in the vicinity of the main bazaar. Having a gate,¹⁰² the mosque was a vast, composite architecture with a courtyard and a flat roof, as is shown in Correia's drawing. At the time of the visit of Garcia de Silva y Figueroa,¹⁰³ in 1617, it was evident that the recent demolition

102. Baṭṭūṭa, *The travels of Ibn Battūta, A.D. 1325-1354*, 400.

103. Don Garcia de Silva y Figueroa (1550-1624) was a Spanish nobleman sent as an ambassador of Philip III of Spain to the Shah Abbas I of Persia. His journey, which started in 1614 from Lisbon and was carried out for a decade, is narrated in great detail in his diary *Comentarios de don Garcia de Silva que contienen su viaje a la India y de ella a Persia*, at the Biblioteca Nacional de Espanha, Madrid.

of this magnificent building had caused outrage among both the Muslim community in Hormuz and Shah Abbas I of Persia.¹⁰⁴

Tentative Conclusions on the Invisible Hormuz

The cross-examination of narratives and representations analysed in this text sets out two of the main challenges encountered in the research project in terms of visualisation. Namely, the charting of immaterial agencies, and the reconstruction of disappeared architectures.

Regarding the problem of mapping relations and customs, we have seen how the scarcity of fresh water, together with high temperature, highly influenced the built environment, but also accounts from travellers. How can we map the influence of the agency that played such a significant role in the history of Hormuz? The city lacked territory, and its descriptions highlight the paradox of a flourishing trading post set on a bare rock. The form of the city, its profile, the position of the cisterns, and the way domestic space was shaped, were all closely related to this aspect. Another direction of research concerns the intersection of architectural history with literature and cartography. Today's tendency towards objectivity and quantitative analysis might leave valuable nuances behind. After pondering that "the wealth and splendor of Ormuz have been infinitely overrated", as Fraser¹⁰⁵ observed after visiting the site of the old city, the narrative apparatus on Hormuz still provides remarkable details. How can we map such narratives?

Interpretative drawing distils the excess of information, closer to the meaning proposed by Umberto Eco: diminish the abundance of data. In this regard, Eco often refers to Jorge Luis Borges' *Funes the Memorious*.¹⁰⁶ Ireneo Funes remembers everything – not only does he remember every leaf of every tree of every forest – he even remembers every time he perceived anything. Thus, he builds a useless catalogue with all the images of his memory, and in this way, however, finds himself in a sort of parallel world that perceptively disconnects him from reality. Funes is overwhelmed by information. Borges writes that we must forget and select rather than accumulate layers.

GIS share several similarities with Ireneo Funes, particularly in their capacity to add infinite layers of information and achieve any levels of detail. While the introduction addresses the risks associated with disciplinary normativisation, this article focuses on how we can advance understanding of a specific historical context by establishing a multidisciplinary framework. Indeed, if we start from the visual documents, maps and views, it is possible to ask how the critical mass of historical studies on Hormuz, its architecture and the rituals, can be spatialised. In turn, this might unearth new relations between spaces once we locate them. The best-known example is probably

104. Silva y Figueroa, "Comentarios de don García de Silva que contienen su viaje a la India y de ella a Persia, cosas notables que vió en él y los sucesos de la embajada al Sophi" (2011) 187.

105. Fraser, *Narrative of a Journey Into Khorasán: In the Years 1821 and 1822. Including Some Account of the Countries to the North-east of Persia; with Remarks Upon the National Character, Government, and Resources of that Kingdom*, 48.

106. J. L. Borges, *Labyrinths; Selected stories & other writings* (New York, 1964).

The David Rumsey Map Collection, which hosts publicly available historical maps that have been collected since the 1980s. It is possible to browse georeferenced maps or perform semantic searches by searching the text contained in the pictures. Similar tools have been developed by institutions such as the British Library (*Old Maps Online*) and the Dutch National Archive (*Atlas of Mutual Heritage*), which is especially focused on the area where the Dutch India Company operated. While these advanced databases are extremely relevant to the way maps are archived and disseminated, the application proposed for Hormuz is much more focused on localised issues, but can be replicated in many other heritage sites with rich narratives and scarce material traces. Of course, one should avoid the temptation of taming historical representation in our Euclidian paradigm, because exactitude, to use Borges' term, is not the aim of such interpolations. Inaccuracies, shifts, and drifts are inevitable and necessary for gaining a historical perspective. Jiang¹⁰⁷ proposes a new paradigm in mapping based on the use of fractal geometry instead of Euclidian geometry, advancing a topological perspective that renders geographical features in patterns and structures. This approach is informed by studies on complexity in living environments by architect Christopher Alexander.

Having in mind that the artefacts we study are the outcome of "cartographic encounters,"¹⁰⁸ of mutual influence between the knowledge of places and the standardisation of techniques, HGIS should be able to accommodate multiple ontologies and epistemological systems. Geographers discuss how maps are social constructions representing knowledge.¹⁰⁹ The convergence toward certain formats or platforms implicitly sets knowledge and research standards. Some scholars suggest that even the term cartography should be reconsidered, opting for a study on maps as singular productions realised in a specific system of circumstances, concentrating then on the process of mapping.¹¹⁰ One way to cross-examine all maps of Hormuz is to fix the pattern of geographical features that are identified in the historical representations (Figure 6). Then, analyze the relational dialogue between these anchor points. After the application of this method, it was possible to locate the minaret, study its visibility, imagine the domestic typology, and estimate the dispersion of water tanks. In the phase of visual translation, we are working on ways to integrate visual devices taken from historical maps in a GIS environment. In the work-in-progress map presented here, a planar view is combined with elevations. We have included a symbolic system for architectural landmarks, their relation with geography at a different scale, the use of areal to localise spatial practices, and pictorial details (Fig 7). This perspective will be elaborated upon in forthcoming scholarly publications focusing on Hormuz, alongside other case studies that explore encounters in Asia. The ambition is to provide scientific knowledge and also leave

107. B. Jiang, "New Paradigm in Mapping: A Critique on Cartography and GIS," *Cartographica: The International Journal for Geographic Information and Geovisualization*, 54, 3 (2019), 193-205.

108. M. Storms, M. Cams, I.J. Demhardt and F. Ormeling (ed.), *Mapping Asia: Cartographic Encounters Between East and West* (Cham, 2019).

109. J. W. Crampton, "Maps as social constructions: power, communication and visualization," *Progress in Human Geography*, 25, 2 (2001), 235-52.

110. M. H. Edney, *Cartography: the ideal and its history* (Chicago, 2019).

space for imagination, hinging on the state of latency that historical visual documents provide.

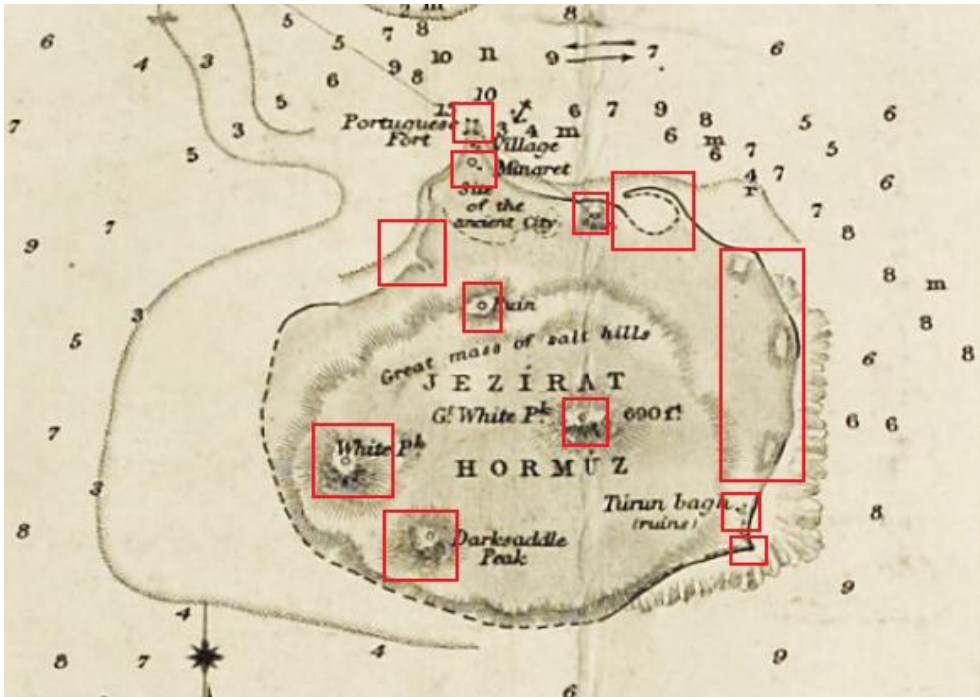


Figure 6. Author; *Geographical Landmarks Employed to Compare Historical Maps (Based on a Detail of Arthur William Stiffe, Asia, Persian Gulf, British Library: India Office Records and Private Papers, IOR/W/L/PS/10/457 (i), in Qatar Digital Library)*

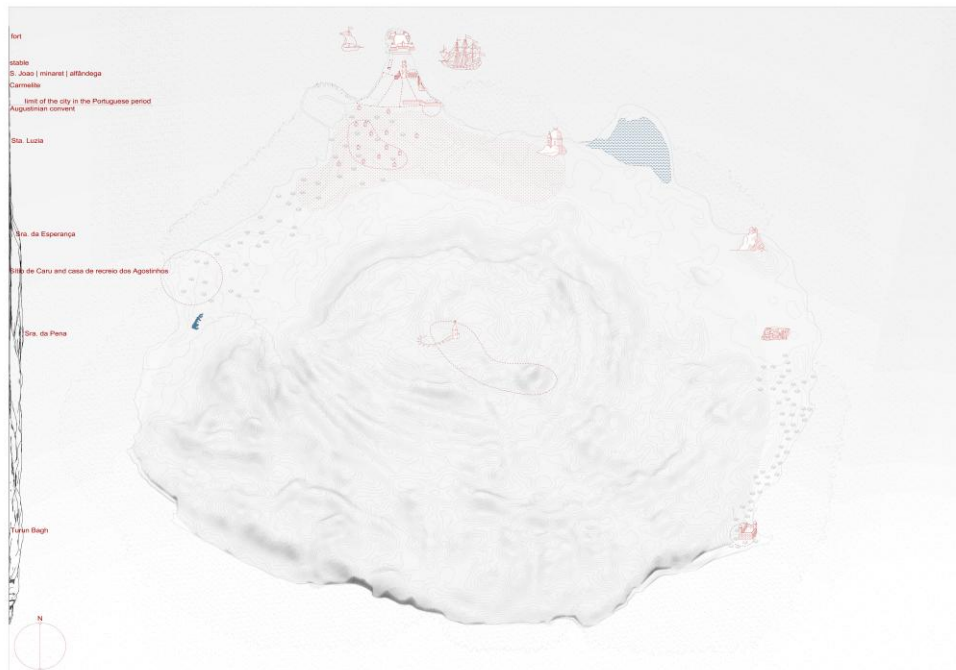


Figure 7. Author; *Work-in-progress Interpretative Map of Hormuz*

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