Al-Muqaddasī's tenth-century maritime landscapes
of the Arabian Red Sea

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Introduction

The Arabian Red Sea coast, lying at a crossroads between Africa and Asia, was known as a commercial hub for the trade of frankincense, gold and slaves in Antiquity, after which it emerged under the Romans and the Ptolemies (3rd c BCE to 3rd c CE) as an important focal point for the India trade; it continued to do so in Medieval Islam and for many centuries thereafter, serving as a pilgrim-trade route until the last days of sail. Historical Greek, Latin and Arabic texts are our primary sources, the underlying structure for our understanding of the past; however, other benefits are resourced here: from archaeological finds and oral history which I describe as the surface structure for interpreting the texts, enabling a wider view of what was described by the classical and medieval authors. Social scientists today may be cognizant of the Greek and Latin texts dealing with the Red Sea and the Western Indian Ocean but less familiar with Islamic texts and so largely unaware of their importance in understanding Late Antiquity and what they offer to researchers studying the maritime landscapes of Early Medieval Islam.

As a model for studying these maritime landscapes in coordination with archaeological investigation and oral history, I have chosen al-Muqaddasī (d. after 378/988), a geographer-traveller whose work is considered to be the foundation of

physical and human geography, not only for its content but for the systematic inquiry which he applied when recording details of the land and sea.

A new genre of geographical treatise

The aim of ninth and tenth-century classic geographical works was to survey routes and settlements, the lands and seas known to the Islamic caliphate and governors of the time.[1] These works laid the foundation for the geography of Muqaddasī's (d. after 378/988)[2] *Aḥsan al-taqāsīm fī maᶜrifat al-aqālīm* (The Best Divisions for Knowledge of the Regions), the most significant of Early Medieval geographical treatises, both in terms of content and methodology. It is a single work which in the words of Basil Collins, the translator, 'bespeaks a product of Islamic civilization at its finest.'[3] Al-Muqaddasī's birth and death dates are not precisely known but he flourished towards the second part of the fourth/tenth century. He was a merchant and traveller by sea and land. Not much is known about his life, except what he tells us in his travel narrative (*riḥla*) within over a period of twenty years. He endeavoured to describe every region 'with the deserts and the sea in them'; their routes, the commodities of towns and cities, the traditions and customs of various communities and their material culture.[4] He had a special interest in seamanship and his descriptions afford us tantalizing glimpses of navigation and sailing techniques. In general, it may be said that his descriptions are readily understood, and 'accessible to the specialist and layman alike.'[5]

In view of the above comments, it is the aim here to examine al-Muqaddasī's physical description of the Red Sea, the Arabian landscape and seascape in particular, and his methodological approach to tenth-century scientific investigation, noting his attention to the coastal towns, their forts, wells and markets, and the sea hazards encountered in navigating this perilous sea. An attempt is made in this chapter to answer the following questions: What is the scientific basis for al-Muqaddasī's inquiry? How far does his treatise contribute to our understanding of the

coastal landscape and seascape of the Red Sea and traditional seamanship? Finally, how significant is his information for the modern researcher?

There are three parts to this study: the first is an assessment of the author's scientific knowledge; the second is a discussion on climatic conditions and seamanship of the Arabian Red Sea, and the third is an evaluation on the facilities and services offered to merchants and pilgrims when they land.

1. A scientific approach

In all the geographies noted earlier, we see the beginnings of the social sciences, the emerging need to show the day-to-day life, the practicalities, of Islamic culture in towns and villages, whether inland or on the coast. In these early texts we find descriptions of the life of individuals and their connections with the Islamic communities at large through a number of articles of commerce they produce in every region. But when we compare al-Muqaddasī to his predecessors, we find his approach much broader, encompassing an interest in all aspects of the material culture,[6] addressing both the merchant and traveller. Water is the most essential ingredient of life and the subject of water management as well as urban development are topics that he comments on. With participant observation, he provides his findings on different aspects of life from climate, vegetation and language to religion and culture 'with objectivity and neutrality.'[7]

Al-Muqaddasī's methodology

I first demonstrated in an earlier work the *uṣūl* method, or the fundamentals that set the general criteria for fact-finding whatever the line of inquiry was in Classical and Medieval Islam.[8] These research criteria were not all adhered to by travel scholars but essentially, seeing and hearing, were the chief fundamentals. What set al-Muqaddasī's methodology apart from his predecessors, was his systematic approach, with the application of mainly three criteria, not always necessarily in the

following order: seeing or observation (*ᶜiyān*), hearing or oral communication (*samāᶜ* or *mushāfaha*) and the consultation of manuscripts and maps (*muṭālaᶜa*) which appears to be consistent throughout. He strove, in his own words, for accuracy, verifying information through a chain of reliable authorities (*isnād*); and if the chain was broken he would reject the information given.[9]

The auditory and ocular cultures

In Touati's analysis of the seeing and the hearing experiences of geographer-travellers and writers, he claims that both are given equal credit by medieval scholars; however, this may not have always been the case, as rivalry gradually increased then, leading them to claim the superiority of one method over the other. In order to understand the position that geographers took to fact-finding we have to examine the relationship between man and the environment and man in the environment of his work. Thus, Touati follows what the prose writer, al-Jāḥiẓ (d. 254/868) in his *Kitāb al-Ḥayawān* (Book of Animals) sketched out - 'a framework of interpretation between man, work, and the ecological milieu.'[10] These three factors cannot be separated from each other. Hence the importance of describing the lands and the community's activities in such lands as first-hand observers. The question is what judgement criteria did travel geographers follow? This is partly answered by the contemporary historian-geographer, al-Masᶜūdī (d. 345/956). In one of his narratives about Indian Ocean seafarers, he claims a sailor's trustworthiness is judged by the criteria of experience, skill and age,[11] the essence of true perception. In the collection of sea stories, the *Kitāb ᶜajā'ib al-Hind* (The Book of the Wonders of India), alleged to be collected by Captain Buzurg Ibn Shahriyār (fl. mid to late 4th/10th c.), we encounter navigators of great nautical experience who voyaged long distances, some as far as China, a sea of many dangers.[12] There is one story in particular, narrated to him about a certain Captain Abhara who voyaged to China seven times commenting that 'only adventurous men had made this voyage

before.'[13] If it is a true story he must have had enormous skill, knowledge of winds, currents and tides and experience to have returned from such a long and perilous journey alive and sound. The main issue here is whether we can rely on the informants. Not all the collected stories are endorsed with the names of people who provided information though some do have details of their occupation and status among other things.[14]

Of course both auditory and ocular methods could lead to doubts but one way to check the source was for scholars, to apply the *isnād* method of the chain of authorities as mentioned earlier, which aimed to achieve a reliable source. Buzurg, al-Masᶜūdī and al-Muqaddasī were in contact with seafarers, merchants and pilgrims, who, with them, voyaged the seas of Oman, Aden, East Africa and the China Sea, recounting stories of sea hazards, lost lives and cargoes thrown overboard.[15] Thus, al-Jāḥiẓ's principle that the 'human mind is perfected only by voyages,'[16] is the acme of ocular and auditory experience: seeing lands, sensing the environment, talking to people of different social strata and observing them at work.

Al-Muqaddasī's scientific knowledge of the Arabian Peninsula

The traveller presents the facts about the Arabian Peninsula by first describing the region through maps he consulted at libraries; some giving details of things not familiar to him. He personally voyaged the 'Peninsula of the Arabs' and his information on winds, anchorages and islands was confirmed by 'shipmasters, cargo masters, coastguards, commercial agents and merchants.'[17] Not only were these people questioned on matters of landing places, winds and islands but some, he maintains, had nautical guides.

Early Islamic maps like the ones that al-Muqaddasī had seen were roughly in shapes such as a *ṭaylasān* (headdress)[18] or a bird. These forms perplexed him until one day

he approached a learned Shaykh, Abū ᶜAlī Bin Ḥāzim, head of merchants and a ship owner of several ships, who was sitting on ᶜAdan (Aden)'s sea shore, and asked him to draw the lines of the Arabian Peninsula. The shaykh drew on the sand a rough map containing 'gulfs, tongues, and numerous bays,' sketching 'two arms' representing the Red Sea and the Persian Gulf.[19] However, when al-Muqaddasī came to draw his own map of the Indian Ocean, referring to it as the 'Sea of China', he did not include bays and gulfs. His conceptualization of the whole Indian Ocean seems to have been abstract.

2. Climatic conditions and seamanship

Al-Muqaddasī embarked on a ship at Al-Qulzum (today Suez) which sailed down the Arabian Red Sea coast reaching al-Yaman (Yemen), then round the southern Arabian coast to the Gulf of Oman and from there, the final leg, to the Persian Gulf, reaching the Persian coast of ᶜAbbadān (East of Basra).[20]

The Red Sea is often described as the most difficult of seas, because of the frequent changes in the direction of the wind. In my recent fieldwork in the Red Sea, I recognized this description as being totally accurate and further corroboration comes from Early Modern travellers and colonial surveyors.[21] His ship, most likely, was plank stitched, a construction technique found in most Indian Ocean ships for many centuries, something I can personally attest as I found evidence of it on an abandoned fishing boat on the Southern Arabian coast in 1996 and in Kerala on the West Indian coast in 2013. This would have given his vessel greater flexibility to withstand the erratic behaviour of the Red Sea winds and waves.[22] It needs to be mentioned that, then as now, the skilled mariners would have, as I observed in many places of the Red Sea, to watch the shallowness of the water because of rocks and coral reefs which are plentiful and more frequent in the south. It is possible that the first leg of his journey was from al-Qulzum to Jeddah. This voyage, according to

written and oral reports, would have probably taken 20 days in fair winds allowing for stops at one or two other main trading ports such as Yanbu[c] and Al-Jār but the return journey would have been longer, about 2 months,[23] counting the time spent in the harbour waiting for favourable winds and many a time struggling against the north westerly winds, covering only a short distance in a day.[24]

The data gathered below (Figure 1), extracted from al-Muqaddasī's observations of the climatic conditions of the Arabian Red Sea, points out the likely sea hazards navigators encounter in eight zones of the Arabian Red Sea.

Sea Zones Arabian Red Sea	Seascape	Sea hazards	Al-Muqaddasī's comments
Jubaylān	fathomless deep		
Fārān (Tārān)		utter destruction of ships	winds from Egypt and Syria
Al-Ḥawrā'		Ships taken by surprise attempting to enter the port	
Al-Silāb	strait	hazardous to ships; a source of apprehension	
Jābir (Jā'iz)	shallow waters	many a ship has been wrecked	truly, a place of calamity
[Islands of] Kamarān			fearfulness and calamity
[Island of] Al-Mandam (Mandab)	a difficult strait	a place not to be negotiated except with the force of a freshening wind	
[Island of] Usqūtra (Socotra)	like a tower in the dark sea	marks the limit of the Indian pirates; the terror of ships	

Figure 1: sea hazards of the Arabian Red Sea according to al-Muqaddasī.[25]

His terse comments for each sea zone in Figure 1 appear rather general but when his notes are taken together, comparing one zone with another, the reader starts to form a holistic picture of the maritime landscapes. Fārān, in the north, is exposed to the North Westerly winds which 'blow from the direction of Egypt and Syria.' Here, for roughly nine months a year (May to January) prevailing northerly winds blow for long and shorter periods of time. Of the next anchorage, Al-Ḥawrā', near Al-Jār (north of Jeddah), he reports that 'ships are taken by surprise' because the anchorage has no protection. Al-Silāb is described as a dangerous zone where ships needed to take extra care. Mandam (Mandab) Island, also known in European texts as Perim Island, the southern gate to the Red Sea, was known as being a difficult strait between the African and Arabian littorals; with favourable winds, larger ships steer to the right and smaller vessels to the left.

Shipwrecks were many: in the Fārān zone, he informs us of 'utter destruction' for ships and he warns mariners of fearfulness and calamity around Jābir and the Islands of Kamarān. The warnings were needed as the Red Sea is notoriously exposed to many of such winds which could take vessels by surprise. But gales and storms were not the only way to capsize ships: sometimes they were loaded with excessive cargo, passengers, cattle or camels; or water could seep through the planks' seams tipping the balance of the ship.

Human error could also play its part of course, handling the sails and rigging incorrectly could well lead to a ship's destruction.[26] There was, however, a much greater hazard caused by human beings: Pirates in the medieval period infested the Western Indian Ocean. They harboured their vessels in the Island of Usqūtra (Socotra) and pounced on passing ships entering the Horn of Africa in to the Gulf of Aden. He described it as 'the limit of the Indian pirates, the terror of ships hereabouts.'[27] Reports of pirates go back at least to Late Antiquity where we are told

they looted large vessels in the northern Nabataean sea zones[28]. In the southern kingdom of the Sabaeans (c. 500 BCE)[29], where there was 'no central authority,' the *Periplus of the Erythraean Sea* records that herdsmen 'eked out their meagre livelihood with profitable returns from piracy.'[30]

Classical Greek, Roman and Islamic texts mention anchorages that were positioned latitudinally opposite each other. This 'twin geography', in Ralph Pedersen's view, is not accidental; he says: '[It] perhaps supported east-west sailing from the earliest times.'[31] Consider Yanbu[c] opposite the Roman Berenice, while Jeddah is in line with the African [c]Aydhāb (Aidhab), the latter became a pilgrimage port town in Medieval Islam.[32] However, at El Wejh, in the Arabian north, which lies opposite Myos Hormos, later known in the Mamlūk Islamic period (7th-8th/13th-14th c) as Al-Quṣayr (north of modern town Quseir), sailing was possible in a west-east direction but the east-west direction could only be achieved by sailing north to Ras Muhammad on the south point of the Sinai Peninsula and then catch the North Easterly winds down to Quseir, as my informants reported to me during my fieldwork in Quseir between 2002 and 2004.[33]

Nautical documentation in Early Medieval Islam is patchy but we have the occasional snippets of information al-Muqaddasī provides that enable us to discern the theory of navigation and the skills held by mariners in sailing the seas at the time. The winds are notoriously unpredictable in the Red Sea, as we have seen, and al-Muqaddasī explains how these winds are tackled by the mariners; he reports: 'A practice of theirs is to send a party of men to observe the wind; if the winds abate, or if that one prevails which blows from their side, they proceed; otherwise they have to stay a long time until the arrival of the hour of relief.'[34] The information is unique, one that has not been recorded by other geographers, nor mentioned centuries later by the master navigator Aḥmad Ibn al-Mājid (d. after 906/1500). The coastal route, may have been safer but could be dangerous in strong winds because of reefs and rocks,

in which case, al-Muqaddasī tells us that: 'Ships changed course to islands and depths of the sea.'[35] Island hopping offered an alternative to sailing in the middle of the sea. The mid-sea course was noted in later centuries by Ibn Mājid and Sulaymān al-Mahrī (d. 917/1511)[36] but there is no mention of it by al-Muqaddasī.

Al-Muqaddasī does mention a nautical technique when steering the ship in and around rocks or navigating through the reef channels. He observes that the captain climbs to the crow's nest and on seeing a rock or shoal he cries out: 'To the right!' or, 'To the left'. The same cry is repeated by two cabin boys presumably because the noise of the winds and waves could muffle the original cry of the captain. The author adds that the helmsman at the stern controls the direction of the ship by handling two ropes attached to the rudder, thus 'pull[ing] right or left, according to the directions."[37] This rope-steering technique, survival of which lasted until fairly recent times, is a technological progression from using a quarter rudder.[38] An alternative to climbing the crow's nest is to stand at the foredeck and shout instructions from there, is still practised up to this very day, something that I myself saw in 2018 on Mafia Islands in Tanzania, East Africa.

Not only did al-Muqaddasī inquire of shipmasters as to the theory and practice of navigation but, on observing them he remarked that: 'They study [the instructions] carefully together and on which they rely completely proceeding according to what is in them.'[39] What does this imply? Are we talking here of oral or written instructions? Later assertions state that sailing instructions were memorized[40], often in the form of poetry, handed down through the generations. Ibn Mājid and Sulaymān al-Mahrī's own treatises were written in verse form with a view to it being memorized. Navigators needed no navigational instructions in coastal sailing, Ibn Mājid said, as they were guided by landmarks[41] but needed to know, as al-Muqaddasī noted, the danger zones. I need to stress here that in my recent field trips when I asked

Egyptian, Hijazi and Eritrean captains of small and medium size vessels about sailing instructions, they all seemed to agree that they depended on the oral and the visual. They claimed that they have never used any maritime guide or map to find their way all along the coast or across the African or Arabian coasts.[42]

However, Arabian, East African and Persian mariners in the tenth century could well have possessed portolan charts and nautical guides, not in Arabic but most likely in Persian which was, at the time, the dominant maritime repertoire and it is probable that the geographer-traveller, al-Muqaddasī, would have been conversant in Persian as many scholars were in Medieval Islam. There is a late Persian source of the twelfth century which mentions a manual guide after the Persian *rahnāma* (manual of sailing instructions) model[43] containing information on star positions[44], bearings and physical descriptions of coastal landscape, and islands. The point here is that al-Muqaddasī's observation of mariners discussing nautical instructions before putting them into practice is noteworthy. Historically, this information predates any knowledge we have of nautical manuals in possession of mariners in the Red Sea and possibly in the Western Indian Ocean.

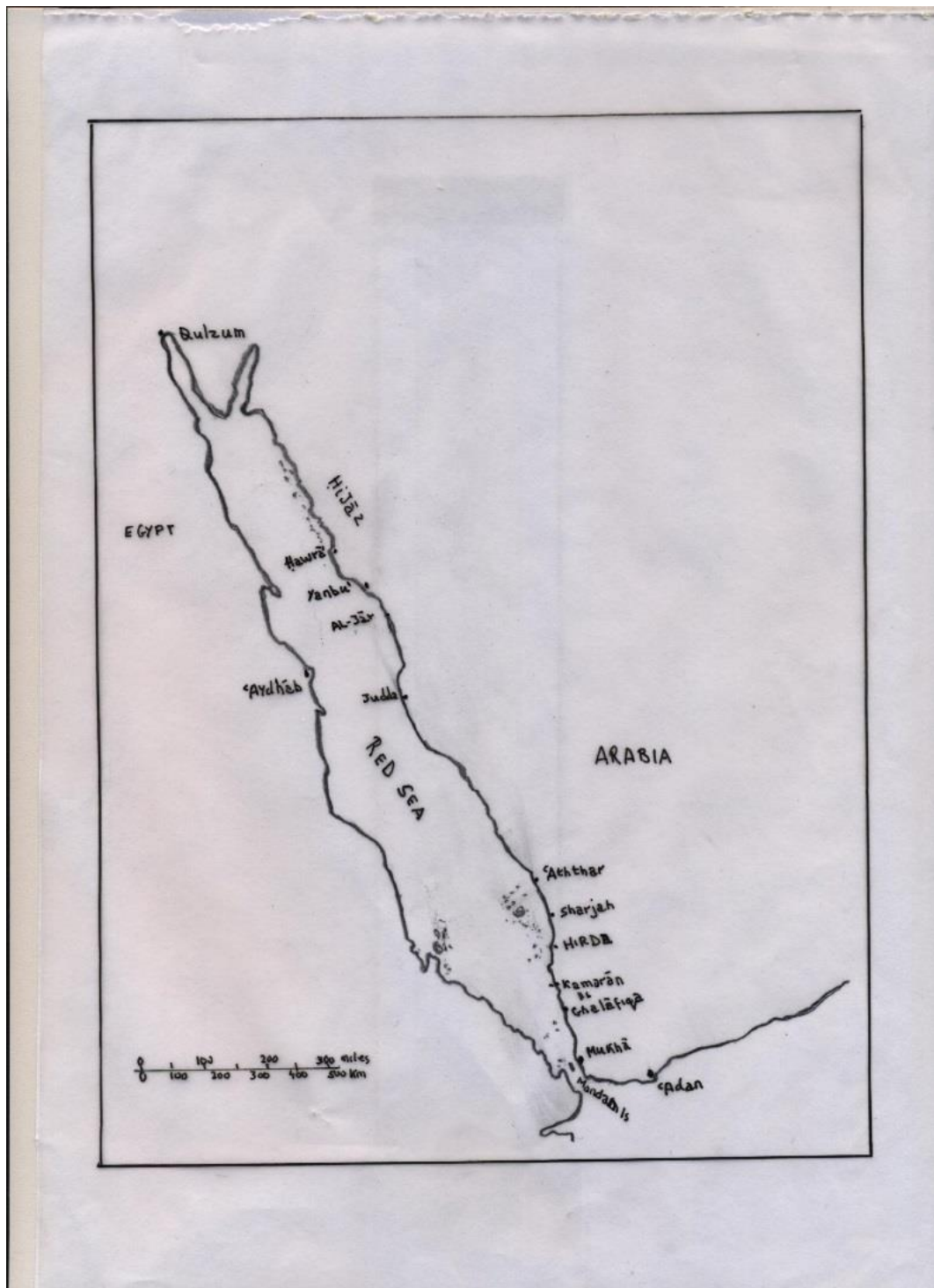### 3. Anchorages and facilities

Once al-Muqaddasī lays down the basis for our understanding of the winds the ships faced both at sea and when approaching the coast, he turns to supplying specific information on the anchorages (Figure 2), describing each port town, its fort, if one is found, and comments on wells, markets and granaries. Sixteen landing places are recorded here: with the exception of two anchorages on the African coast, 'Ushayra and ᶜAydhāb (marked with an asterisk), the rest are all on the Arabian coast, which could indicate that the latter is safer to sail along and offers better anchorages in spite of sea hazards noted earlier (see Map). But the absence of data on the African ports suggests that the author had little access of information because he did not

travel in that region and, even if he did receive reports from people he met in his travels along the Arabian coast he would have preferred to rely on his observation.

Red Sea anchorages	Coastal landscape	Availability of water	Markets
Al-Qulzum	seaport to Ḥijāz	drinkable water; poor quality	thriving markets
*Al-ᶜUshayra	small town on the North-East African coast		incomparable caravanserai
*ᶜAydhāb (Aidhab)	pilgrimage port town on the North-East African coast		
Yanbuᶜ	large sea town; well-fortified	abundant water	markets bustling
Badr	small town	ᶜAyn al-Nabī	
Al-Jār	on the seacoast; fortified	water from Badr	thriving market; granary of Madīna
Al-Ḥawrā'	port of Khaybar; fortress; suburbs densely inhabited		market
Judda (Jeddah)	on the seashore; fortified	water; many reservoirs	granary of Makka; entrepôt
ᶜAththar	port of Sanᶜā' and Saᶜda	water from distance	fine market
Ḥalī	coastal town; fort	rain reservoir	source of grain
Ghalāfiqa	Port of Zabīd	Wells; fresh water	
Al-Sharja; al-Ḥirda; ᶜAṭana	coastal towns	water from distance	granaries
Mukhā (Mocha)	flourishing sea town	drinking water	
ᶜAdan (Aden)	populous sea town; fortified	salty water; number of cisterns	entrepôt of al-Maghrib

Figure 2: Al-Muqaddasī's data on the coastal landscape facilities and services[45]

Figure 2 highlights the trade links by sea and land for each sea town and region covering the topographic and urban space, with the understanding that the sea connects the land, the people and their material culture. The first on the list is Al-Qulzum (Ancient Clysma) which connects the land-lake-river route to Fusṭāṭ (Old Cairo) and the sea route to the Ḥijāz.[46] It is at a cross-roads, gateway to the Mediterranean, with 'thriving markets', while ᶜAdan (Aden), lying at the entrance of the Red Sea on the Horn of Africa, is well-populated in the tenth century, and classified as the 'entrepôt of al-Maghrib (North Africa)'; it is commercially strategic, as it brings the India trade to North Africa and Europe via Fusṭāṭ.[47] The India trade included the commodities that came from the West Indian coast and South-East Asia; hence, he calls this seascape, 'the corridor of al-Ṣīn (China).'[48] Yanbuᶜ (or as it is called today Yanbu al-Bahr [The Fountain of the Sea]), described then in the tenth century as a large sea town and known earlier by the geographer Claudius Ptolemy (d. c. 170) as Iambia Vicus,[49] is linked with the villages inland of Yanbu al-Nakhl (Yanbu among the Palm Trees). Other coastal towns are listed in connection with inland settlements: Al-Ḥawrā', the port of Khaybar with 'suburbs densely inhabited'; ᶜAththar, port of Sanᶜā', capital of today's Yemen; and Ghalāfiqa, port of Zabīd (Map).

MAP: Sea towns identified in al-Muqaddasi's tenth-century text

What mattered in this inventory of coastal towns on the Ḥijāz and Tihāma Arabian coasts is wells and the availability of water. Thousands of wells exist in the Ḥijāz and many wells were found in the Yanbu al-Nakhl region.[50] Al-Muqaddasī did not fail to

remark that among the other sea towns, Yanbu[c] is 'a splendid town', blessed with 'abundant water.'[51] He not only documents in which port town wells and cisterns were found but notes the quality of water. Al-Qulzum has brackish but 'drinking water'; it had to be fetched on boats or camels from 'a place some six miles away called Suways.'[52] At Ghalāfiqa, he says that there was 'fresh water' and Mukhā (Mocha) had 'drinking water'. [c]Adan had many cisterns, although, he reports, the water is 'salty'.[53] Watering stations for the pilgrim/merchant routes were found all along the coast as well as inland trails to Makka and Madīna, and al-Muqaddasī takes care to mention that some were well protected by forts.

He records the economic benefits drawn from markets and the security they can offer to seafarers and ships' crew; hence the mention of forts which kept the marauding desert Arabs at bay and the need to store safely the various cargoes. Some sea towns had granaries for grain brought by sea from Egypt set up in places such as Al-Jār and Yanbu[c] to provide food for the holy cities of Makka and Madīna as well as the pilgrims travelling by camel-caravan from the north or south of the Ḥijāz (which became in modern times the pilgrim railway trail). The importance of Al-Jār as a supplier of Egyptian grain appears to have occurred after famine had struck the Arabian coast in 634-5.[54] Egypt continued to supply grain for many centuries after this. Other places such as Judda (Jeddah) and further south, Al-Sharja, al-Ḥirda and [c]Aṭana, all with grain storages, suggest that the supply was coming from [c]Aydhāb on the African coast or Yemeni ports.

Reflections on the tenth-century geographical knowledge systems

The sections above cover salient points in placing al-Muqaddasī at the forefront of scientific inquiry in Medieval Islam. His geography does not simply lie in the physical description of land and sea, mountains and rivers and towns and villages but, in general, it looks at how the people engage, directly or indirectly, in the environment

they live in and occupy in the work they perform. He does not dwell on the different *ḥadīth*s (sayings and deeds of the prophet Muḥammad) and legal practices (*sharīʿa*) of one community or the other but rather he describes the practicalities of the life of the ordinary people, how they dressed, what they ate, the language they spoke and their work, domestically or out in the street or fields. This he did with much detail, but when it came to the Arabian Red Sea landscape the information about human activity is almost not there. However, the observation and comments of his involvement with maritime culture is worth noting: for a tenth-century merchant and pilgrim, he provides information as to where water can be accessed and whether the anchorage provides good markets and a resting place for the travellers, camels and cargo. Further, it needs to be mentioned that as a merchant, he noted elsewhere imported and exported goods, commenting about the intangible culture through the varied customs and traditions, as well as the tangible culture of this tenth-century Islamic world. His description of buildings brings the places to life but in the case of the coastal landscape he fails to describe the forts or caravanserai of the sea towns he lists.

In general, his approach to the physical and human inquiry resembles sections of the Greek *Periplus of the Erythraean Sea* written in Koiné Greek by an anonymous Graeco-Roman merchant from Egypt in the first century Common Era.[55] A *periplus* is 'a voyage or journey round a coastline'; [56] it includes, apart from imports and exports, a description of the coastal towns, navigation, geography, ethnography, and trading opportunities, accompanied by maps.[57] Of note, however, is that works of the Greek historians Herodotus (d. 426 BCE) and Thucydides (d. after 404 BCE) have sections that could be considered forerunners of the *periplus* genre and, indeed, the geographies of Early Medieval Islam. Herodotus' Book II is about Egyptian and African history covering the geography of the regions with human activity, speaking often from first-hand experience and extensive sea and land travel.[58] His contemporary, Thucydides relied also on eye-witnesses accounts and his own

experiences.[59] Al-Muqaddasī and his contemporaries, it could be said, seem to have followed early Latin and Greek models, probably through translation, but the crucial difference is that the majority of Muslim geographers were concerned only with the world of Islam.

Among these histories and *periplus* archetypes there are to be considered the early Islamic maritime manuals which are more or less contemporary to the Muslim geographies and, though embellished with anecdotes of the *ᶜajā'ib* genre of literature (marvels and wonders), they contain physical descriptions of maritime landscapes of different regions and information on human and economic activities on a number of Indian Ocean anchorages: these are the *Silsilat al-tawārīkh* (Chains of Narratives) with accounts collected by Sulaymān, the Sīrāfī merchant (early 2nd/8th c); while the second collection is the *Akhbār bilād al-Hind wa al-Ṣīn* (News of India and China), author unknown, though re-edited by a merchant Abū Zayd Ḥasan also of Sīrāf (fl. 4th/10th c.). Such works contain a wealth of data[60] but need further investigation. They contain material that has been referenced by the medieval Muslim geographers: Ibn Rusta (d. after 290/893-4), Ibn Khurradādhbih (d. c. 300/911) and Ibn Faqīh al-Hamadānī (fl. end of 3rd/9th c).[61]

Returning to my last question: How significant is this information for the modern researcher? Al-Muqaddasī mentions shipwrecks at Fārān – 'utter destruction of ships' and at Jābir – 'many a ship has been wrecked.'[62] A number of land and underwater archaeological surveys have been conducted in the past forty years, including those supported by the Saudi Commission for Tourism and National Heritage.[63] A number of these surveys are inconclusive and excavations have not been complete. The location of landing places known to the geographer-traveller, the cisterns and wells and a number of forts, are now mostly hidden underground. For example at El Wejh (north of Al-Ḥawrā'), one of the main anchorages from the Egyptian coast in the

ᶜAbbāsid (132-656/749-1258) and Fāṭimid (297-567/909-1171) periods, no Islamic ruins have been found so far.[64] Excavations at Al Jār revealed the ruins of a cistern and walls of a port with a wharf.[65] Yanbuᶜ is described by al-Muqaddasī as 'well-fortified by a wall.' So far no foundation of a medieval wall has been excavated but efforts have been made to restore the Early Modern Sour district.[66] Buried under this town, like other wealthy sea towns, are the medieval houses of merchants and ship owners, the *wakāla*s or caravanserais where merchants stayed and perhaps left their cargoes in fear of the danger they might encounter in crossing the desert *en route* to the holy cities[67], just waiting to be discovered. Groundwater is an important feature; hence al-Muqaddasī's mention of wells in several places and a study on their location and the causes for the water to dry out is necessary to understand the early medieval coastal and desert landscapes.

Parallel to the Ḥijāz coastal route which al-Muqaddasī documents, was the old desert pre-Islamic incense route[68] which became the pilgrim-trade route in the early years of Islam and then formed the route of the Ḥijāz railway at the beginning of the twentieth century. These routes were connected and al-Muqaddasī's information on wells and forts has relevance to the inland route. Wells and forts are landmarks of a coastal and desert landscape which tell a story of religious significance.[69] Although al-Muqaddasī's information is terse and can be difficult to interpret, it may be possible to infer from his accounts the interchangeability of the two routes: water and protection being the essential needs for every traveller.

Classical Roman and Greek literature record a number of ports on the Arabian Red Sea whose finds have been the subject of debate by archaeologists and maritime historians. The difficulty is to locate them against the list of ports provided by al-Muqaddasī, his contemporaries, or later geographer and historian travellers. For example, the disputed Leukē Kōmē has been placed between Khurayba in the north, and El Wejh and Yanbu al-Bahr[70], or one other possibility is Al-Ḥawrā', south of El

Wejh, marked as the Roman port, according to Richard Burton (d. 1890)[71]. It is more likely that El Wejh was Leukē Kōmē, lying as it does opposite Myos Hormos[72], later Islamic Al-Quṣayr. This southern location is mostly favoured by scholars, though the possibility of ᶜAynūna in the north has not been ruled out by some.[73]

It would require international teams of terrestrial and underwater archaeologists, to excavate these sites fully and evaluate the finds. But archaeology alone cannot give answers to questions of historical facts and insights into the landscapes unless the sites and finds are verified against classical (Greek and Latin) and medieval Islamic texts such as those of the early geographers and those of the later period[74]. This should be further strengthened by cartographic evidence such as the maps of al-Idrīsī[75] and the anonymous *Book of Curiosities* (5th/11th c)[76] which offer unique insights to our understanding of coastal regions. Understanding the past by textual and archaeological evidence is not the complete answer to our scientific inquiry. It can only be achieved by supporting data with oral history, a technique I myself have used very successfully. In this more all-encompassing approach, underpinned by hard archaeology, we start to see any patterns of continuity and change in the maritime landscapes and the material culture of the region.

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[1] From this genre I note here as background to the study, a few works by Muslim geographers of comparative importance in the pursuit of an inquiry into the physical nature of the maritime landscapes of peninsular Arabia. Travel experience formed the basis for al-Yaqubi's (d. 284/897) geography in his work, *al-Tārīkh* (The History); it is based on uninterrupted voyages in which he reports on the lands he saw and the people he interviewed, verifying the oral reports with the best and reliable authority on the subject; while Ibn Khurradādhbih's (d. c. 300/911) *Kitāb al-Masālik wa l-mamālik* (The Book of Routes and Provinces) relied on auditory reports from the mercantile

community and seafarers. Two other works by al-Iṣṭakhrī (d. c. 350/961), the *Kitāb al-masālik wa l-mamālik* (The Book of Routes and Provinces) and Ibn Ḥawqal (d. c. 380/990), the *Kitāb ṣūrat al-arḍ* (The Book of the Configuration of the Earth), are credited with advancing human knowledge about lands and people by observation and hearing; producing maps of the Mediterranean, the Red Sea, the Persian Gulf and what is known today as the Indian Ocean, showing the coastal towns and in some parts, highlighting the trade towns inland. Ibn Ḥawqal travelled extensively, and when revising al-Iṣṭakhrī's geography, added much more material on economic matters to his work. See Al-Ya ᶜqūbī, *Kitāb al-Buldān*, trans. Gaston Wiet, Cairo, 1937, p. 2; al-Iṣṭakhrī's map of the Sea of Persia, in *Kitāb al-masālik was l-mamālik*, ed. M. J. De Goeje, Leiden: Brill, 1927, pp. 28-9; and in Ibn Ḥawqal's *Kitāb ṣūrat al-arḍ*, Beirut, 1992, p. 50; see also Houari Touati, *Islam and Travel in the Middle Ages*, trans Lydia G. Cochrane, Chicago and London: University of Chicago Press, 2010, p. 130.

[2] Also known in the Islamic world as al-Maqdisī.

[3] Al-Muqaddasī, *The Best Divisions for Knowledge of the Regions*, trans. Basil Collins and rev. Mohammad Hamid Alta'i, Reading: Garnet, 2001, pp. xxiii-xxiv.

[4] Al-Muqaddasī, *The Best Divisions for Knowledge of the Regions*, p. 1.

[5] Al-Muqaddasī, *The Best Divisions for Knowledge of the Regions*, p. 8.

[6] See for example an inventory of terminology on a varied number of objects of domestic use: household furniture, kitchen utensils, textiles, weights, and measures, inns and markets and cultivated plants, al-Muqaddasī, *Aḥsan al-taqāsīm fī maᶜrifat al-aqālīm,* M. J. De Goeje (ed.) [Bibliotheca Geographorum Arabicorum], volume 3, Leiden: Brill 1906; first edited 1877, pp. 30-2. Al-Muqaddasī also includes a list of sea and river craft, see Dionisius A. Agius, 'Historical-Linguistic Reliability of Muqaddasī's Information on Types of Ships', in Dionisius A. Agius and Ian Richard Netton (eds.), *Across the Mediterranean Frontiers: Trade, Politics and Religion*, 650-1450, Turnhout: Brepols, 1997, pp. 303-29.

[7] Salah Zaimeche, 'Al-Muqaddasi and Human Geography: An Early Contribution to Social Sciences' http://muslimheritage.com/article/al-muqaddasi-and-human-geography-early-contribution-social-sciences (accessed 29 March 2019); see also Dionisius A. Agius, 'River Craft and Ships of Medieval Iraq: al-Muqaddasī's Account', Anne-Marie Eddé and Emma Gannagé (eds.), in *Regards Croisés sur le Moyen Age arabe. Mélanges a la memoire de Louis Pouzet s.j.* (1928-2002), *Mélanges de l-Université Saint-Joseph*, 2005, 58: 392-3.

[8] Dionisius A. Agius, *Classic Ships of Islam: From Mesopotamia to the Indian Ocean*, Leiden: Brill, 2004, p. 15-16.

[9] Further details on his methodology and geographic inquiry, see the 'Introduction' to Al-Muqaddasī, *The Best Divisions for Knowledge of the Regions*, pp. xxiv-xxix. In the introductory statement of his book, al-Muqaddasī claims that 'the scholars who formerly dealt with the sciences wrote the initial works: then their successors in turn commented on and summarized their works. Accordingly', he continues, 'it occurred to me to direct my attention to a science which [my predecessors] had neglected, and to specialize in a branch of learning they had not dealt with, except defectively – I mean an account of the Islamic regions, with the deserts and the seas in them …', p.1.

[10] See Houari Touati, *Islam and Travel in the Middle Ages*, p. 114.

[11] Al-Masᶜūdi, *Murūj al-dhahab*, trans. Charles Barbier de Meynard and Abel Pavet de Courteille as *Les prairies d'or*, volume 1, Paris: Imprimerie Impériale, 1861-1917, p. 9; see Houari Touati, *Islam and Travel in the Middle Ages*, p. 123.

[12] The route to China had its dangers and many a story includes descriptions of strange creatures and folk belief in spirits haunting the coastal landscape and seascape. Such stories of the marvels and wonders were common among travellers and some are found in works of geography too.

[13] Buzurg Ibn Shahriyar, *The Book of the Wonders of India: Mainland, Sea and Islands*; trans. and ed. G. S. P. Freeman-Grenville, London and Hague: East-West Publications, 1981, p. 50.

[14] See Suhanna Shafiq, *Seafarers of the Seven Seas: The Maritime Culture in the Kitāb ᶜajā'ib al-Hind by Buzurg Ibn Shahriyār (d. 399/1009)*, Berlin: Klaus Schwarz, 2013, pp. 64-5.

[15] Al-Masᶜūdi, *Murūj al-dhahab*, volume I, p. 94; Al-Muqaddasī, *The Best Divisions for Knowledge of the Regions*, p. 8; al-Muqaddasī, *Aḥsan al-taqāsīm fī maᶜrifat al-aqālīm,* p. 43; see also Suhanna Shafiq, *Seafarers of the Seven Seas*, p. 20.

[16] Houari Touati, *Islam and Travel in the Middle Ages*, p. 119, fn. 55.

[17] Al-Muqaddasī, *The Best Divisions for Knowledge of the Regions*, p. 9.

[18] It is an oblong-shape headdress: 'a shawl-like garment worn over head and shoulders', see Edward W. Lane, *Arabic-English Lexicon*, volume II, Cambridge: Islamic Texts Society, 1984, p. 1867; also Hans Wehr, *A Dictionary of Modern Written Arabic*, J. Milton Cowan (ed.), Wiesbaden: Otto Harrassowitz, 1966, p. 580.

[19] Al-Muqaddasī, *The Best Divisions for Knowledge of the Regions*, pp. 10-11.

[20] Al-Muqaddasī, *The Best Divisions for Knowledge of the Regions*, p. 9.

[21] Dionisius A. Agius, *The Life of the Red Sea Dhow: A Cultural History of Seaborne Exploration in the Islamic World*, London: I. B. Tauris, 2019, pp. 124-34.

[22] Seán McGrail, *Boats of the World. From the Stone Age to Medieval Times.* Oxford: Oxford University Press, 2004, pp. 145-8.

[23] See A. Raymond, *Artisans et commerçants au Caire au XVIII siècle*, Volume 1, Damascus: Institut Français de Damas, 1974, p.115.

[24] Dionisius A. Agius, *The Life of the Red Sea Dhow: A Cultural History of Seaborne Exploration in the Islamic World*, p. 144.

[25] Table contents cited from al-Muqaddasī, *The Best Divisions for Knowledge of the Regions*, p. 11.

[26] Bad seamanship was noted by the Andalusian traveller Ibn Jubayr (d. 614/1217-18); he reports: the sailing gear was faulty 'which time and again became entangled and broke when sails were raised or lowered …', Ibn Jubayr, *The Travels of Ibn Jubayr*, trans. R. J. C. Broadhurst, New Delhi: Goodword, 1952, p. 70.

[27] Al-Muqaddasī, *The Best Divisions for Knowledge of the Regions*, p. 13. The Arabic name for 'pirates' is *bawārij*, see Al-Muqaddasi, *Aḥsan al-taqāsīm fī maᶜrifat al-aqālīm,* p. 14. The historian al-Balādhurī applies the name to mean 'deep-sea ships', recorded in an attack on Jeddah in 151/768, see al-Balādhurī, *Liber expugnationis regionum* (Kitāb futūḥ al-buldān), M. De Goeje (ed.), Leiden: E. J. Brill, 1866, p. 440; al-Masᶜūdī, *Kitāb al-tanbīh wa l-ishrāf*, M. J. De Goeje (ed.) [Bibliotheca Geographorum Arabicorum], VIII], Leiden: E. J. Brill, 1894, p. 55. It seems that the name for ships

became associated with pirates, hence the term employed by al-Muqaddasī, see Dionisius Agius, *Classic Ships of Islam*, p. 329.

[28] Strabo notes Nabatean pirate rafts attacked vessels approaching Egyptian ports, see *The Geography of Strabo*, with Greek text, trans. H. L. Jones, Volumes I-VIII, London-New York: William Heinemann and G. P. Putnam, 1917, Bk. 16.4.18.

[29] Robert G. Hoyland, *Arabia and the Arabs from the Bronze Age to the Coming of Islam*, London and New York: Routledge, 2003, pp. 40-42, 46-49.

[30] *The Periplus Maris Erythraei*, trans. and commentary Lionel Casson, Princeton, NJ: Princeton University Press, 1989, 20:7. 6-11.

[31] Ralph K. Pedersen, 'A Preliminary Report on Coastal and Underwater Survey in the Area of Jeddah, Saudi Arabia,' *American Journal of Archaeology*, 2015, 119 (1): 128.

[32] Al-Muqaddasī, *The Best Divisions for Knowledge of the Regions*, p. 71.

[33] Dionisius A. Agius, *The Life of the Red Sea Dhow: A Cultural History of Seaborne Exploration in the Islamic World*, p. 146.

[34] Al-Muqaddasī, *The Best Divisions for Knowledge of the Regions*, p. 11.

[35] Al-Muqaddasī, *The Best Divisions for Knowledge of the Regions*, p. 9.

[36] Gerald R. Tibbetts, 'Arab Navigation in the Red Sea', *The Geographical Journal*, 127 (3), 1961: 324, Fig. 1.

[37] Al-Muqaddasī, *The Best Divisions for Knowledge of the Regions*, p. 11.

[38] There is a number of authors who discuss the mechanism of the rope steering system attached to the rudder which survived up to modern times, see Agius, *Classic Ships of Islam*, p. 206, and fn. 162.

[39] Al-Muqaddasī, *The Best Divisions for Knowledge of the Regions*, p. 9.

[40] Yossef Rapoport and Emilie Savage-Smith, *Lost Maps of the Caliphs: Drawing the World in Eleventh-Century Cairo*, Oxford: Bodleian Library, 2018, p. 148.

[41] Gerald R. Tibbetts, 'Arab Navigation in the Red Sea', p. 326.

[42] Dionisius A. Agius, *The Life of the Red Sea Dhow: A Cultural History of Seaborne Exploration in the Islamic World*, p. 100.

[43] Hādī Ḥasan, *A History of Persian Navigation*, London: Methuen, 1928, pp. 129-30.

[44] Star gazing, even though al-Muqaddasī does not mention it, was practised by navigators. One anecdote from the ᶜAjā'ib al-Hind, a century earlier, tells us of a skilled mariner who spent so much time studying the stars at night so as to memorize the outbound and inbound voyage, see Buzurg Ibn Shahriyār, *Kitāb ᶜajā'ib al-Hind*, text ed. P. A. Van Der Lith; trans. L. Marcel Devic, Leiden: Brill, 1883-1886, p. 32.

[45] The information in the figure is extracted from Al-Muqaddasī, *The Best Divisions for Knowledge of the Regions*, pp. 63-77.

[46] See John P. Cooper, *The Medieval Nile: Route, Navigation, and Landscape in Islamic Egypt*, Cairo and New York: American University in Cairo Press, pp. 23-7.

[47] Roxani Eleni Margariti Aden, *The Indian Ocean Trade: 150 Years in the Life of a Medieval Arabian Port*, Chapel Hill, NC: University of North Carolina Press, 2007

[48] Al-Muqaddasī, *The Best Divisions for Knowledge of the Regions*, p. 76.

[49] See *Bruce's Travels through Part of Africa, Syria, Egypt, and Arabia into Abyssinia to Discover the Source of the Nile*, London and Edinburgh: W & R Chambers, 1839, p. 85.

[50] A region inhabited by the Ḥarb and Juhayna Bedouin tribes, as noted by Charles Doughty (d. 1926) a century ago, see Charles M. Doughty, *Travels in Arabia Deserta*, volume II, London: Jonathan Cape, 1936, p. 202. I visited the region in March 2019 and found members of these tribes still living in the villages of the Yanbu al-Nakhl region.

[51] Al-Muqaddasī, *The Best Divisions for Knowledge of the Regions*, p. 75.

[52] Al-Muqaddasī, *The Best Divisions for Knowledge of the Regions*, pp. 76, 165.

[53] Al-Muqaddasī, *The Best Divisions for Knowledge of the Regions*, pp. 76, 165-6; other details on availability water in Aden, see Roxani Eleni Margariti, *Aden, The Indian Ocean Trade: 150 Years in the Life of a Medieval Arabian Port*, pp. 47-53.

[54] See Philip Mayerson, 'A Note on Iotabê and Several Other Islands in the Red Sea', *Bulletin of the American Schools of Oriental Research*, 298, May 1995: 34 cited by Ralph K. Pedersen, 'A Preliminary Report on Coastal and Underwater Survey in the Area of Jeddah, Saudi Arabia', p. 127.

[55] The text, translation and commentary by L. Casson are found in *The Periplus Maris Erythraei*, Princeton, NJ: Princeton University Press, 1989.

[56] https://en.oxforddictionaries.com/definition/periplus (accessed 5 April 2019).

[57] Eivind Heldaas Seland, 'The Periplus of the Erythraean Sea: A Network Approach', *Asian Review of World Histories*, July 2016, 4 (2): 192.

[58] Herodotus, *Histories*, trans. A. D. Godley, Book II, London and Cambridge, Mass: W. Heinemann and Harvard University Press, 1960.

[59] https://www.history.com/topics/ancient-history/thucydides (accessed 10 April 2019); https://www.ancient.eu/Thucydides/ (17 April 2019).

[60] An early translation and commentary on *Silsilat al-tawārīkh* is worth consulting for as much as some observations are outdated, there is information that awaits to be revisited in the light of newer scholarship in Indian Ocean studies; see *Ancient Accounts of India and China, by two Mohammedan Travellers*, trans. E. Renaudot, London: Samuel Harding, 1733. In addition the reader is referred to *Relations des voyages faits par les Arabes et les Persans dans l'Inde et à la Chine*, trans. J. Toussaint Reinaud, volumes I-II, Paris: Imprimerie Royale, 1845.

[61] The importance of comparative study of the works of early Muslim authors were pointed out by Gabriel Ferrand, see *Voyage du marchand arabe Sulaymân en Inde et en Chine*, trans. Gabriel Ferrand, Paris: Bossard, 1922, pp. 13-14; see also Gerald R. Tibbetts, *A Study of the Arabic Texts Containing Material on South-East Asia*, Leiden-London: Brill, 1979, pp. 5-6, 8-9.

[62] Al-Muqaddasī, *The Best Divisions for Knowledge of the Regions*, p. 11.

[63] Cheryl Ward and Uzi Baram, 'Global Markets, Local Practice: Ottoman-period Clay Pipes and Smoking Paraphernalia from the Red Sea Shipwreck at Sadana Island, Egypt', *International Journal of Historical Archaeology*, 10, June 2006 10 (2): 137; A. Al-Mughannam, S. Al-Helwa and J. Mursi, 'Catalogue of Stations on the Egyptian (Coastal) and Syrian (Inland) Pilgrim Routes', *Al-Atlal*, 7, 1983: 42-9. Ralph Pedersen and his team have undertaken a survey in 2012; Ralph K. Pedersen, 'A

Preliminary Report on Coastal and Underwater Survey in the Area of Jeddah, Saudi Arabia',
American Journal of Archaeology, 119 (1) January 2015: 125-36.

[64] Alî Ibrâhîm Al-Ghabbân, *Les deux routes syrienne et égyptienne de pèlerinage au nord-ouest de l-Arabie Saoudite*, Volumes I-II, Cairo: Institut Français d'Archéologie Orientale, 2011, volume I, p. 193.

[65] Alî Ibrâhîm Al-Ghabbân, *Les deux routes syrienne et égyptienne de pèlerinage au nord-ouest de l-Arabie Saoudite*, volume I, p. 355, Figs. 141, 142 a-b.

[66] Hisham Mortada, 'A Traditional Settlement in a Modernized City: Yanbu, Saudi Arabia',
International Journal of Architectural and Environmental Engineering, 10 (10), 2016: 1258-63.

[67] See comments on this subject in Richard Burton, *A Secret Pilgrimage to Mecca and Medina*,
London: Folio Society, 2004, p. 151.

[68] See for example Isaiah 60: 6; Jeremiah 6: 20; Alessandro de Maigret, *Arabia Felix: An Exploration of the Archaeological History of Yemen*, London: Stacey International, 2009, p. 29. The Nabateans acted as middle men during the third century CE. The *Periplus* mentions 'ships ... loaded from Arabia' came to the harbour of Leukē Kōmē on the Arabian Red Sea, 'from which there is [a route inland] to Petra' (*The Periplus of the Erythraean Sea*, trans. and ed. G. W. B. Huntingford, London: The Hakluyt Society, 1980, Ch. 19, p. 21), which, though not specifically stated, would have carried incense to be delivered to Syria and Mesopotamia or alternatively by the camel-caravan trail.

[69] Aylin Orbaşli and Simon Woodward, 'A Railway "Route" as a Linear Heritage Attraction: The Hijaz Railway in the Kingdom of Saudi Arabia', *Journal of Heritage Tourism*, 3 (3), 2008: 159-175.

[70] R. K. Pedersen, 'A Preliminary Report on a Coastal and Underwater Survey in the area of Jeddah, Saudi Arabia', p. 126.

[71] Timothy Power, *The Red Sea from Byzantium to the Caliphate AD 500-1000*, Cairo-New York: American University in Cairo Press, 2012, p. 112.

[72] Caroline Durand, 'Crossing the Red Sea: The Nabataeans in the Egyptian Eastern Desert,'
Dionisius A. Agius, John P. Cooper, Athena Trakadas, Chiara Zazzaro (eds.), in *Navigated Spaces, Connected Places, Proceedings of Red Sea Project V*, [BAR International Series 2346], Oxford: Archaeopress, 2012, p. 88.

[73] Michal Gawlikowski, 'Looking for Leuke Kome,' Andrea Manzo, Chiara Zazzaro and Diana Joyce de Falco, in *Stories of Globalisation: The Red Sea and the Persian Gulf from Late Prehistory to Early Modernity*, [Red Sea Project VII], Leiden: Brill, 2019, p. 288.

[74] See for example, Ibn al-Mujāwir: *A Traveller in Thirteenth-Century Arabia: Ibn al-Mujāwir's Tārīkh al-Mustabṣir*, trans. and annotated G. Rex Smith, London: The Hakluyt Society, 2007; Abu l-Fidā',
Géographie d'Aboulféda (Taqwīm al-buldān), M. Reinaud and M. Le Baron Mac Guckin de Slane (eds.), Paris: Imprimerie Royale, 1840; Al-Nuwayrī l-Iskandarānī, *Kitāb al-ilmām bil-iꜥlām fī mā jarat bihi l-aḥkām wa l-umūr al-muqḍiyya fī waqꜥat al-Iskandariyya*, volumes I-VII, Hyderabad: Dā'irat al-Maꜥārif al-Uthmāniyya, 1968-76; Al-Maqrīzī, *Al-Mawāꜥiẓ wa l-iꜥtibār fī dhikr al-khiṭaṭ wa l-āthār*, G. Wiet (ed.), volumes I-II, Cairo: Institut Français d'Archéologie Orientale, 1911-24.

[75] Al-Idrīsī, *Nuzhat al-mushtāq fī ikhtirāq al-āfāq* (Géographie), trans. P. A. Jaubert, volumes I-II, Paris: Imprimerie Royale, 1836-80.

[76] *An Eleventh-Century Egyptian Guide to the Universe*, trans. and ed. Yossef Rapoport and Emilie Savage-Smith, Leiden: Brill, 2014.