Introduction

Presented in this paper is an extract of the master's thesis 'The study of the port system of Almeria between the 8th and 12th centuries AD' which was defended on February 2018 at the University of Cádiz. This paper is intended to provide a summary in English of both how the research was conducted and its conclusions. Specifically, we will try to explain how we used the methodology of a maritime cultural landscape approach in order to shed light on the maritime culture of Almeria. Using a specific chronological framework, we will attempt to understand the origin and development of the port system within which the city is integrated with. Subsequently, we intend to provide some hypotheses about why the port of Almería was located in the area where it was, despite its evident natural weakness due to its easy accessibility from the sea.

Firstly, we need to explain the meaning of some concepts in order to set a theoretical scope in which to present our arguments. One of the most important is, of course, what we define as a maritime cultural landscape. A maritime culture can be defined as the material, ideological, graphical, or written manifestation of the relationship of a human group with the sea upon which its survival depends. This is a relatively recent term. During the 1930s the term was used by Scandinavian researchers Ake Campbell (1936) and Olaf Hasslöf (1949), who defined the concept as the sum of all those material remains, structures of economic exploitation, hunting and fishing that form a society independent of its chronological period. Following on from this definition we can conclude that the maritime culture of a past society is identified through activities such as traditional fishing, the construction and maintenance of wooden boats by riparian carpenters or shipbuilders (both more difficult to find and preserve), the anchorage and berthing of boats, the coastal defences, the construction of buildings destined to manage the administrative documentation (if it exists) of maritime trade, or even the management of the port activity itself.

Subsequently, the imprint left behind by these activities in the landscape is what we call the 'maritime cultural landscape'. This term was first used and developed by Westerdahl (Westerdahl 1992:5), but it has been further developed by the advent of new concepts such as cognitive landscape (Löfgren, 1981:235-261 and Westerdahl, 2006:7-54), as well as new technical (Ford, 2011 and 2014; Gawronski et al. 2017) and theoretical approaches regarding the term itself (Cooper, 2014).

The study of the maritime cultural landscape allows, and usually demands, the development of several lines of research, particularly: the study of nautical conditions, the naval architecture and typology of the ships according to the historical period, studies on types of navigation according to the chronology and the zone, and the diachronic study of port systems.

Regarding this last topic, some new conclusions have been hypothesised during the past decade, specifically on the definition of concepts. The primary language of this work was Spanish; however, many new studies have been written in English. The discussion surrounding the terminology used to define what is a port, a harbour, an anchorage or a port system has been of significant focus and discussion within the resent literature (Cerezo, 2016; Terrado, 2017 and Cabrera, 2019) and also during this research, however, for the purposes of our research we primarily agreed with the conceptualization in Carlos Cabrera's thesis (Cabrera, 2019:7-8). Henceforth, a port will be defined as when both facilities and harbour structures are identified for harbour purposes, a harbour will be defined as an area with good nautical conditions which also has some associated structures (whether or not they have been found in the archaeological record), and an anchorage will be understood as an area with suitable conditions for nautical purposes but no structures are either needed, found or identified.

Subsequently, in order to gather information specifically regarding ports, we agreed with Cabrera for academic and scientific purposes to use the definition from Keay and Carayon as they provided the most understandable and complete definition of what is termed a port system (Keay y Carayon, forthcoming, in Cabrera 2019:8): 'A port is an interface between land and water which acts as a node of connection between centres of population in its hinterland and other ports overseas. They are sites that are usually thought of as dots on the map or nodes in network analyses of inter-site connectivity. In reality, however, they are much more complex. Within the same micro-region, what is usually termed as simply a 'port' in fact acts as an interface of connectivity that is perhaps better conceived of as a cluster of port facilities and sites of harbour-related potential. These 'port-systems' take the form of façades maritime of differing degrees of development. They were devoted to the export and import of traded goods, facilitated the development and maintenance of social relationships by enabling people to travel by sea, and could also help ensure the security of maritime areas by hosting fleets.'

When considering port system contexts their geographical situation should also be discussed including the physical space the port is in and the desirable scope to approach it: the hinterland and the foreland (Rickman, 1985 and 2008; Karmon, 1985:1-3 and also discussed in Cabrera, 2019:8). According to this, it must be highlighted that

since the main purpose of this research was identifying and interpreting the elements of the maritime cultural landscape which can be related to the port system, we focused the research on the hinterland area more than the foreland. However, we are completely aware that this area needs further research which we are furthering during our on-going PhD research.

Methodology

The maritime cultural landscape must be analysed from several perspectives, with a focus on the interrelation of the sources, and subsequently, the data. In order to achieve our research goals, we focused our research on three main steps.

Firstly, one of our most important steps was the identification and reinterpretation of the sources of study of the maritime cultural landscape, with a specific emphasis on the nautical perspective. The sources we studied included: written, cartographic, iconographic, epigraphic and archaeologic, from both land and underwater archaeology. We compared sources both older and later than our chronological framework to our analysed material. This was done to provide a diachronic perspective of our data. In the case of ancient sources, the objective was to try to reconstruct the palaeo-landscape of the 8th century AD in an interpretative way to allow us to understand why that maritime space, and not another, was chosen as a port. In the case of the later sources, the objective was to carry out a regressive study that would allow the identification of elements of the maritime cultural landscape that, nowadays, have disappeared.

Secondly, the identification and classification of elements using databases were carried out. These databases[1] were categorised using three main classifications: coastal anthropic elements, natural elements and underwater anthropic elements. The first mainly corresponded to those features which were built expressly for a nautical function; the second classification concerns those elements used for nautical purposes, but non-altered. The anthropic underwater elements are those archaeological remains which were documented in underwater contexts and characterised as part of an anchorage, port or shipwreck(s). Regarding this last point, the information has been divided into two main databases. The first one gathers the data as group entities, though focusing on the geographical area and site these materials were found. In the second one, the data has been organized as a singular entity.

Thirdly, when possible, a spatial analysis was carried out using geographic information systems in order to verify the 'maritime quality' of some of the elements. Geographic information systems have become a tool increasingly used in recent years and has also been applied to analyse the marine space (Cerezo, 2016; Safadi, 2012, 2016 y 2018; Safadi y Sturt, 2019; Oksanen, 2018). Its importance lies in the possibility of using qualitative data as quantitative data and integrating them into a cartographic system, which allows establishing patterns with a considerably more objective criterion. In this sense and only in those cases in which it was possible, a basic spatial analysis of visibility and accessibility was undertaken to ascertain the 'maritimacy' of some of the elements and spaces. With this study, we will try to gather enough evidence to suggest a hypothesis which explains the role of these elements in the port system of Almeria.

'Good' visibility conditions will be understood as situations where a terrestrial signal can be observed from any point of the sea, based on a specific maximum distance directly proportional to its height (Izquierdo i Tugas 1996: 300). This visibility can be analysed through geographic information systems, as shown by Cerezo in his thesis on the Cartagena port system (Cerezo 2016: 691-701). In the case at hand, it is intended to propose a hypothesis about the functionality of elements of the maritime cultural landscape, natural and anthropic. The primary aim is to shed light on which spaces were visible from the sea during coastal navigation and at what maximum distance they would be visible. This should provide us with quantifiable data about the suitability of building towers (which could also have been used as lighthouses) which would have been recognisable from the coast, including some even mentioned in ancient sources that have not been preserved to this day. On the other hand, it has also proved important to analyse some of the anthropic elements found on the seafront of Almería (the ribats of La Chanca, the Alcazaba fortification and the tower of al-Idrīsī), to check or deny their suitability for the function that they traditionally fulfilled, especially those that comprised, according to ancient sources, part of the early medieval coastal defensive system.

We must bear in mind that, although it is not represented in the analysis presented here, there are other factors which have been recently studied, besides distance, that can alter visibility, such as water temperature, atmospheric suspension, or cloudiness, which affect the perception of the observer with respect to the visual line (Cerezo 2016). The analyses are subject to optimal visibility conditions, so they only provide binary data (visible and not visible). The visible spaces are those coloured on the map, while the non-visible spaces are called 'shadow' spaces. The height of the viewer, that is, the difference of the observer with respect to the level of the ground, has been introduced manually in each anthropic element with the same average value (1.7 metres).

A privileged geographical situation for nautical purposes

Almería is, nowadays, a south-eastern Spanish province on the Iberian Peninsula. It is a territory with around 219 km of coastline, whose coastal landscape has two very different zones. Firstly, the coastal landscape of the Alborán Sea, which includes the Bay of Almeria located

[1] Anexo II, Tables: 1 to 3.2.

between the geographical features of Cabo de Gata and Punta Entinas, and secondly the coastal landscape of the east coast that extends between the promontory of Cabo de Gata and the municipality of Águilas. This zone is the easternmost point of the Peninsula adjacent to the Mediterranean Sea making it conducive for maritime activities since antiquity. Following on from this, by referring back to the comparative diachronism in the study presented here, we can see that the area corresponding to the Bay of Almeria is mentioned in sources long before our chronological frame mark.

In the case of the Bay of Almeria, it was decided that the most useful analysis that we could carry out to explain the transcendence of this natural element within the maritime cultural landscape was a toponymical analysis. Two historians from antiquity Pomponius Mela, from the 1st century AD, and Claudius Ptolemy from the 2nd century AD, referred to this maritime space with place names which indicated they provided good conditions to carry out nautical activities, specifically for anchoring and sheltering boats.

Pomponio Mela, in De Chorographia Liber Secundus, called this area 'sinus urcitanus' (Mela II: 84), which probably referred to the area of modern-day Chuche, Pechina (Lirola, 2005: 45), while Ptolemy, in his Geographia, did the same with the Latin concept 'Portus Magnus' and the original Greek term 'ho megas limen' (Friedrich, 1843: 76). Both terms can be translated as 'the great port'. This appears to indicate that we could interpret from the literary sources that the Bay of Almeria was already, in ancient times, a space designated for the development of nautical activities. Additionally, by using this term specifically in reference to the geomorphological characteristics of the space and not the monumentality of its built structures, this area wouldn't need to have a particular anthropized space, as its orography gave it the natural characteristics needed to be a maritime space of great interest.

To reaffirm this hypothesis, we need to highlight the existence of the archaeological complex of Turaniana or Ribera de la Algaida, located between the present municipality of Roquetas de Mar and Aguadulce (at the western part of the bay) possibly occupied from the 1st to the 4th centuries AD. Also, we must point out the existence of some salting rafts found a few metres away from the coast near medieval shipyards, also of Roman chronology, possibly dating to sometime between the 1st and 3rd centuries AD. The underwater archaeological remains associated with the salt and wine trade have already been previously documented (Blánquez et al. 1998). Both of these archaeological sites seem to indicate that the nautical activities were taking place between the 1st and the 5th century AD in this region. Regarding the existence of structures in the waterfront on both the western part of the bay and Almeria's shore along with the harbour underwater archaeological materials, suggests the continuity of the use of this space, more than an ex novo origin and developing during al-Ándalus times (Figure 39 to see the areas where harbour contexts materials has been found by chronological scope).

Moreover, if we study the current orography of the seafront of Almería, we can see that the location of the modern city, as well as its port, is in the most suitable anchoring area. As seen in the following image (Figure 1), the port area of Almeria is today, on the east of the Sierra de Gador, which is between 100 and 190 metres above sea level stretching two kilometres away from the coastline. This situation offers protection from winds from the southwest (they are most frequent during the summer, with speeds exceeding 8 m/s at a frequency of 20-24%). The Sierra de Gador is a natural element which already existed during the Medieval Period as observed in geomorphological maps of the area. Furthermore, the winds from the southwest are a recurrent nautical condition in historical sources written about Almería (Tofiño de San Miguel 1787 and Alonso de Contreras ed. 1995). It can therefore be assumed that due to its protection from the winds this area was considered a safe place to have the port. Urban archaeology has confirmed that the medieval settlement was located in the same emplacement as the current city (Alcalá et al. 2005: 94-102 and Cara et al. 2005: 167-192).

The location of Almería was of interest not only for its useful anchorage points, whose deepness allowed the anchorage of many types of ships for a long period (mainly between the 9th and 19th centuries AD) but also for its watering points as well. Watering points are crucial during sailing, so any important port needed some way to provide these for travelling sailors. Casson's analysis (1989) provides one of the most accurate descriptions of a maritime itinerary during antiquity. During the voyage, watering points are mentioned as a very important element when coming to anchor in a port. Its importance continued to be referenced during the medieval period (al-Idrīsī 'Nuzhat), as well as into modern times (Tofiño de San Miguel 1787). Due to the continued referencing of this feature, it highlights the importance of identifying watering points in order to identify the most useful anchorages or potential ports, especially in geographically isolated areas (Almería is a region surrounded by two mountains ranges). Written sources from the Middle Ages highlight Almería as a city with baths (al-Idrīsī 'Nuzhat 15.4). This could be interpreted to indicate that access to water was probably relatively easy. This access was likely provided by 'ramblas'. Rambla is a Spanish word which describes a natural channel formed by water when it rains over a long period. They are very common in the south and east coast of the peninsula. Furthermore, they are generally considered seasonal, so their flow is not constant over time. During periods of heavy rain, they have the potential to become dangerous. Because of this, there may have been times in history when they could have had a stronger flow, though this does not mean they were navigable (we should remember they are torrential currents, ergo very energetic). Rather, the ramblas are an abrupt opening in a sharp coast, which allows a ship to

disembark materials or people in a more stable area to reach inland.

There are three significant ramblas close to the city which need to be assessed as part of the maritime cultural landscape. The first of them is called the Rambla of Almeria. It is located approximately 3.6 km east of the modern city of Almeria and is the river mouth of the Andarax River into the Bay. Although the rambla's water level can change dramatically with the seasons and occasionally become dangerous urbanisation in the immediate areas next to it, have caused it to dry up. Sources which specifically reference this feature have proved considerably scarce. One source is the sailing course of Vicente de Tofiño which indicates the location as at the 'Punta of the river of Almeria', referring to the delta cone of this rambla (Tofiño 1787: 48). However, when Tofino refers to the watering points of Almeria and its harbour, he did not write about this specific element, but of a number of wells and fountains that existed in the city. On the other hand, this element was not mentioned in the sailing courses of Alonso de Contreras, nor the Kitab of Piri Reis, from 16th century, nor in the portolan Compasso de Navegare, from 12th century AD (Debanne 2011). It is probable, then, that the rambla was not used as a source of drinking water as it was being primarily used to supply the city of Almeria with their drinking water.

The other two ramblas are known as the Chancla's and Portillo's ramblas. It is important to point out that the medieval city was articulated between both ramblas, which limited it to the west and east, respectively. In addition, the walls surrounded them, as we can see in the modern plan designed by Felipe Chrame in 1740 (Figure 5). This fact indicates that these points were easily accessible, so the city likely needed to protect them with a structured defensive system. A self-defenced port is a way to protect an important but "naturally weak" maritime area.

Defensive structures analysed through the written sources

The importance of defensive structures within the maritime cultural landscape of medieval Almeria was evident from the beginning of our analysis. When the data collection of the sources was completed, we realised that the number of defensive structures (among which are walls, towers, shipyards and ribats) was 47% of the total (see Graphic 1). Practically all of the structures were in the settlement of Almería, as well as along the bay (see Figure 38).

Almost half of the anthropic elements which emerged from the documented landscape had a mainly defensive function however they have not been preserved in situ. One possibility for this is that the anthropic elements intended for nautical purposes could have been built with perishable materials, so they have not been preserved. One of the materials could have been wood, as evidenced by the port of Comacchio in Italy (Gelichi 2012), even though the defensive structures had been built with stone.

The high number of documented defensive structures could have been needed due to the unsafe natural geography of Almeria (the coast without defensive natural barriers, such as reefs). Although it has a variety of features which made it suitable as a port and eventual maritime city the construction of defensive structures provided protection for the port and its activities. The high number of defensive structures is significant for the scope of this study as it indicates that although the area was not naturally defensible it was still considered important enough for further development.

The importance of the defensive structures as part of the maritime cultural landscape and their significance as part of the earliest history of Almeria is shown in the name of the city itself. The first mention we have of a name is in the 10th century, from the historian Ibn Ḥawqal, who called the city al-Mariya (Ibn Ḥawqal Kitāb 2.3). Some interpretations about the etymology of the word Al-Mariya were collected by the archaeologist Cara Barrionuevo (Cara Barrionuevo 1990: 3). In this paper, it is believed that the name originates from a watchtower (Atalaya in Spanish) defended by Yaqut ('Abd al Karim, 1974: 284). Nowadays, this is the most supported hypothesis for the origin of Almeria's name. We can see how, even in the origins of its name reference made to a defensive and organised structure off the coast of the Gulf of Almeria. This bay, as discussed in this paper, has been mentioned since the time of Pomponius Mela and Ptolemy as an optimal space for the anchorage of boats and the development of nautical activities. Moreover, in its origin, this place name did not specifically refer to the city but to a defensive system of the port, which was associated with the city of al-Bayyāna (Pechina), located about eight kilometres from the sea.

The documentation of Ibn Ḥawqal's mention is the oldest we have regarding this settlement, but some modern sources provided further analysis of the place name. For example al-Ḥimyarī, in the 14th century AD, describes the settlement of Almería in the 9th century AD. Al-Ḥimyarī writes that, during the emirate (8th to 10th centuries AD), a group of 'al-Ándalus rabble people' prepared some ships to act in a 'piratical' way, attacking the unprotected coasts. This potentially indicates to us that during this period there was no particularly strong defence of the coasts. These people were called al-baḥriyyūn (the sailors) by al-Ḥimyarī (al-Ḥimyarī Kitāb) which is also evidence that they were accustomed to living on and subsisting mainly from the sea. These al-baḥriyyūn, according to al-Ḥimyarī, were the Yemenis who settled down in the Urš / Arš al-Yaman and founded the settlement of Pechina. Thus, it seems likely that the port was erected first and, to keep it protected, some defensive structures were built, which gave rise to the origin of the name of the current city of Almeria.

Two decisive attacks on the port have also been documented. Firstly, the attack of a Fatimid fleet in the 9th century and secondly the attack of the Genovese and

Catalan fleet of the 12th century. Both of these attacks were pivotal for the maritime history of Almería because they explain why the city was equipped with such concrete defensive structures such as towers, walls, ribats and shipyards, and imply that the port was a significant influence for the development of al-Ándalus.

Regarding these defensive structures, we identified four specific types, according to the function they had in our chronological frame mark. We acquired information about walls (surrounding the urban settlement of Almería), ribats and towers. They are analysed in this paper in order to understand their function and character in the maritime cultural landscape of Almeria during the Middle Ages.

The ribats were defined as a specific type of defensive structure, not necessarily dependent on a city's construction, which would have its own architectural characteristics (Azuar, 2004: 23). In our database, the ribat has been categorised as a defensive space in which, following the definition of Lirola (Lirola, 2005), surveillance functions were carried out in service to the community in the context of a spiritual retreat (in our case, the monitoring of adjacent coasts). The ribat and their complex structure in our chronological frame mark could have been studied with an archaeological methodology, mainly through comparison with the archaeological complexes of Ribat al-Munastīr in Guardamar del Segura (province of Alicante) and Ribat al-Rayhāna in Algarve (Portugal). However, in our case, practically all the evidence of the ribats have only been documented in the textual record. Therefore, we do not know the specific architectural characteristics of the ribats in our area.

Through the analysis of the textual sources, we could identify two ribats, both in the area of the present city. One of the first written testimonies we found about them was by al-Ḥimyarī. He points out that, after the arrival of the Normans on the north coast of the Alborán Sea (that is, in the middle of the 9th century AD) some watchtowers were built, whose functions were carried out through the ribat. The historians Tapia Garrido (Tapia 1986: 118) and Andrés García Lorca (García 1990: 39) pointed out that one of them could have been in the corner of the district La Chanca, which is close to the old part of the city of Almeria in the west. They considered this area the most suitable for the main anchoring zone without the need for port infrastructure, a condition that Tofiño highlighted in his sailing course and that we have explained before. Both authors, Tapia Garrido and García Lorca named it 'The ribat of San Roque', probably referring to the hermitage of San Roque (today San Roque's church), in front of which Alonso de Contreras, in his 17th century AD sailing course, indicated a deep enough area to anchor the galleys. In this sense, the area which matches both nautical conditions but also the location of this ribat would correspond to one of the rábita de la despedida (the farewell ribat).

Defensive structures examined through visibility analysis

As we can see in the following strictly theoretical visibility analysis, the two ribats were located strategically to cover a great distance (see Figure 40). The ribats located in the Chanca and the Alcazaba offer an almost complete visual basin of the Gulf of Almería (41 km from Punta Entinas to Cabo de Gata in a horizontal straight line, and 34.9 km in a straight line perpendicular to the ribāts). The zone of 'shadow' to the west (where the current city of Aguadulce is located which is referred to by the sources as a rural settlement) is especially significant, as it would be assumed that there were other coastal constructions that complemented the visual defence of the coast.

Given that our study is based on the perception of the landscape from the sea, it seemed key for us to do the same analysis, but in reverse (Figure 51). That is, from several aleatory points located in the sea towards land, in order to analyse which areas of the coast are visible from the sea under favourable conditions, and, therefore, could constitute points of orientation in coastal navigation. As seen in the analysis, the zones of the ribats are only visible from the sea at approximately 9 km from the coastline (Figure 41). This detail is interesting because if we combine both analyses, we see that the point from the sea that we have called Point 4 (P4) is in the not-visible zone of both ribats, so it could be interpreted as a shadow and a flaw of the visual defence of the coast.

Another significant point from the data suggests that there was some coastal construction in relation to these ribats, around Aguadulce and Roquetas de Mar (the western part of the Gulf of Almeria). The testimony provided by the al-Ándalus al-Idrīsī of the 12th cent. AD proves useful. al-Idrīsī's documentation points out the existence of a tower 9 km from Aguadulce. Currently, the distance mentioned by al-Idrīsī between the tower and the rural settlement of Aguadulce is six miles. This was combined with Lirola's hypothesis about the conversion, which is based on Ptolemy's miles, and not Arabic ones (Lirola 2005: 63 and Del Mastro 2018: 40). With this conversion, we realised that the distance between Aguadulce and Roquetas de Mar were quite close (8.87 km), especially if we utilised the distance over the Santa Ana's castle in Roquetas de Mar, which was built in recent times in order to control the port. If we look at the visibility analysis (see Figure 42), we see that, effectively, the existence of this tower eliminates the 'shadow' zone (but the seafront of Almería is not visible), thus covering the entire coastline.

Another tower was identified in the urban settlement of Almería which has been dubbed 'the Shipyards Tower' due to its location. The only evidence we know of its existence is provided by the geographer al-ᶜUḏrī from the 11th cent. AD, who, in his story about the shipyards of Almeria, states that, at the door of the tower and towards the sea, a tower existed that was destroyed by Aflah (al-

ᶜUḏrī Tarṣi 7). Henceforth, although the document lacks details, we can approximate the date of the destruction of the tower based on the history of Almeria. Aflah was killed by Jayrán in the year 1014, as related by al-ᶜUḏrī himself. Considering that Aflah governed the city of Almeria between 1010 and 1014, this tower had to have been destroyed at the beginning of the 11th century AD, as one of the defensive structures of the seafront of Almeria before the rebuilding of the walled enclosure of Jayrán.

Following on from this, in Figure 43 we see how the tower of al-Idrīsī was visible from the Alcazaba and the Shipyards Tower, but not from the Chanca. From the sea, it is visible in optimal conditions up to 13.9 km perpendicular to the tower and 26.4 km parallel to the coast. The minimum visual distances covered (in a straight line perpendicular to the element) from the 'Alcazaba', the Shipyards Tower and al-Idrīsīs Tower are visible in the following table:

Element	Viewer height (m)	Distance (km)
al-Idrīsīs Tower	5.7	14
Ribat of Alcazaba	6.7	34.9
Shipyards Tower	5.7	34.9

The existence of so many defensive structures along the coast of Almeria since the establishment of Pechina indicates a period of instability and insecurity with respect to the coasts. However, despite its natural weaknesses, it was still an area of interest as a maritime point. It has been shown that the location of the ribats and towers was strategic as they practically cover all the visible area of the Bay of Almería. They are situated so that they are not only visible at any point in the gulf, but also in order to cover all the blind points of the coast. However, it must be understood that visibility worsens as distance increases from the point of the observer. This, in addition to natural conditions such as temperature or bad weather (storms, rains, or winds), can negatively influence the visibility of these points.

Defensive structures examined through archaeological analysis

The walls and the shipyards are other significant elements of the maritime cultural landscape of Almería. This is largely based on the oldest iconographic representation known of the city: a miniature of its view from the sea (Figure 9). Known as the graphite of the Genoese Admiral of the 12th century AD: Caffaro di Rustico da Caschifellone, collected in the Annali Genovesi. Currently, one of the most interesting interpretations about this graffiti can be found in the paper of Garzón Osuna (Garzón 2009: 146-165). The presence of the walls in the iconographic representation is quite telling, as the city had to retain a fortified frontal view from the sea, which would have had to be overcome by the attacking coalition in order to take the city.

Some of the sections of these walls have been identified by urban archaeology, but they are also identifiable in modern cartography (Figures 5 and 9). One of the most important features of the wall is the double door in its southwest section. The rampart wall and the small brick door were located during the commercial archaeological excavation of Inés Relaño Street. Located in the south-western area of Almería it runs parallel to the sea and 600 metres from the current western dock. Both of these were dated to the 11th cent. AD, and, therefore, to the first phase of fortification of the urban settlement. This wall closed the city off from the sea, thus evidencing the existence of a period of certain maritime insecurity. On the other hand, the existence of a door and therefore an opening in the wall indicates in this section a wish to connect the city with the maritime space. The door provides access to the best-sheltered area from the southwest winds where anchoring activities could have been carried out. These activities have persisted in this area until today.

Moreover, these factors are closely related to the commercial activity that this port had until the middle of the 12th century. Regarding this subject, there are different points to be highlighted. Firstly, we should explain the concept of alhóndiga. These buildings are especially interesting when analysing the importance of a port city. The historian Blanca Garí describes them as the place where outsiders settled with their merchandise (Abulafia and Garí 1996: 98). It was also where wholesale goods were stored, which were then sold in an auction specific for each commodity. These buildings were quite important because it was here that exports and imports were traded and distributed next to the souks or in the suburbs. According to Garí, who translates them from the word fundūq, it could have been the etymological origin of the old Catalan word fonda.

Regarding the city itself, specifically, al-Idrīsī reports the existence of a large suburb called Rabad al-Hawd (Arrabal de la Hondonada), which contained souks, houses, baths and fundūq, totalling 970 structures and features (al-Idrīsī 'Nuzhat) based on the taᶜtīb tax registration (tax intended to repair the walls according to Molina in Viguera 1997: 252). If we consider that al-Idrīsī makes a regressive description of Almeria before the attack of 1147, it is evident that, before that date, the city experienced intense commercial maritime traffic, based on the existence of an urban area dedicated to the lodging of retailers and movement of merchandise. The fact that it was uninhabited after 1147 (Lirola 2005: 192) suggests that the city lost much of the maritime trade potential that had characterised it over the last two centuries. This was the main motivation for the attack on the city: the neutralisation of its port and, therefore, its maritime pre-eminence.

Conclusions

As has been shown throughout the text, the maritime characteristics of Almería seem to explain various

aspects of the port and the city. The interrelation of the data provided by the analysis of the different types of sources has allowed us to achieve an understanding of its maritime cultural landscape. Furthermore, the area surrounding Almería is identified by the sources from antiquity as having good natural conditions to carry out anchoring activities. It has also been possible to analyse them through the place names of the space indicated in this ancient text, such as Ptolemy and Pomponius Mela, but also through direct analysis of the archaeological remains, both terrestrial and underwater, documented along the Bay of Almeria during the last decades of the 20th century AD.

The large number of defensive structures has been equally significant having existed essentially since the beginning of the settlement in Pechina in the middle of the 9th century AD. To shed light on these structures, the defensive walls of the city (along with other buildings such as ribats and watchtowers) has been documented through archaeological, cartographic, and written sources from a diachronic overview. Their presence is curious because it indicates that, despite the favourable conditions that the territory of Almeria benefitted from in engaging in nautical activities, its accessibility also presents a weak defensive area, as evidenced by the Fatimid and Norman attacks of the 9th century, and the Catalan-Genovese in 12th century AD. This defence system surrounding the city seems to be trying to solve a situation of vulnerability from attacks from the sea, but it would have had to have been balanced with its nautical functions. Although the walls were weakened by two open accesses to the beach from the commercial district, they where needed in order to ensure that maritime trade could take place. This defensive weakness did not prevent the city from growing as one of the most important port systems of al-Ándalus for three centuries.

The importance of the port of Almería for the growth of the city is evidenced by the fact that, originally, a port area was established, around which a city grew, and not vice versa. For this reason, it is logical to believe that the place where the city of Almeria is located was chosen for its nautical characteristics, which should be desirable enough to establish a port and to act as a node of a port system. This is despite the fact that the same natural conditions that favoured navigation and anchorage also made it vulnerable to attack, which is why it was necessary to build a structured defensive system. Of course, with the limited data we have, we cannot suggest a theory about the factors that made these events possible, since they correspond to different periods and problems. However, we can point out that these structures were intended to solve a situation of insecurity regarding the sea.

In conclusion, through the analysis of the maritime cultural landscape of Almeria, we can lay a knowledge base about the city and the maritime culture that created it. It is the port that explains the development of the city, and it is its location and nautical conditions that explain the interest of creating a port system there, which its harbour facilities. This is especially important because it indicates not only a maritime knowledge of the area (most likely oriented more towards North Africa, as suggested by al-Bakrī – 11th century AD, al-Idrīsī – 12th century AD and by al-Ruššātī – 14th century AD) but also provides an understanding of the experiences of the human groups who settled in it.

To sum up, the location of this port system seems to be encouraged by both nautical (natural environment) and social-economic reasons (the trade with north-African), and, as the underwater archaeology record has shown, it is also a matter of continuity with a maritime and nautical tradition in the area. So, even though we cannot assure that the port was settled only for a nautical reason, what seems sure it is that, during at least three centuries (from 9th to 12th), the focus of the foundation and development of its city was centred around its maritime functions.