Chapter 7

The Mahdia shipwreck: reconsidering old data, making new observations

Introduction

The Mahdia shipwreck (D.B.67) was discovered by sponge divers off the coast of Tunisia in 1907 (Parker 1992: 252). Dated in the late 2nd or early 1st century BC, it constitutes one of the largest underwater deposits with ancient sculptures, and also one of the earliest ancient shipwrecks of the Mediterranean (Bass 1966: 77-79; Diolé 1957: 33). Similar to the near contemporary Antikythera shipwreck (D.B.6), found in 1900, the Mahdia shipwreck carried a large cargo of diverse material, consisting mainly of luxury objects, including bronze and marble sculptures of different sizes, types and dates. Over the decades, the Mahdia shipwreck has attracted the interest of many underwater explorers, divers, amateur archaeologists, classical and maritime archaeologists, who have visited, salvaged, excavated, and examined the underwater deposit over and over again (Diolé 1957: 33-36; Fuchs 1963; Hellenkemper Salies *et al.* 1994; Parker 1992: 252; Rackl 1978: 37-50; Winterstein 2000).

Despite the extensive research and the variety of publications available for the underwater deposit of Mahdia, there are still extensive gaps in our understanding of the shipwreck. The early date of its discovery, prior to the development of scientific maritime archaeology, combined with the dividing lines that persist between scholars of classical and maritime archaeology, who have studied the Mahdia artefacts, have left unanswered questions, especially in relation to the type and quantity of the ship's cargo, the structural details of the ship itself, as well as the reasons, circumstances and conditions of the sculptural transportation. These questions have been addressed in this project with the conduct of another micro-scale research and an in-depth re-evaluation of the available data.

By collecting and re-evaluating anew the preexisting archaeological data of the Mahdia shipwreck, with its large underwater site, its levels of preservation and archaeological documentation, as well as the wide variety and quantity of retrieved artefacts, this research attempts, first of all, to provide new insights into the Mahdia ship and its transport.

As the macro-scale research has revealed, the Mahdia shipwreck belongs to a category of underwater deposits carrying both marble and bronze sculptural material together with other high quality, 'luxury', objects for trading purposes. As the graph of Figure 29 and Table 4 illustrate, this pattern of transport has also been recognised in the shipwrecks of Antikythera (D.B.6), Apollonia (D.B.7), Styra (D.B.101) and Torre Flavia (D.B.105), the suggested dating of which fall into the last two centuries BC. Thus, the second main objective of this research has been to understand better the details of the wider transport pattern, namely the trade of sculptures with other luxury objects.

The analysis starts by briefly laying out the series of events, projects and scholarly research leading to the primary sources and the data currently available for the Mahdia shipwreck. Following that, the chapter continues by revisiting the primary sources and collecting, reexamining and critically re-recording details regarding the groups of artefacts found in the Mahdia shipwreck, including the ship remains, the sculptures (Table 5) and the non-sculptural artefacts, including both the non-sculptural cargo and the shipboard items.

Through this process, and by taking into account all of the up-to-date data from other contemporary Mediterranean shipwrecks, comparative underwater deposits and information from the database analysis of this project, as well as relevant ancient literary sources and terrestrial archaeological

Table 4: Comparison of the Mahdia archaeological remains to other shipwrecks from the same transport pattern.

	Mahdia	Antikythera	Apollonia	Styra	Torre Flavia
Database No.	67	6	7	101	105
Attributed Date	Late 2nd – early 1st century BC	First half of 1st century BC	Middle of 2nd century BC	Late Hellenistic	Roman period
Hull remains & ship-related artefacts	x	x			x
Bronze sculptures	x	x	x	x	x
Marble sculptures	x	x			x
Architectural elements	x				x
Domestic furnishing	x	x	x	x	
Amphorae	x	x	x	x	
Fineware pottery	x	x	x	x	
Coarseware pottery	x	x		x	
Coins	x	x			
Lamps	x				
Glassware		x			
Ingots	x				
Other	Inscribed slabs; millstones	Human remains; jewellery; Antikythera mechanism			

evidence, this chapter closes by presenting new observations, conclusions and interpretations regarding the type of the Mahdia shipwreck's cargo, the structural and nautical details of the ship, as well as the conditions and circumstances for the maritime transportation of its sculptures. In this last analysis, the comparison of the archaeological evidence from Mahdia to that of other underwater deposits belonging to the same transport pattern contributes to the wider understanding of the maritime trade of sculptures as luxury objects.

Discovery and previous research

As mentioned in the introduction, sponge divers discovered the Mahdia shipwreck in 1907, five kilometers off the eastern coast of Tunisia and at a depth of approximately 36-37 meters (Figure 47; Bass 1966: 77; Diolé 1957: 33-36; Fuchs 1963: 11; Hellenkemper Salies 1994a: 5-6; Merlin and Poinssot 1930; Parker 1992: 252; Rackl 1978: 37-50; Throckmorton 1972: 69; Winterstein 2000). Following its accidental discovery, the shipwreck was surveyed and salvaged in projects organised by various teams during the 20th century: in 1907-1913 by the Tunisian Department of Antiquities and the director Alfred Merlin; in 1948/9 by Philippe Tailliez and Jacques-Yves Cousteau; in 1954 and 1955 by the *Club de Recherches Sous-Marine de Tunisia*, under the direction of the engineer Guy de Frondeville; in the 1980s and 1990s in a project organised by the Tunisian *Institut National du Patrimoine* and the *Rheinisches Landesmuseum* in Bonn (Bass 1966: 79, 119; Baumer *et al.* 1995: 72-81; De Frondeville 1956; De Donato 2003: 38-41; Diolé 1957: 35-51 ; Gagsteiger *et al.* 1994: 37-46; Hellenkemper Salies 1994a: 5-17; Winterstein 2000).

During these projects, the underwater site of Mahdia was excavated, salvaged and recorded according to the knowledge and underwater technology available in each time period. Numerous artefacts were retrieved from the seabed in these operations, including stone architectural members, bronze and marble sculptural artefacts, pottery, lamps, slabs with Greek inscriptions, some hull remains and other material (Bass 1966: 78-79; Hellenkemper Salies *et al.* 1994).

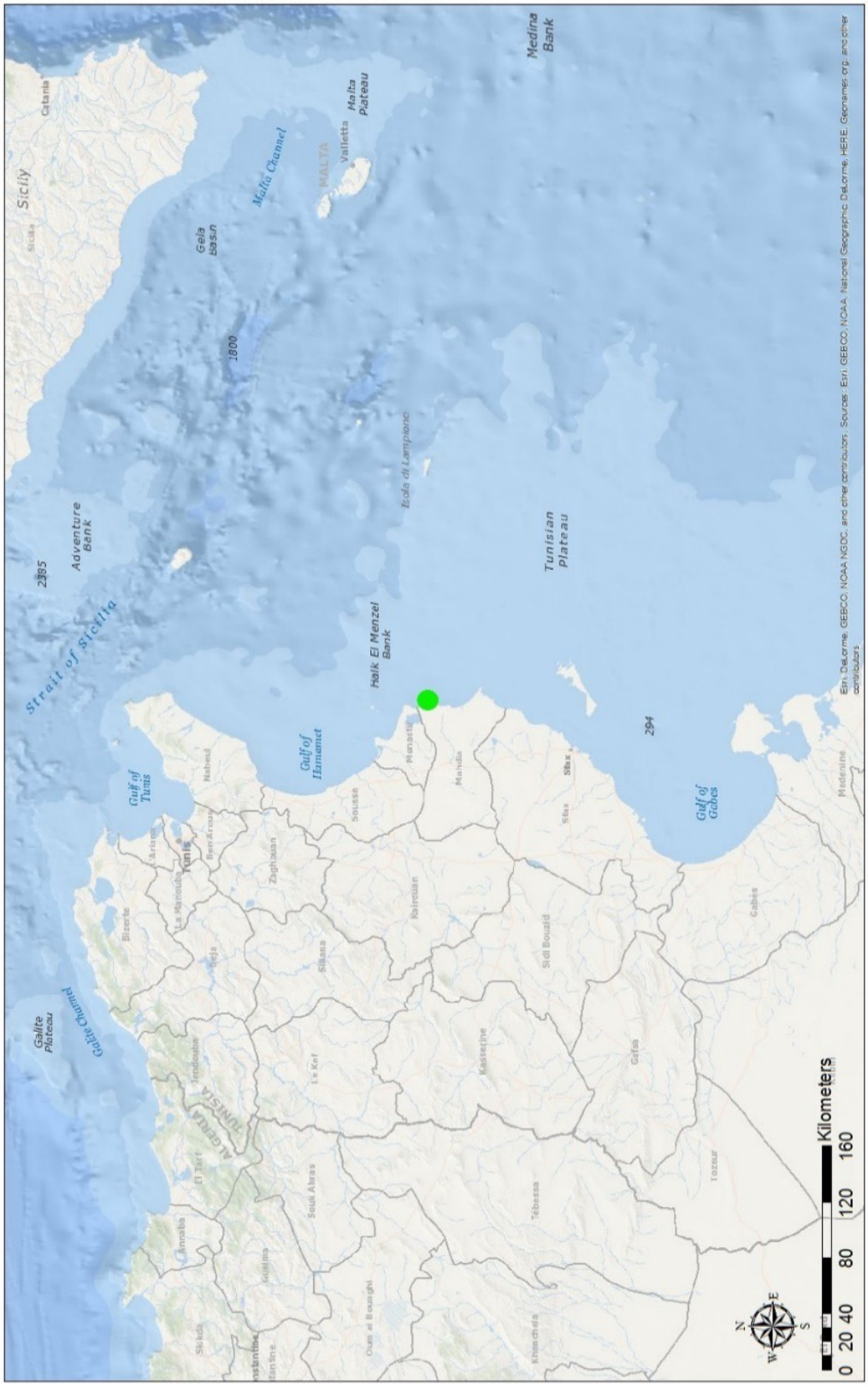

Figure 47: Map showing the location of the Mahdia shipwreck off the coast of Tunisia. © Author.

Nevertheless, according to the existing scholarship, more archaeological remains might still be lying under water (De Donato 2003: 39; Throckmorton 1972: figure 10 and figure 12).

In the 1990s, after the underwater operations organised by the Tunisian *Institut National du Patrimoine* and the *Rheinisches Landesmuseum* in Bonn, and due to the destruction of sections of the Bardo Museum in a fire, the recovered Mahdia shipwreck material was conserved and revisited in Germany by archaeologists of the *Rheinisches Landesmuseum*, the underwater archaeological unit of the Tunisian *Institut National du Patrimoine* and the *Deutsche Gesellschaft zur Förderung der Unterwasserarchäologie* (De Donato 2003: 41; Winterstein 2000). This elaborate project involved the systematic study of the Mahdia shipwreck and its artefacts, but also the safe return, preservation and display of the archaeological material in the Bardo Museum in Tunis. The results of this project, published in a two-volume book (Hellenkemper Salies *et al.* 1994), concluded that the Mahdia ship was a merchant vessel that sank at some time between the second half of the 2nd century BC and the middle of the 1st century BC, maybe sometime around 100 BC. It carried a variety of luxury goods, including architectural elements, as well as bronze and marble freestanding sculptures, that probably originated from Athens (De Donato 2003: 39; Fuchs 1963: 11; Hellenkemper Salies 1994a: 11; Wirth 1994: 727).

Its date in the late Hellenistic times, as well as its sizable and luxurious cargo, immediately associated the Mahdia shipwreck with ancient literary references describing looting activities conducted by the Romans after the sack of Athens by Sulla in 86 BC (Plutarch *The Life of Sulla* 14), as well as with the demand of wealthy Roman elites of this time period for art collecting purposes (Diolé 1957: 42; Fuchs 1963: 11). An example is the ancient author Cicero, who ordered and acquired luxury objects from the eastern Mediterranean for the decoration of their houses and villas in Italy (Cicero, *Letters to Atticus* 1.8.2; Cicero, *Against Verres,* act. 2.4.126). This scholarly association has had a crucial impact on the interpretations of the Mahdia ship, which has been thought to be transporting cargo from Athens to Italy based on the literary sources, despite the lack of adequate archaeological evidence confirming this route with scientific certainty (Bass 1966: 78; De Donato 2003: 38-43; Merlin and Poinssot 1930: 15, 17-21).

Overall, the previous studies on the Mahdia shipwreck, including its two-volume publication (Hellenkemper Salies *et al.* 1994), tend to examine the non-sculptural material apart from the discovered sculptures. Similarly to the case study of the Porticello shipwreck, the lack of involvement of maritime archaeologists in aspects of classical archaeological analysis, as well as the inaccessibility of the underwater environment to the vast majority of classical archaeologists and art historians, have led to the analysis of the Mahdia shipwreck sculptures solely from an art historical perspective in isolation from the rest of the shipwreck deposit. Thus, in the sculptural examinations that are available there has never been a detailed reference to the underwater archaeological context and function of these artefacts on the Mahdia ship. As explained previously in Chapter 2, this scholarly practice has been observed quite extensively in the research of sculptures from under water and has created a disconnect between artefacts from the same deposit, a large challenge that had to be outweighed in the present research.

Moreover, in all of the available publications regarding the Mahdia shipwreck and its material, the studies seem to be very selective in the data they present. In general, there is a lack of overall information regarding the retrieved archaeological artefacts, such as inventories with all of the material found within the archaeological context of the shipwreck, or descriptions with the total numbers of the objects retrieved, as well as consistent catalogues, invention or museum numbers for each piece. As it is obvious in the list of references for the Mahdia shipwreck sculptures collected and recorded in Table 5, scholars have generally neglected some artefacts from the Mahdia shipwreck or simply selected, which sculptural artefacts from the Mahdia shipwreck were interesting to present and analyse. This issue, combined with the inconsistent use of names and terms, according to the language and expertise of each researcher, has made the available

publications and reports on the Mahdia shipwreck material extremely challenging to organise, comprehend, use, and re-interpret.

Re-evaluating the Mahdia shipwreck material

In contrast to the previously examined shipwreck case studies, it has not been possible to visit the archaeological material of the Mahdia shipwreck in the Bardo Museum in the duration of this project due to travel restrictions based on the political situation of Tunisia. However, with the thorough study of all of the available publications, reports and articles on that shipwreck and its material, it has been possible to reconstruct quite extensively the groups and types of artefacts retrieved from this underwater deposit.

The groups of archaeological material from the Mahdia shipwreck studied, recorded and presented in this chapter are the ship remains, the bronze and marble sculptural artefacts, and other non-sculptural artefacts, which were either cargo or shipboard items.

The ship remains

The salvage operations and the excavations conducted in the Mahdia shipwreck in the course of the 20th century brought to light evidence for the type, form, size and construction of the ship. As the available publications describe, especially from the underwater operations in 1954 and 1955, directed by Guy de Frondeville, dozens of timber planks were raised together with parts of the keel of the ship, all of which should be currently stored in the Bardo Museum, in Tunis (De Donato 2003: 39; Diolé 1957: 37; Höckmann 1994a: 53-56; Sakka 1994: 33-36; Throckmorton 1972: 69). Additionally, plans of the underwater site and the location of the ship remains (Throckmorton 1972: figure 14) were made by De Frondeville (1956: 195-228), who published the first analysis and reconstruction of the Mahdia ship's hull in 1956 in his book *Les visiteurs de la mer* (Bass 1966: 79; De Donato 2003: 39).

Through this work but also through shorter reports and observations made by other researchers (Bass 1966; Casson 1971; De Donato 2003; Gelsdorf 1994; Höckmann 1994a; Parker 1992; Throckmorton 1972; Winterstein 2000), it is known that the preserved or at least recorded ship remains from the underwater deposit of Mahdia consist of pieces of: planking, frames, bow, stern and keel, metal sheathing, fastenings and rigging (De Frondeville 1956: 221 and figure 7; Gagsteiger *et al.* 1994: figure; Höckmann 1994a: figures 1, 4 and 9; 13 Throckmorton 1972: figure 2). Finally, in the 1980s and 1990s, laboratory analysis of wood samples and pieces of caulking showed the provenance of the material from Campania, Italy (Höckmann 1994a: 55).

Planking

The surviving pieces of planking from the Mahdia ship suggest that it must have been built with the shell-first construction technique and with the use of carefully cut mortises and tenons, similarly to other Mediterranean ships of this time period (Gagsteiger *et al.* 1994: 44 and figures 13-14; Throckmorton 1972: 69). However, as Parker (1992: 252) mentions, unlike the single planking of the Antikythera ship, the Mahdia ship seems to have had double planking at least over the garboard strake. Each layer of this double planking must have consisted of long, edge-joined planks attached to each other with mortise-and-tenon joints (Gagsteiger *et al.* 1994: 44 and figure 13; Höckmann 1994a: figures 1 and 9; Throckmorton 1972: 69). De Frondeville (1956: 221 and figure 7), in one of his drawing reconstructions, gives some measurements for these two layers of planking. More specifically, he reconstructs the thickness of the garboard as 14cm and the outer layer of planking as 3.5cm. Höckmann (1994a: 60-61) has also observed that the exterior layer of planking must have been slightly thinner than the interior, while Throckmorton (1972: 75) suggests an approximate 2 inches (or 5cm) thickness for each layer of planks (De Donato 2003: 41). Additionally, both Parker

(1992: 252) and Höckmann (1994a: 61) mention that there must have been fabric between the two layers of planking.

However, except for general reports, some underwater sketches, survey pictures and a scaled picture of some tested hull remains provided in Gagsteiger *et al.* (1994: figure 13), no consistent overall record, inventory or catalogue of any of the preserved planking elements have been available in the previous scholarly publications. Therefore, it has been hard to understand, which details of the planking's form and size have been preserved, and which have just been suggested by the general shipbuilding experience of the scholars.

Frames

Some frames have been reported as retrieved from the Mahdia shipwreck site. Unfortunately, no further details have been available except for the fact that the frames must have been situated in the interior of the hull after the creation of the ship's exterior shell (Höckmann 1994a: 61).

Bow, stern, keel & floor timbers

As highlighted in the drawings of the wreck site by De Frondeville (1956: 204 and figure 6), Throckmorton (1972: figure 14) and Höckmann (1994a: figure 1), parts of the ship's keel must have been found and retrieved from the underwater deposit together with some floor timbers (Diolé 1957: 47; Throckmorton 1972: 67-68). De Frondeville (1956: 221 and figure 7) gave a detailed drawing of the keel's structure, shape and fittings in his publication. Inspired by this reconstruction, Casson (1971: 175), Throckmorton (1972: 68 and figure 2) and Höckmann (1994a: 56-57) have also mentioned that the hull remains of the Mahdia shipwreck suggest that the ship could have had a very sharp keel, with an almost flat floor and a narrow steep bilge. Parker (1992: 252) mentions that the Mahdia ship's keel was made of elm, while according to Höckmann (1994a: 55-57, 60-61 and figures 7-8) the keel must have originally been longer than 26 meters, or 86 feet according to Throckmorton (1972: 75), and maybe around 30 meters in total.

Metal sheathing

Throckmorton (1972: 68), in his analysis of the Mahdia ship, mentions that the hull must have been covered on its exterior with lead sheathing. Some other scholars have also suggested that the hull was double sheathed with lead (De Donato 2003: 41). However, there are no exact descriptive or visual records in the available publications about the condition, type and form of the surviving lead sheathing fragments recovered from the underwater site. Some metal sheets, though, presented in the chapter of Päffgen and Zanier (1994: 111-130) on small metal finds from the Mahdia ship could be remains of the ship's metal sheathing. However, since no secure evidence has been clearly documented, it is important to consider Throckmorton's first interpretation of the Mahdia ship being lead sheathed as a result of the 20th-century scholarly impression that all Mediterranean vessels were sheathed in lead.

Fastenings

From the preserved hull remains there is evidence proving that the edge-joined planks of each layer of planking were attached to each other with carefully cut mortise-and-tenon joints (Gagsteiger *et al.* 1994: figure 13; Höckmann 1994a: figure 9). Additionally, De Frondeville's (1956: 221 and figure 7) drawing reconstructing the keel of the Mahdia ship shows copper nails (*clous de cuivre*) fastening the outer layer of planking to the inner layer. Furthermore, Höckmann (1994a, 60-61) has suggested that the planking and the frames of the ship must have been attached to the keel with round bronze nails, many of which were taken for laboratory examinations after their recovery in the first half of the 20th century (Diolé 1957: 48-51). Some retrieved nails that could have been part of the hull's fastenings are presented in Päffgen and Zanier's (1994: 111-130) research on small metal finds.

Rigging

Based on fragmentary archaeological evidence recorded in situ at the Mahdia wreck site and evidence from other contemporary shipwrecks, as well as information from ancient iconographic representations of seagoing vessels, the Mahdia ship has been reconstructed as a sailing ship with a central mast that held a square main sail and a smaller foresail, known as 'artemon' (Baumer *et al.* 1995: 78-79; Höckmann 1994a: 58, 67 and figure 4).

Despite this rigging reconstruction, there is no direct evidence for the rigging arrangement of the ship in the preserved archaeological remains presented in the available publications. The only certain feature, documented in the archaeological record, is the mast step for the mainsail, which was discovered on some hull remains, laying on the seabed close to the column concentrations of the cargo area, but with no information regarding its exact location along the centreline of the ship (Höckmann 1994a: 62 and 67-69).

Other surviving elements of the Mahdia ship

The sponge divers excavating the shipwreck of Mahdia in the first decades of the 20th century described the discovery of a thin layer of timbers on which the transported columns were laid, and under which the sculptures and other pieces of pottery and domestic furnishing were discovered (Diolé 1957: 43). These timbers and their arrangement have been interpreted as the remains of the wooden deck of the Mahdia ship (Casson 1971: 178; Diolé 1957: 43; Höckmann 1994a: 62; Parker 1992: 252). However, from the existing data it is unclear if any of these potential deck beams have been actually documented, retrieved and carefully examined by archaeologists or if they have been left on the seabed.

In addition to the potential deck remains mentioned above, the early diving operations recognised on the seabed several pieces of bricks and tiles, which have not been interpreted as transported cargo, but as remains of a roofed deckhouse that must have existed on board (Baatz 1994c: 109-110; Casson 1971: 178; Diolé 1957: 44; Höckmann 1994a: 62; Parker 1992: 252).

Moreover, De Donato (2003: 41) has suggested that the ship, due to its potential size, must have been equipped with at least four or five anchors and a safety pump, elements of which were raised from the underwater site during the early salvaging operations at the beginning of the 20th century (Diolé 1957: 43). Höckmann (1994a: 54) and Gelsdorf (1994: 83-88) report that, indeed, five lead anchor stocks were found lying all together in a row on the seabed, approximately 2.5 meters south of the concentration of marble columns. However, one of the anchor stocks seems to be currently missing from the preserved archaeological record in Tunisia (Höckmann 1994a: 56; Gelsdorf 1994: 83- 88).

Moreover, some bronze rings found on board the Mahdia wreck have been interpreted as part of the running-tackle of the ship (Diolé 1957: 48).

Finally, components of a machine, possibly originally from a bilge pump or a catapult have been found within the Mahdia shipwreck (Baatz 1994d: 701-707; Höckmann 1994a: 65; Parker 1992: 252).

Interpreting and reconstructing the Mahdia ship remains

Through the research projects and scholarly studies mentioned above, the Mahdia ship has been recognised as a large merchant craft, probably a large freighter, rigged for sailing (Bauchhenß *et al.* 1994: 167-173; Diolé 1957: 41). Its size has been estimated to be approximately 40.6 meters long and 13.8 meters wide with the central height of the hull estimated approximately as 6.5 meters and a hold approximately 4.2 meters high from the bottom of the keel (Baumer *et al.* 1995: 77-78; De Donato 2003: 41; Höckmann 1994a: 53, 57).

These suggested dimensions of the ship, some observations on the solid construction of the hull as well as the large cargo retrieved from the underwater site have made scholars propose that the Mahdia ship could have potentially carried a cargo of over 200-300 tons, with some estimating even a 400-500 tons cargo capacity (De Donato 2003: 41; Höckmann 1994a: 54; Throckmorton 1972: 75). This size and estimated tonnage urged scholars to consider the Mahdia ship as a 'class of its own', substantially larger than any other known ancient Mediterranean shipwreck (De Donato 2003: 41).

However, in this exact point the previous scholarly analysis of the Mahdia ship and its structure stumbles upon several misconceptions and misinterpretations. First of all, due to the lack of overall catalogues and inventories of the excavated and retrieved ship-related artefacts in the scholarly sources, it is hard to distinguish with accuracy, which ship elements have been actually preserved and studied and which have been simply presumed. Not even in the most recent publications of the Mahdia ship do all of the retrieved pieces of the hull seem to have been properly recorded, photographed and analysed as recommended for most underwater archaeological sites, and especially for shipwreck assemblages (Steffy 1994). Based on this overall absence of fundamental and systematic archaeological study of the ship remains, the scholarly theories on the Mahdia ship's measurements and size, mentioned above, can only be considered hypothetical. Therefore, further scientific investigation, recording and proof would be required in order to lead to secure interpretations.

Despite this problem, the careful comparative analysis of the reports on elements of the Mahdia ship to those of other contemporary Mediterranean shipwrecks can provide some better understanding on how special or common the Mahdia ship was.

To begin with, Throckmorton, in his 1972 chapter 'Romans on the sea' examines comparatively the Mahdia shipwreck with other ancient shipwrecks discovered in the Mediterranean by the third quarter of the 20th century (Throckmorton 1972: 67-68). In this work, he firstly compares the keel of the Mahdia ship to that of the Dramont A and Grand Congloué vessels and he observes that: 'the Mahdia ship, though of much the same date as the Dramont vessel, seems definitely to have been of a different kind, sharper and lead-sheathed' (Throckmorton 1972: figure 1). Additionally, he notes that the Grand Congloué ship, though resembling at a first glance the structure of the Mahdia vessel, it must have been probably earlier in date. Throckmorton also mentions that the Mahdia hull was tenoned in a similar way to the wrecks of Titan, Dramont and La Chrétienne (Throckmorton 1972: 69). Despite that, he notes that the Mahdia ship should have been a lot larger than the Titan and Dramont wrecks, which he describes as flat-bottomed ships with a keel and a keelson, carrying less than 150 tons and not lead-sheathed (Throckmorton 1972: 73). Thus, according to his judgment, the Mahdia ship, similarly to its Antikythera parallel, belongs to the category of the larger Mediterranean cargo ships, which had big single keels, could carry more than 150-200 tons, were difficult to beach and were always lead-sheathed (Throckmorton 1972: 74-75).

This similarity between the almost contemporary Mahdia and Antikythera (D.B.6) shipwrecks and the fact that they must have been very large merchant vessels with large cargo capacity has also been fairly clear in previous research of the author (Velentza 2016: 104). In that research the comparative analysis of the hull remain characteristics and the cargo of the Mahdia and Antikythera ships, through the existing scholarship, had indicated that the two vessels possibly represent regional variations in Mediterranean shipbuilding of large ships of the same function and from the same time period. As explained above, the Mahdia ship seems to have had two layers of planking to make a shell thickness of approximately 10cm or more, while the Antikythera ship seems to have had a single thick layer of planking, which has been estimated as approximately 10cm thick (Bouyia 2012: 37; De Donato 2003: 41; Foley 2016; Höckmann 1994a: 60-61; Bouyia [section by Koutsouflakis] 2012: 40-43; Throckmorton 1972: 70; Velentza 2016: 85-90). Both vessels, though, even if built with

slightly different structural details and techniques, they must have had strong hulls, which made them capable of carrying out trading activities of quite substantial cargoes over long distances.

The structural elements of a large freighter that could carry several hundreds of tons of cargo have also been recognised in the late Hellenistic shipwreck of Madrague de Giens which was carrying almost 400 tons of amphorae filled with wine from Terracina when it sank off the coast of France (Baumer *et al.* 1995: 74; De Donato 2003: 28-32; Pomey *et al.* 2012: 235-314; Tchernia *et al.* 1978: 15-17, 75-99, 101-107 and Plates XXVI-XXXVII). The careful study and documentation of the Madrague de Giens' ship remains have shown a conserved length of approximately 35.1 meters, which could have originally been 40 meters in total, and a preserved width of approximately 9 meters (Pomey 1982: 145-146). These dimensions closely resemble the 40.6 meters length by 13.8 meters width suggested for the Mahdia ship, thus probably indicating a similar type of watercraft (Höckmann 1994a: 53, 57). This observation is reinforced further by the similarities seen in the keel shape and the double planking that both ships have (De Frondeville 1956: 221 and figure 7; Höckmann 1994a: figure 9; Pomey *et al.* 2012: figure 2 and figures 96-97).

Overall, the Mahdia, the Antikythera and the Madrague de Giens shipwrecks have all been dated to roughly the same time period of the late Hellenistic times and the late 2nd or early 1st centuries BC. Additionally, all three represent evidence of large seagoing vessels that were carrying great quantities of cargo. Therefore, through this comparative analysis it could be suggested that there was a category of large merchant ships, of course with regional structural differentiations, which were used for carrying large quantities of cargo of various types, materials and products around the Mediterranean during the late 2nd and early 1st centuries BC. Further evidence about the function of the Mahdia ship as a large trading freighter can be extracted through the analysis of the rest of its preserved archaeological remains and artefacts, which follows.

The sculptural artefacts

At the time of its wrecking, the Mahdia ship was carrying a large quantity of both bronze and marble sculptures of different sizes, forms and dates. It is hard to reconstruct with accuracy the exact number of the sculptural pieces due to the recording problems of the Mahdia shipwreck artefacts explained earlier. However, through the detailed study of the available primary sources, especially the scholarly analysis and pictures provided in Fuchs (1963) and Hellenkemper Salies *et al.* (1994), during this research it has been possible to create a detailed inventory table (Table 5) estimating the number of the retrieved sculptural artefacts to approximately 44, 15 bronze and 29 marble.[1]

Bronze sculptural artefacts

15 bronze sculptures of medium and small scale have been retrieved from the Mahdia shipwreck, all of which have been dated to the 3rd and 2nd centuries BC (Table 5, ID.1-15).

The first one has been recognised as a statuette of a male figure, depicting probably Agon or Eros (Table 5, ID.1). This is a sculptural piece approximately 1.20-1.40 meters tall, representing a young male naked figure rendered in a soft Hellenistic style normally employed for young athletes and boys (Smith 1991: 54).

The second bronze sculptural artefact retrieved from the Mahdia shipwreck is a freestanding Dionysiac herm (Table 5, ID.2) approximately 1m in height (Mattusch 1994: 431-449, figures 1-10 and figure 25). Its form closely resembles another bronze herm currently exhibited in the J. Paul

[1] The number of the preserved sculptures should not be considered definite. As it is visible in Table 5, the inventory of the Mahdia sculptures has been reconstructed by the author through the study of the texts and pictures of a variety of scholarly sources, a lot of which totally fail to mention sculptures that we know that exist from other sources, while some scholars use different names for the same sculptural pieces.

Table 5: List of the identified sculptures from the Mahdia shipwreck.

ID	Sculptures	Material	Size	Date	References
1	Agon/Eros	Bronze	Medium scale H: 1.20-1.40 m	Hellenistic (3rd)- 2nd cent. BC	Merlin and Poinssot 1930: 3-4; Diolé 1957: 38; Fuchs 1963: 12- 14 & fig.1-7; Bass 1966: 78; Smith 1991: 54 & fig.50; Söldner 1994: 399-423 & fig.1-4 & fig.9-10 & fig.21-24; De Donato 2003: 39.
2	Dionysiac herm (F 107)	Bronze	Medium scale H: 1.00 m	Hellenistic 3rd-2nd cent. BC	Merlin and Poinssot 1930: 4-6; Diolé 1957: 38; Fuchs 1963: 12- 14 & fig.8; Bass 1966: 78 & fig.20; Mattusch 1994: 431-449 & fig.1-10 & fig.25; Hellenkemper Salies et al. 1994, Tafel 14-15; Winterstein 2000.
3	Lyre-playing Eros (F 210)	Bronze	Medium scale H: 0.42 m	Hellenistic 2nd cent. BC	Merlin and Poinssot 1930: 8; Fuchs 1963: 16 & fig.14; Rackl 1978: 42; Hellenkemper Salies et al. 1994, Tafel 19; Böhm 1994: 505-509 & fig.1-6.
4	Dancing Eros (F 218)	Bronze	Small scale H: 0.13 m	Hellenistic 2nd cent. BC	Merlin and Poinssot 1930: 9-10; Fuchs 1963: 21 & fig.21.5; Böhm 1994: 509-513 & fig.7-10.
5	Grotesque dancer 1 (F 213)	Bronze	Small scale H: 0.30 m	Hellenistic 2nd cent. BC	Merlin and Poinssot 1930: 6-8; Diolé 1957: 38; Fuchs 1963: 18 & fig.17; Bass 1966: 77-78 & fig.19; Throckmorton 1972: fig.10; Hellenkemper Salies et al. 1994, Tafel 16; Pfisterer-Haas, 1994: 483-504 & fig.1-2, fig.4 & fig.13-15.
6	Grotesque dancer 2 (F 215)	Bronze	Small scale H: 0.32 m	Hellenistic 2nd cent. BC	Merlin and Poinssot 1930: 6-8; Diolé 1957: 38; Fuchs 1963: 17-18 & fig.16; Bass 1966: 78; Hellenkemper Salies et al. 1994, Tafel 17; Pfisterer-Haas 1994: 483-504 & fig.6-7 & fig.13-15.
7	Grotesque dancer 3 (F 214)	Bronze	Small scale H: 0.315 m	Hellenistic 2nd cent. BC	Merlin and Poinssot 1930: 6-8; Fuchs 1963: 16-17 & fig.15; Hellenkemper Salies et al. 1994: Tafel 18; Pfisterer-Haas 1994: 483-504 & fig.10-12.
8	Clown (?)	Bronze	Small scale		Merlin and Poinssot 1930: 7; Diolé 1957: 38.
9	Running Satyr 1 (F 221)	Bronze	Small scale H: 0.19 m	Late Hellenistic c.130-120 BC	Merlin and Poinssot 1930: 10; Fuchs 1963: 14 & fig.9; Bass 1966: 78; Klages 1994: 535-538 & fig.6-8.
10	Running Satyr 2 (F 222)	Bronze	Small scale H: 0.20 m	Late Hellenistic c.130-120 BC	Merlin and Poinssot 1930: 10; Fuchs 1963: 14 & fig.9; Bass 1966: 78; Klages 1994: 535-538 & fig.3-5.
11	Running Satyr 3 (F 209)	Bronze	Small scale H: 0.35 m	Late Hellenistic c.130-120 BC	Merlin and Poinssot 1930: 9; Fuchs 1963: 19 & fig.19; Bass 1966: 78; Rackl 1978: 46; Hellenkemper Salies et al. 1994: Tafel 22; Klages 1994, 531-535 & fig.1-2.
12	Seated grotesque actor (F 225)	Bronze	Small scale H: 0.13 m	Hellenistic second half of 2nd cent. BC	Fuchs 1963: 20-21 & fig.21.1 & fig.21.3; Hellenkemper Salies et al. 1994: Tafel 23; Bauchhenß-Thüriedl 1994: 543-547 & fig.7-11.
13	Standing grotesque actor (F 220)	Bronze	Small scale H: 0.10 m	Late Hellenistic	Fuchs 1963: 21, fig.21.2 & fig.21.4; Bauchhenß-Thüriedl 1994: 539-544 & fig.1-5.
14	Dog (F 267)	Bronze	Small scale L: 012 m	Hellenistic	Fuchs 1963: 25 & fig.33; Barr-Scharrar 1994b: fig.16-17.

ID	Sculptures	Material	Size	Date	References
15	Hermes (F 208)	Bronze	Small scale H: 0.32 m	Late Hellenistic c.130-120 BC	Merlin and Poinssot 1930: 9; Fuchs 1963: 20 & fig.20; Bass 1966: 78 ; Hellenkemper Salies et al. 1994: Tafel 13; Höckman 1994b: 469-481, fig.1-5.
16	Aphrodite/ Ariadne (C 1183)	Marble	Large scale H: 0.70 m	Late Hellenistic 2nd cent. BC	Merlin and Poinssot 1930: 12; Diolé 1957: 38; Fuchs 1963: 11 & 35-36 & fig.54; Smith 1991: fig.107; Bernard 1994: 365-373; Geominy 1994: 339-343; Lehman 1994a: 345-353; Lehman 1994b: 357-361; Ouertani 1994: 289-299 & fig.1; Sölnder 1994: 399-423; Von Prittwitz und Gaffron 1994: 303-328 & fig.1-4; Mattusch 1995: 431-448; Ridgway 2002: 200; De Donato 2003: 39; Hellenkemper Salies et al. 1994: Tafel 10
17	Niobe/ Head of female statue (C 1185)	Marble	Large scale H: 0.47 m	Late Hellenistic 2nd cent. BC	Merlin and Poinssot 1930: 12; Diolé 1957: 38; Fuchs 1963: 36 & fig.55; Ouertani 1994: 292 & fig.5; Von Prittwitz und Gaffron 1994: 311-312 & 323-324, fig.12-13 & fig.31-34.
18	Niobide 1 / Head of female statue (C 1186)	Marble	Large scale H: 0.50 m	Late Hellenistic 2nd cent. BC	Merlin and Poinssot 1930: 12; Diolé 1957: 38; Fuchs 1963: 37 & fig.58; Ouertani 1994: 293 & fig.6; Von Prittwitz und Gaffron 1994: 313-315 & fig.14-17.
19	Niobide 2	Marble	Large scale	Hellenistic	Merlin and Poinssot 1930: 12; Diolé 1957: 38.
20	(Girl) satyr (C 1189)	Marble	Large scale H: 0.65 m	Late Hellenistic 2nd cent. BC	Merlin and Poinssot 1930: 12; Diolé 1957: 38; Fuchs 1963: 38 & fig.59; Ouertani 1994: 294 & fig.8; Von Prittwitz und Gaffron 1994: 307-309 & fig.5-9.
21	Pan/ Fragment of sculptural relief (C 1197)	Marble	Large scale H: 0.40 m	Hellenistic	Merlin and Poinssot 1930: 12; Diolé 1957: 38; Fuchs 1963: 35 & fig.53; Ouertani 1994: 291 & fig.3; Marquardt 1994: 329-337 & fig.3.
22	Garment of a satyr or Herakles (C 1191)	Marble	Large scale H: 0.28 m	Hellenistic	Fuchs 1963: 40 & fig.64.1; Von Prittwitz und Gaffron 1994: 310 & fig.10-11.
23	Artemis (C 1176)	Marble	Medium scale H: 0.50 m	Late Hellenistic 2nd cent. BC	Merlin and Poinssot 1930: 13; Fuchs 1963: 40-41 & fig.64.2-3; Lehman 1994b: 357-361 & fig.1-4.
24	Torso of Artemis (C 1177)	Marble	Medium scale	Late Hellenistic 2nd cent. BC	Merlin and Poinssot 1930: 13; Lehman 1994b: 357-361 & fig.5-6.
25	Torso of a male youth statue 1 (C 1174)	Marble	Large scale H: 0.95 m	Late Hellenistic	Merlin and Poinssot 1930: 12-13; Diolé 1957: 38; Fuchs 1963: 39 & fig.61; Hellenkemper Salies et al. 1994: Tafel 9; Ouertani 1994: 296 & Fig.10; Lehman 1994a: 345-353 & fig.1-3.
26	Pieces of a male statue (C 1184)	Marble	Large scale H: 0.59 m	Hellenistic	Diolé 1957: 38; Fuchs 1963: 41 & fig.65.1; Geominy 1994: 339-343 & fig.1-2 & fig.5.
27	Seated child 1 (C 1178)	Marble	Medium scale H: 0.50 m	Hellenistic	Fuchs 1963: 39-40 & fig.62-63; Hellenkemper Salies et al. 1994: Tafel 12; Ouertani 1994: 295 & fig.9; Andrae 1994: 365 & fig.1-2.
28	Seated child 2 (C 1179)	Marble	Medium scale	Hellenistic	Andrae 1994: 365-373 & fig.3-4.
29	Seated child 3 (C 1180)	Marble	Medium scale	Hellenistic	Andrae 1994: 365-373 & fig.5-6.
30	Seated child 4 (C 1181)	Marble	Medium scale	Hellenistic	Andrae 1994: 365-373 & fig.7-8.

ID	Sculptures	Material	Size	Date	References
31	Head of female statue (C 1190)	Marble	Medium scale H: 0.40 m	Hellenistic	Fuchs 1963: 42 & fig.65.3; Ouertani 1994: 292 & fig.4; Von Prittwitz und Gaffron 1994: 316-318 & fig.18-22.
32	Torso of a male youth statue 2 (C 1175)	Marble	Large scale H: 0.68 m	Hellenistic	Diolé 1957: 38; Fuchs 1963: 38-39 & fig.60; Ouertani 1994: 296 & fig.11; Lehman 1994a: 345-353 & fig.7.
33	Head of female statue/ fragment of sculptural relief (?) (C 1187)	Marble	Large scale H: 0.35 m	Late Hellenistic	Fuchs 1963: 36-37 & fig.56-57; Ouertani 1994: 291 & fig.2; Marquardt 1994: 329-337 & fig.1-2.
34	Satyr (C 1188)	Marble	Large scale H: 0.47 m	Hellenistic	Merlin and Poinssot 1930: 12; Diolé 1957: 38; Fuchs 1963: 41 & fig.65.2; Ouertani 1994: 294 & fig.7; Von Prittwitz und Gaffron 1994: 319-321 & 325 & fig.23-27 & fig.35.
35	Lower arm and hand of a male(?) figure (C 1195)	Marble	Large scale (?)	Hellenistic (?)	Bauchhenß 1994: 169 & fig. 3.
36	Legs of a seated figure (C 1192)	Marble	Large scale (?)	Hellenistic (?)	Bauchhenß 1994: 168 & fig.1.
37	Sculptural fragment (C 1196 d)	Marble	Large scale (?)	Hellenistic (?)	Bauchhenß 1994: 168-169.
38	Sculptural fragment of right shoulder (Inv.No. 223?)	Marble	Large scale (?)	Hellenistic (?)	Von Prittwitz und Gaffron 1994: 322 & fig.28.
39	Arm fragment (C 1193)	Marble	Large scale (?)	Hellenistic (?)	Bauchhenß 1994: 168-169.
40	Arm fragment (C 1194)	Marble	Large scale (?)	Hellenistic (?)	Bauchhenß 1994: 168-169.
41	Arm fragment (C 1196 a)	Marble	Large scale (?)	Hellenistic (?)	Bauchhenß 1994: 168-169.
42	Hand fragment (C 1196 b)	Marble	Large scale (?)	Hellenistic (?)	Bauchhenß 1994: 168-169.
43	Foot fragment (C 1196 e)	Marble	Large scale (?)	Hellenistic (?)	Bauchhenß 1994: 168-169.
44	Sculptural fragment (Inv.No. 2270)	Marble	Large scale (?)	Hellenistic (?)	Bauchhenß 1994: 169 & fig.4.

Getty Villa in Los Angeles (Maish 2017). The Mahdia bronze herm has been dated stylistically to the second century BC and preserves a unique inscription with the signature of the sculptor Boethos of Chalcedon (Bass 1966: 78; Mattusch 1994: 437 and figure 10).

Approximately 13 more small-scale sculptures, statuettes and figurines (Table 5, ID.3-15), have been reported from the Mahdia shipwreck. Among them some grotesque dancers or dancing dwarfs, grotesque actors, a lyre-playing Eros, a dancing Eros, running Satyrs, a dog and the god Hermes have been recognised (Fuchs 1963).

Marble sculptural artefacts

There are approximately 29 marble sculptural fragments reported from the underwater deposit of the Mahdia shipwreck (Table 5, ID.16-44). All of them have been identified as sculpted from marble from the quarries of Hymmettos and Penteli in Attica, close to Athens, Greece, and they were most probably constructed in the 2nd century BC (Bauchhenß *et al.* 1994: 168; Bernard 1994: 365-373; Fuchs 1963: 11; Lehman 1994a: 345-353; Lehman 1994b: 357-361; Ouertani 1994: 289-301; Von Prittwitz und Gaffron 1994: 303-328).

Among the assemblage of the marble sculptures of the Mahdia shipwreck, several scholars have recongised the marble statue heads of Aphrodite (Table 5, ID.16), Niobe (Table 5, ID.17), and Niobide (Table 5, ID.18-19), as well as a satyr (Table 5, ID.34), a girl satyr (Table 5, ID.20), a Pan (Table 5, ID.21), the garment fragment of a satyr or Herakles (Table 5, ID.22), two statuettes of Artemis (Table 5, ID.23-24), four statuettes of seated children (Table 5, ID.27-30), some male figures (Table 5, ID.25-26 and ID.32) and the head of a female figure (Table 5, ID.33).

There are also several marble sculptural fragments (Table 5, ID.35-44) from the Mahdia shipwreck that are difficult to identify. Due to their fragmentary preservation, the heavy erosion on their surfaces and their generic character it has not been possible to determine whether they fit with any of the other marble sculptural fragments or if they feature any specific representations (Bauchhenß 1994: 168-169; Fuchs 1963: 36-37 and 42; Von Prittwitz und Gaffron 1994: 322).

Interpreting the transported sculptures of the Mahdia shipwreck

As it is obvious in Table 5, most of the sculptures from the Mahdia shipwreck have been dated to the Late Hellenistic times, and more specifically in the 2nd century BC. Some examples are: the Dionysiac herm (Table 5, ID.2), the statue head of Aphrodite (Table 5, ID.16), the statuettes of Artemis (Table 5, ID.23-24) and the statuettes of the seated children (Table 5, ID.27-30). Most scholars have recognised these sculptures as copies or reproductions of earlier original works, especially because they appear in multiple numbers and versions within the deposit of Mahdia, as well as in other terrestrial archaeological deposits (Bass 1966: 78-79)

According to the available evidence in classical archaeological and art historical scholarship, the phenomenon of copying and reproducing versions of well-known Classical or earlier Hellenistic sculptural works was first introduced during the late 3rd and early 2nd centuries BC by sculptural commissions of Hellenistic kings of the eastern Mediterranean, who wished to collect copies or adaptations of famous works of art (Smith 1991: 14-16 and 258-261; Stewart 1990: 63). However, the interest in copying, reproducing and selling earlier works of art expanded further in the last two centuries BC, when wealthy elites and merchants in flourishing cities of the Hellenistic east, and also and in late Republican Italy developed the trend of acquiring and collecting copies of famous Greek sculptures for the decoration of their private dwellings (Stewart 1990: 228-229). Therefore, an intense private art collection activity was established together with an art production and trading network.

The proximity of the date of most of the bronze and marble sculptures from the Mahdia shipwreck to the date of the ship's wrecking, combined with the identification of several sculptural types as copies, suggest that the Mahdia ship could have participated in this art production and trade network. The overall mercantile character of the ship, as illustrated from the non-sculptural transported artefacts, analysed next, provides more evidence for maritime transportation related to the art collection market of the Hellenistic or Roman periods.

The other non-sculptural artefacts

The salvage operations and excavations conducted on the underwater site have shown that the Mahdia ship transported a large variety of artefacts from many different origins (Bauchhenß *et al.* 1994: 171). Unfortunately, as it was previously mentioned, there are no accurate catalogues or inventories of the retrieved material in the available publications. Therefore, it has been hard to clearly distinguish, which artefacts were part of the ship's cargo and which were part of the ship's equipment (Bauchhenß *et al.* 1994: 167).

However, from the scholarly analysis of some of the discovered material, it becomes obvious that the Mahdia ship, at the time of wrecking, was carrying a heterogeneous cargo and that it also carried some shipboard items (Bauchhenß *et al.* 1994: 171; Winterstein 2000). More specifically, the non-sculptural transported cargo material of the Mahdia ship has been identified as: fragments of large architectural elements; pieces of luxurious domestic furnishing; lead ingots; bronze lamps; small figurines; sculptural attachments; a variety of amphorae and possibly some other pottery (Bauchhenß 1994: 167-174; Parker 1992: 340; Winterstein 2000).

Architectural elements

The architectural elements must have constituted part of the main cargo of the Mahdia ship. It consisted of approximately 60 - 70 pieces of columns, made of Attic marble, which were found lying side by side in six or seven rows on the surface of the seabed with an orientation from north to south (Bass 1966: 78; Diolé 1957: 36; Fuchs 1963: 11; Winterstein 2000). As Diolé (1957: 36-37, 39-44) reports, all around them lay a mass of marble fragments piled up in no sort of order, including column capitals and bases, carefully squared blocks, unfinished blocks and other architectural elements of various types (Heinrich 1994: 209-237). Additionally, more columns and marble blocks were found under a deep layer of mud (Diolé 1957: 37, 43; Von Hesberg 1994: 175 and figure 1).

Unfortunately, from the available reports and publications, it is difficult to determine the exact number of these artefacts, because a lot of data has been lost over the many different decades of underwater research and documentation (Bauchhenß *et al.* 1994: 167). However, it is known that the architectural pieces from the Mahdia ship consist mainly of column shafts, with some pieces of column capitals (Hellekemper Salies *et al.* 1994: Table 5) and bases. They have various dimensions and do not necessarily fit together (Bauchhenß *et al.* 1994: 167-168; Diolé 1957: 37; Ferchiou 1994: 195-208; Höckmann 1994a: 53; Von Hesberg 1994: 175-194). Another interesting fact is that the drums of the columns seem to have been mere rough-hewn cylinders without fluting or astragal and must have been shipped straight from the quarry (Diolé 1957: 44).

Domestic furnishing

The luxurious pieces of domestic furnishing found in the Mahdia shipwreck constitute another category of transported cargo. These objects of home decoration have been recognised as: marble basins; large-scale vases in marble and bronze and marble kraters some with figurative sculptural relief decoration; bronze and marble candelabra; figurative bronze lamps; sculptural appliques; luxurious furniture pieces such as *klinai* (*'κλίναι'* in Greek), namely reclining beds (Baratte 1994: 607-628; Barr-Scharrar 1994a: 551-558; Barr-Scharrar 1994b: 559-572; Barr-Scharrar 1994d: 657-661; Bass 1966: 78; Bauchhenß *et al.* 1994: 168-171; Diolé 1957: 38; Fuchs 1963: 15-16, 19, 21-27, 32-35, figures 10-13, figure 18, figures 22-32, figures 34-36 and figures 48-53; Faust 1994: 573-606; Grassinger 1994: 259-283; Hiller 1994: 515-530; Hilscher-Ehlert 1994: 285-288; Merlin and Poinssot 1930: 23-143 and plates I-XL; Petrovszky 1994: 663-700; Winterstein 2000). The majority of the researched pieces have been dated towards the end of the 2nd century BC. Some scholars have expressed the opinion that, similarly to the architectural elements, some of the domestic furnishing pieces from the Mahdia shipwreck were not finished products. For example, Diolé (1957: 44) noted that

part of the candelabra and kraters might not yet have received their painted or gilded decoration and might have been products of a workshop engaged in supplying goods that could be further personalised and traded.

Pottery

A variety of pottery artefacts have been reported as retrieved from the shipwreck of Mahdia. The majority of them were found mixed with the architectural elements and especially concentrated at the northern end of the site (Bass 1966: 78; Diolé 1957: 37; Merlin and Poinssot 1930: 16). Amphorae were also found under a deep layer of mud, under the architectural elements resting on the surface of the seabed (Diolé 1957: 37).

Unfortunately, as Rotroff (1994: 133) observes, there are no records of the exact archaeological context and position of each piece, nor catalogues, lists or illustrations of them. Additionally, many pottery pieces are still not labelled and there are issues in matching the material in the storage of the Bardo Museum with the excavation reports. Despite this problem, some pottery artefacts have been safely recognised as coming from the Mahdia shipwreck. These are: eight pieces of fine black-glaze and red-slip tableware; four pieces of household pottery, including some lagynoi, coarseware cups and a lid; five transport amphorae, belonging to the Koan, Dressel 1/Will 4, Titan, Punic and Spatheion types; small fragments of four more amphorae; and one amphora stopper (Diolé 1957: 37 and 40).

Rotroff (1994, 133-152) has suggested that these artefacts were objects of daily use and they did not constitute cargo of the ship. According to her research the pottery pieces must have originated from both Italy and the eastern Mediterranean, and they are dated towards the end of the 2nd and the beginning of the 1st centuries BC.

Inscriptions

Five stone inscriptions with Greek texts have been also found in the Mahdia shipwreck (Diolé 1957: 41-42; Winterstein 2000). Research on those inscriptions revealed that at least two of them were in fact earlier Athenian decrees issued by the 'Paraloi', the Athenian citizens who formed the crew of the trireme 'Paralos', one of the city's sacred ships (Bauchhenß *et al.* 1994: 168; Merlin and Poinssot 1930: 13-14). The Athenian origins of the 'Paraloi' inscriptions significantly influenced the interpretation of the Mahdia ship's provenance by early researchers, who saw with certainty the ship starting from the port of Athens, Piraeus (Bass 1966: 79; De Donato 2003: 41; Fuchs 1963: 11).

As it will be explained later in the chapter, modern research cannot agree with certainty that Piraeus was the starting port of the Mahdia ship. Nevertheless, these Greek inscriptions, as well as the Attic provenance of the marble sculptures and architectural pieces, mentioned above, could indicate that the ship might have at least stopped there. The reasons, though, why the inscriptions were taken on board, remain unclear. Diolé (1957: 41-42) and Fuchs (1963: 11) have expressed the opinion that the inscriptions could have been already damaged and loaded onto the ship at Piraeus to be used as ballast. Alternatively, they could have been considered as curiosities intended for the collector's market, thus matching the transport purpose of the sculptures and other luxury items that were carried on the Mahdia ship.

Other material on board the Mahdia ship

Besides the above large categories of artefacts, several other objects have been retrieved from the underwater deposit of Mahdia. The objects could constitute either smaller groups of the ship's cargo or shipboard items used on board by the crew.

First of all, a number of lead ingots have been retrieved from the Mahdia shipwreck, all shaped in long bars with curved upper surfaces and flat under surfaces (Diolé 1957: 51; Eck 1994: 89-96; Merlin and Poinssot 1930: 16-17). Each one of these measured roughly 40cm in length and weighed around 30-33 kilos and all of them were stamped with Latin characters probably indicating a Spanish source (Baumer *et al.* 1995: 80; Eck 1994: 94). These ingots could have been transported cargo, ballast or simply shipboard items, as seen in the shipwreck of Madrague de Giens (Tchernia *et al.* 1978: 69-72 and Plates XXIV-XXV).

Moreover, abundant numbers of lamps, have been retrieved from the Mahdia shipwreck. They have all been dated to the late 2nd and early 1st centuries BC, they were probably from the area of Knidos and, according to some scholars, they could have possibly been transported for trading purposes (Barr-Scharrar 1994c: 639-655; Bass 1966: 78; Diolé 1957: 40, 42).

Additionally, some statue bases have been reported from the underwater archaeological record of the Mahdia shipwreck (Bauchhenß *et al.* 1994: 170, figure 7), as well as fragments of large sculpted cornices and other sculptural votive reliefs, which were almost certainly figurative (Diolé 1957: 38, 41-42). All these materials have been dated to the time before the date of the Mahdia ship's wrecking (Bauchhenß 1994: 375-379; Fuchs 1963: 42-43, figure 65.4, figures 66.1-2 and figure 67).

Four coins have been also retrieved from the Mahdia shipwreck: one Athenian *tetradrachme* of the 2nd or 1st centuries BC, two large bronze coins possibly with Italian origins and one depicting a head with a helmet that has been suggested as either Italian or Greek from the eastern Mediterranean (Zedelius 1994: 131-132).

Furthermore, some bronze figural attachments have been found in the Mahdia shipwreck. These pieces have been interpreted as decorations that fitted on the exterior of the hull, just before the bow of the ship (Horn 1994: 451-467, figures 1-12).

Other smaller groups of artefacts include: millstones (Baatz 1994a: 97-104; Diolé 1957: 40); stone weights (Baatz 1994b: 105-107); bone objects (Berke 1994: 709-713); mirrors and jewellery (Päffgen and Zanier 1994: 111-130); other small metal finds such as hooks, bells, hinges, cotter pins, fitting fragments, discs and pieces of pipes. Most of these latest artefacts must have been shipboard items and part of the ship's equipment.

Interpreting the maritime transport of the Mahdia ship

After presenting the discovery of the Mahdia shipwreck and the archaeological remains preserved from it, as reconstructed through the study of all the available literary sources, it is possible to answer the questions set for the micro-scale research of this deposit.

The reasons for the maritime transport of sculptures

To begin with, through the study of the reports and publications on the Mahdia shipwreck, it has been possible to create a detailed reference inventory (Table 5) that collects for the first time all of the information regarding the sculptural pieces known to have been retrieved from that underwater site. Through the holistic, but also comparative study of this data, it becomes clear that the Mahdia shipwreck sculptures, both bronze and marble, have been largely dated to the Late Hellenistic times and mainly in the 2nd century BC. This observation combined with the dating of the Mahdia shipwreck to just before or after 100 BC, suggests that the sculptures were constructed just a few decades or a century at most before their maritime transportation, wrecking and underwater deposition.

This observation is important especially if related to the several sculptural types, recognised as copies known, also, from several terrestrial sites and museums around the world. This clearly

suggests that the Mahdia sculptures could have been massively produced as traded products and could have been carried on that large ship to be further redistributed in new harbours and markets. Whether this maritime transport was part of a specific individual's order, as illustrated by the texts of Cicero mentioned previously (Cicero, *Letters to Atticus* 1.8.2; Cicero, *Against Verres,* act. 2.4.126), or simply an export from a specific city or sculpture workshop, is hard to determine just from the available data. However, it is significant to underline that all the existing archaeological evidence demonstrates the mercantile character of the maritime sculptural transport seen on the ship of Mahdia.

The type of ships transporting sculptures in the last two centuries BC

The reassessment of the preserved data on the Mahdia ship remains provided clear evidence for the existence of a large merchant vessel, probably a large freighter of the 2nd or early 1st century BC. As it was explained earlier, its structural characteristics did not indicate much difference from other contemporaneous large ships. Despite previous scholarly attempts to characterise the Mahdia ship as a unique seagoing vessel and a type of its own, its comparative analysis to the hull contruction, shipbuilding details and size of the Antikythera and the Madrague de Giens ships showed that it must have been one of many large and sturdy Mediterranean seagoing vessels, of which very few are surviving in the archaeological record.

This conclusion provides evidence that the maritime transport of sculptures during the last two centuries BC must have occurred with the use of regular large merchant ships, which could also carry other types of cargo as well. As seen previously in the case of the fifth- or fourth-century BC Porticello ship (Chapter 5), the transportation of sculptural artefacts by sea seems to have been taking place with pre-existing shipping means rather than through the use of specialised ships or merchants.

Type of transported cargo

As explained previously, the transported sculptures of the Mahdia ship were part of a heterogeneous cargo of luxury items that would have probably been sold for decorative purposes, as described by Stewart (1990: 58) and Smith (1991: 259). In spite of the previous scholarly focus on the art historical analysis of these objects, the holistic re-examination of the present research revealed that the bronze and marble freestanding sculptures of the Mahdia shipwreck constituted only one of the several types of material that this large merchant vessel was carrying. In this mixed cargo, the transported artefacts, including the architectural elements, the pieces of domestic furnishing and of course the sculptures, seem to have been constructed slightly before the time of the ship's wrecking, and some of them were in an unfinished condition and were probably intended for trade and export.

This conclusion from the analysis of the overall cargo of the Mahdia ship manifests that the ship could not have been carrying booty from Roman conquests, such as from Sulla's sack of Athens, as suggested by previous scholars (Fuchs 1963: 11). As also recognised by Diolé (1957: 43-44), on the Mahdia ship we most probably see a contractor's consignment, rather than a collection of spoils from a conquered country. This idea is definitely reinforced by the general mercantile character of the cargo, the unfinished stage of some of the architectural elements and pieces of domestic furnishing, as well as the widespread origins of the transported artefacts (Figure 48).

Situation and packaging of cargo on board

According to Diolé (1957: 36-38), the 1907-1913 research director, A. Merlin, had reported that during the excavation the divers first came upon the previously mentioned large concentration of columns which were found lying on the seabed organised in rows. All around them the divers found other marble material and after they dug under and between the columns they came down

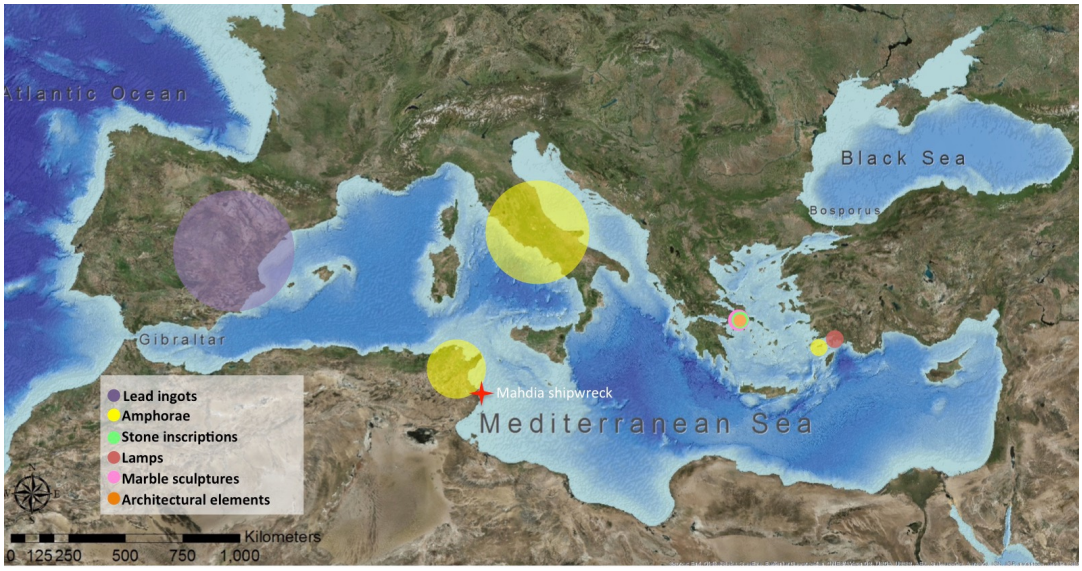

Figure 48: Map showing the provenance of material carried in the Mahdia ship. The size of the circles indicates only approximate geographical areas, from where the material could have originated, and not number of transported artefacts. © Author.

on a layer of timber about eight inches thick and in the process of decomposition. Penetration through this timber brought to light objects of a more delicate type, such as bronze statuettes of fine workmanship and fragments of beautifully ornamented furniture. Therefore, it has been suggested that, when the vessel sank, she plunged straight to the bottom without breaking up having sustained a certain amount of damage. Thus, it is thought that the rotting timber discovered right under the columns, must have once been the ship's deck. If that scenario is correct, the columns and some of the less fragile objects must have rested upon the deck of the ship and the columns must have been laid sufficiently apart to make movement between them possible and so as not to interfere with the handling of the vessel. The smaller more fragile and precious cargo must have been loaded in the hold, which would have been accessed through one or two large openings, possibly corresponding with the gaps in the stowing of the columns discovered in the wreck site.

Fuchs (1963: 11) provides a similar description regarding the situation and packaging of the Mahdia ship's cargo. He describes that the columns were laid on the '*Mitteldeck*' and the works of art in the '*Zwischendeck*'. This arrangement seems to be inspired by a cross-section sketch of the seabed made by De Frondeville (1956: 223 and figure 8) showing in a simplified way, how the shipwreck material was found during the early 20th-century underwater excavations.

The situation of all of the heaviest architectural elements on the deck, with the sculptures and the other more fragile objects situated under them, sounds both possible and a bit problematic. The placement of the large and cumbersome architectural elements on the deck of a ship sounds reasonable, especially when thinking of the circumstances of the loading and unloading of the cargo in the ports with the use of cranes. However, as known from other dedicated stone carrying vessels the heavy architectural elements were usually carried in the hold of the ship, where they also constituted ballast (Russell 2013a: 112-123). So, if in the case of the Mahdia ship the heaviest transported items were indeed on the deck, rather than in the hold, it would maybe mean that the vessel was not a stone carrier, but a regular large merchant ship that just happened to transport large and heavy cargo for this journey. In this case the ship would require some serious ballast

below to be able to sail. The large number of lead ingots from the Mahdia shipwreck, mentioned previously, could have actually been a heavy and dense enough ballast of that sort. Since, though, the exact number and weight of neither the architectural elements nor the ingots have been documented, it would not be possible to proceed with more secure conclusions.

In contrast to the long discussion about the exact situation of the architectural elements within the Mahdia ship (Höckmann 1994a: 53-57), there have been no successful suggestions regarding the exact packaging of the sculptural cargo, in a way that would avoid serious damage to these very fragile objects. Höckmann (1994a: 54-55) has mentioned the possibility that the sculptures were laying in between the columns in the hold of the ship. However, no evidence for packing or cushioning material has been preserved to suggest how these fragile sculptures could have been protected from significant wear. In any case, though, it is certain that some sort of dunnage must have been used to prevent the objects from shifting. Maybe sacks of hay or grains, as proposed for the Antikythera ship (Foley 2016), could have been used as cushioning elements, none of which though could have survived in the underwater environment. Additionally, due to the fragmentation of at least the marble sculptural parts, Diolé (1957: 43) has suggested that the statues could have been loaded dismantled in sections waiting to be assembled upon arrival, a transportation technique discussed previously in Chapter 4.

Provenance, destination and trading route

As previously explained, the Mahdia ship has been considered by scholars as having departed from Athens, and specifically from the port of Piraeus, with a westward direction towards Italy. The Athenian provenance of the architectural elements and the stone sculptures (Figure 48), which were made of Attic marble, as well as the existence of older classical Athenian inscriptions on the ship led to the immediate scholarly hypothesis that this merchant vessel departed from Piraeus carrying either spoils after the sack of the city by the Romans or traded material that could be unloaded and sold in the big harbours of either Ostia or Puteoli in Italy (Bass 1966: 79; De Donato 2003: 41; Diolé 1957: 41-45; Fuchs 1963: 11; Hellenkemper 1994b: 153-164; Merlin and Poinssot 1930: 15 and 17-21). The existence of Italian amphorae on board, as well as the test results on wood samples and caulking material in the 1980s and 1990s that showed a provenance in Campania, Italy, further reinforced this theory, even inspiring some scholars to call the Mahdia ship a 'Roman' freighter (Diolé 1957: 40; Höckmann 1994a: 55; Winterstein 2000).

In reality, though, the exact origins and trade route of the Mahdia ship are hard to determine with scientific certainty. The Italian provenance of the hull material, mentioned above, suggests that the ship must have indeed been built somewhere in Italy. Of course, though, the ship could have been operating from a different place to where it was built, at the time that it sank. The wide range of origins seen in the artefacts carried on the Mahdia ship (Figure 48) gives evidence of tramping, *cabotage*, rather than carefully planned long-distance journeys, which can suggest a variety of trading routes and possibilities regarding the area, where this ship was moving during its last journey. As Diolé (1957: 42 and 45-46) and Bass (1966: 77-78) have expressed, it is equally plausible that the Mahdia ship could have been moving in any area of the Mediterranean with a destination to a northern African port, or it could have had an even more elaborate journey that involved multiple stops. Nevertheless, a stop at Piraeus, the harbour of Athens, from where a lot of the transported material came, or at least a movement at the area of the Aegean Sea must have occurred before the ship's wrecking. Overall, though, the establishment of the specific trading route that led the Mahdia ship off the coast of Tunisia would be impossible to reconstruct with the current state of its deposit. Equally, the exact destination of the ship's journey could not be determined even though Italy and the coast of northern Africa would be possible candidates, due to the geographical location of the site and the existence of material from these areas on board.

Conclusion

The re-evaluation and the detailed analysis of the data from the Mahdia shipwreck have brought to light several new results, as well as interesting queries and initiatives for future research. First of all, the reassessment of the underwater deposit of Mahdia with all of its retrieved artefacts from the perspectives of both classical and maritime archaeology has successfully provided a better understanding regarding the type of the ship's cargo, the structural and nautical details of the ship itself, as well as the reasons, circumstances and conditions for the maritime transportation of the discovered sculptures.

Therefore, it can be concluded that the Mahdia ship was a regular large merchant seagoing vessel of the late 2nd or early 1st century BC. It was carrying a large mixed cargo of mostly luxury objects, including bronze and marble sculptures, which were probably traded for decorative and art collection purposes in the respective markets of the late Hellenistic and/or late Republican world. Most of the transported items were constructed in a date close to the time of wrecking and could have been picked up from one central redistribution port or in several stops along the ship's journey. No exact direction or specific route could be determined for the ship's journey, although it is plausible to suggest that its last voyage included a stop in Attica, from where the marble artefacts originated. Moreover, from this re-examination of data, it becomes obvious that the maritime transport of sculptures together with other luxury objects was highly incorporated within the rest of the Mediterranean maritime trading networks of the period rather than a distinct isolated phenomenon, as previously thought.

The challenge of dealing with the lack of overall inventories and artefact catalogues as well as visual records of the material from the Mahdia shipwreck in this micro-scale research has created a motivation for a future in-person examination of the Mahdia shipwreck deposit. A museum-based project, with access to the archives and preserved material in the Bardo Museum as well as the use of the state-of-art methods and techniques of maritime archaeology, would better confirm the conclusions and interpretations presented in this chapter, and ultimately improve the record of the Mahdia shipwreck artefacts by enhancing its accessibility and understanding. This future endevour, combined with a close-up systematic comparative study of more underwater deposits showing evidence of the maritime transport of bronze and marble sculptures as luxury objects in the Hellenistic and Roman times would hopefully shed light into more details of this transport pattern.