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The Cargo of the Phoenician Shipwreck Off Xlendi Bay, Gozo: Analysis of the Objects Recovered Between 2014–2017 and Their Historical Contexts

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ABSTRACT

This article describes the ceramic and saddle quern cargoes recorded on a Phoenician shipwreck found off Xlendi Bay, Gozo, dated by the finds to 700–650 BC. The ceramics are divided into three main groups: Tyrrhenian-style amphoras, Phoenician-Punic western amphoras, and large ollas. Discussion of the likely provenance of each type allows preliminary proposals concerning the ship's route. The extent of the site and an estimate of the total cargo is used to give the approximate size and capacity of the vessel. The mixed nature of the cargo elicits consideration of Phoenician maritime trade networks in the 7th century BC.

KEYWORDS

Phoenician; amphora; quern; Gozo; Maltese Islands; shipwreck

During a deep-water survey in 2007, a shipwreck was discovered off the south-west of the island of Gozo, a few hundred metres away from a cliff-lined coast near the entrance to Xlendi Bay (Gambin et al., 2018; Figure 1). From a navigational perspective, the area is known to be quite dangerous because of its exposure to the predominant north-west winds, combined with the curved coastal topography, which creates confused sea conditions. Outside of the immediate inner bay, close to the base of the cliffs, and in an area known as 'outer-Xlendi Bay', the seabed flattens at a depth of about 40 m, where it drops to a second, deeper, plateau reaching depths that vary between 100–150 m. Since at least the 1960s, a number of ancient artefacts have been raised during legal excavations as well as by looters, but remains largely protected because of the depth (Azzopardi, 2013). The present shipwreck was discovered within this area at a depth of 110 m, following an initial survey of the site carried out between 2007 and 2008 using a sidescan sonar and a sub-bottom-profiler. The following season, the presence of a very well-preserved cargo was confirmed by video and photographs obtained using a remote-operated vehicle.

Following this first phase of fieldwork, time was dedicated to analysing all datasets including the images and video footage of the site. These initial studies permitted the development of ideas related to the state of preservation of the shipwreck, on the size of the vessel, the composition of the cargo, and a date for the sinking of the ship.

The first important 'discovery' during this phase related to the vertical extent of the site. Sub-bottom-profiler data 'revealed' that the cargo extended deep

into the sediment, to a depth of approximately 1.8 m, establishing that the visible part of the site corresponded to the top part of a well-preserved cargo. The depth of sedimentation around the site is likely to have created anaerobic conditions that are conducive to the survival of hull remains.

Due to the good preservation and potential significance of this site, we have since undertaken an ambitious long-term project aimed at developing new ways to record shipwrecks in deep waters and to recover objects that would enable us to improve our knowledge of the site. Since 2018, excavation has started on a test-trench measuring 4 x 2 m. All the methodologies used between 2007 and 2017 have been described and published in detail elsewhere (Gambin et al., 2018).

In this article we will present the initial results on the composition of the shipwreck's cargo, as well as the objects raised during the first three seasons.

The Cargo

The objects presented here were collected during the 2014, 2016, and 2017 seasons (Table 1). Given the continuation of fieldwork since 2018, this article must be considered as an interim study of some elements of the cargo. This study covers the topmost layer of the cargo and is based on diver observations, high-resolution 3D photogrammetric records, as well as the 17 objects recovered over three seasons (Figure 2). Many of the objects chosen during this first phase of recovery were outliers, believed to be in secondary positions, possibly displaced by fishing practices (Gambin

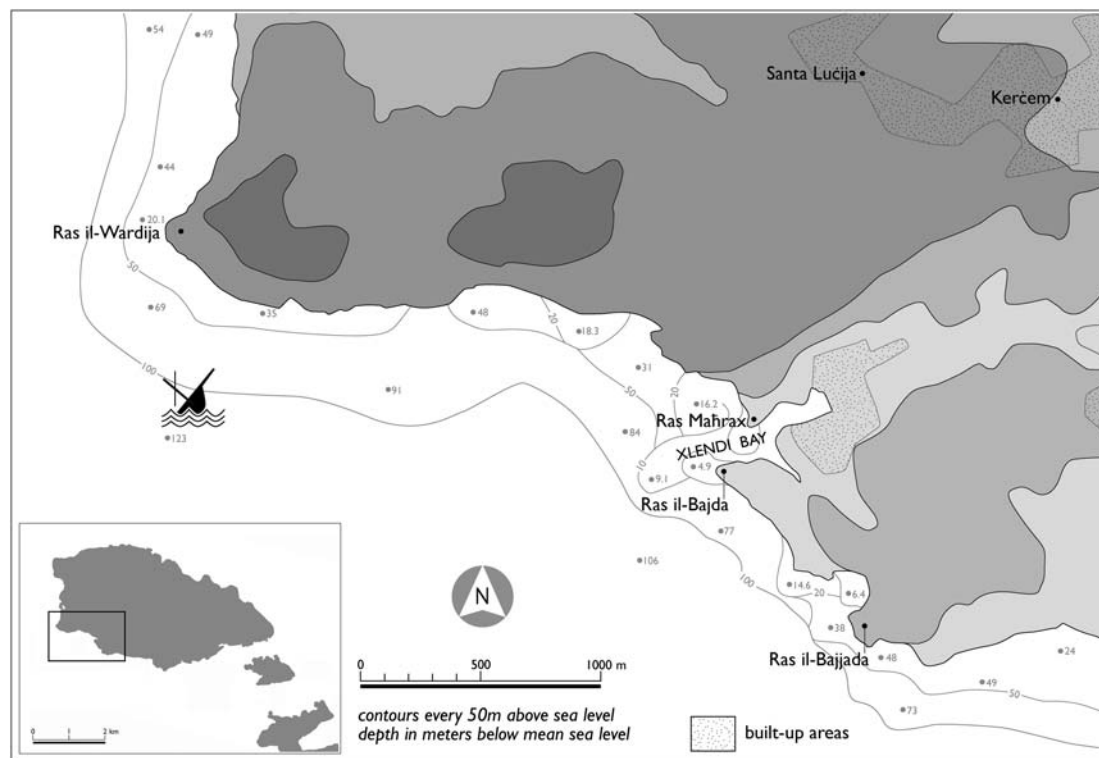


Figure 1. Map of the southeast coast of Gozo indicating the approximate location of the Phoenician wreck-site marked by the ship symbol (Drawing by M. Anastasi).

et al., 2018). However, objects lifted during subsequent seasons were chosen depending on their importance, location, and accessibility. In addition, a number of fragments – both diagnostic and non-diagnostic – were collected from within the recovered objects during conservation.

The cargo is divided into three main sections. At either extremity are located a number of saddle querns and corresponding rubbing stones, with a wide range of ceramic containers forming the central part of the cargo (Figure 3). Analysis of the visible elements of

the cargo shows that it is made up of the following: 66 saddle quern bases and seven corresponding rubbing stones (two quern bases and one handstone were subsequently lifted in 2014 and 2016); 99 amphoras or similar containers of different typologies; and two isolated vases of different types. Of the amphoras, 12 were raised off the seabed by 2017. Both of the two isolated examples were lifted by 2014. One was a small Phoenician round-mouthed jug, while the other was an urn (or possible cooking pot), which was located 6 m to the west of the main cargo deposit. Taken together, the total weight of the visible part of the cargo was estimated to be approximately 6.5 metric tonnes. This figure leads us to the question of the vessel's size, and it is reasonable to assume that with a surviving footprint measuring 11 m by 4 m, the whole ship would have measured approximately 15 m long with a beam of 4 m.

Saddle Querns

The saddle querns from the wreck are of an archaic type, formed of two separate components; one static and the other mobile. The static quern base consists of a rectangular block as the lower element, with mobile stones of elliptical or oblong shape, which were meant to be handheld and used for the grinding process (Curtis, 2001; Procopiou & Treuil, 2002).

The main blocks are trapezoidal in shape with worked rounded edges. The surface is seemingly flat, but one notes a slightly convex shape (Figure 4).

Table 1. Table of all the objects lifted from the shipwreck.

Object Number	Year raised	Object Type	Typology
A001	2018	Amphora	Group IA
A002	2018	Amphora	Group IA
A003	2018	Amphora	Group IA
A010	2017	Amphora	Group II; Ramon T-2.1.1.1/T-3.1.1.2
A012	2016	Pithos	Group IIIa; Sagona urn for I:1 hybrid
A015	2016	Amphora	Group II; Ramon T-2.1.1.1/T-3.1.1.2
A019	2017	Amphora	Group II; Ramon T-2.1.1.1/T-3.1.1.2
A040	2017	Amphora	Group IA
A045	2014	Amphora	Group II; Ramon T-2.1.1.1/T-3.1.1.2
A070	2017	Amphora	Group IA
A071	2017	Amphora	Group IB
A074	2017	Amphora	Group IA
A075	2014	Amphora	Group IA
A076	2017	Amphora	Group IA
A099	2017	Olla	Group IIIA
C001	2016	Jug	Sagona Jug form I:3b
C002	2014	Urn	Sagona Urn form (hybrid) I:1/I:2b
C003	2019	Urn	Sagona Urn form (hybrid) I:1/I:2b
C004	2019	Fineware Bowl	Sagona Bowl form I:6b
GS006	2017	Saddle Quern	–
GS058	2014	Saddle Quern	–
GS059	2016	Rubber	–

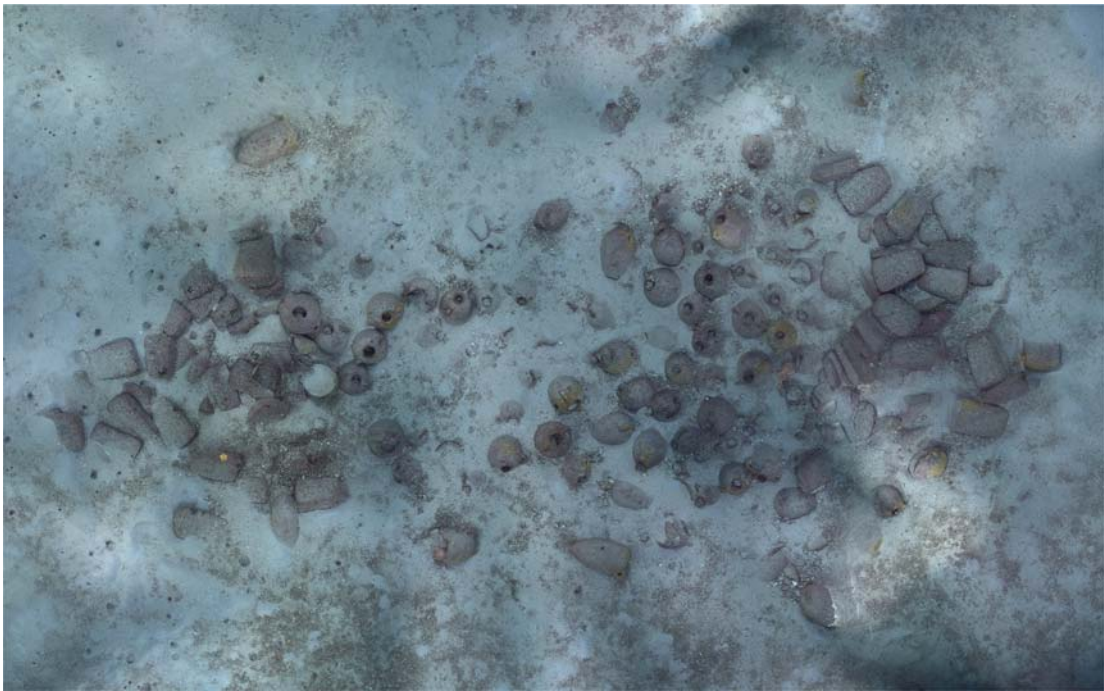


Figure 2. Orthophoto of the Phoenician wreck-site prior to archaeological excavation (Department of Classics and Archaeology, University of Malta).

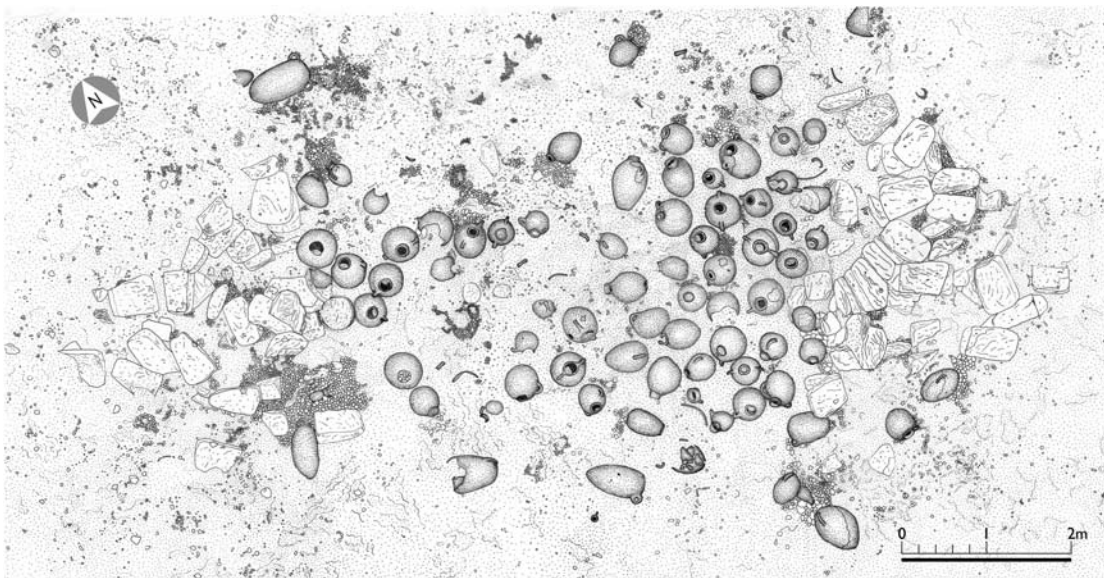


Figure 3. Schematic diagram of the cargo emphasizing the division of the cargo, with saddle querns and ceramic containers (stippled) (Department of Classics and Archaeology, University of Malta/Groplan Project).

Moreover, there is no trace of use on any of the querns and rubbing stones observed. Due to the worked edges, the transversal and longitudinal profiles are trapezoidal, with the larger surface used for grinding. Although relatively uniform, there is a degree of variance in the sizes. Such small variances would not impact the overall calculations of the cargo's weight and distribution.

At this stage it is pertinent to highlight certain features related to the distribution of the cargo. The stone elements of the cargo are located on either extremity

of the site with the querns carefully organized and stowed alongside the amphoras. Due to their location in the upper parts of the cargo layers, it is clear that the querns are not part of the ballast (see Katzev, 2007, 2008 for the Kyrenia wreck). Owing to the large number, and their unused state, it is clear that the querns form a significant part of the main cargo. Being much lighter than the bases, the rubbing stones must have been more difficult to stow. These were probably placed over the querns, which would explain the fact that some of them are still visible within the top part

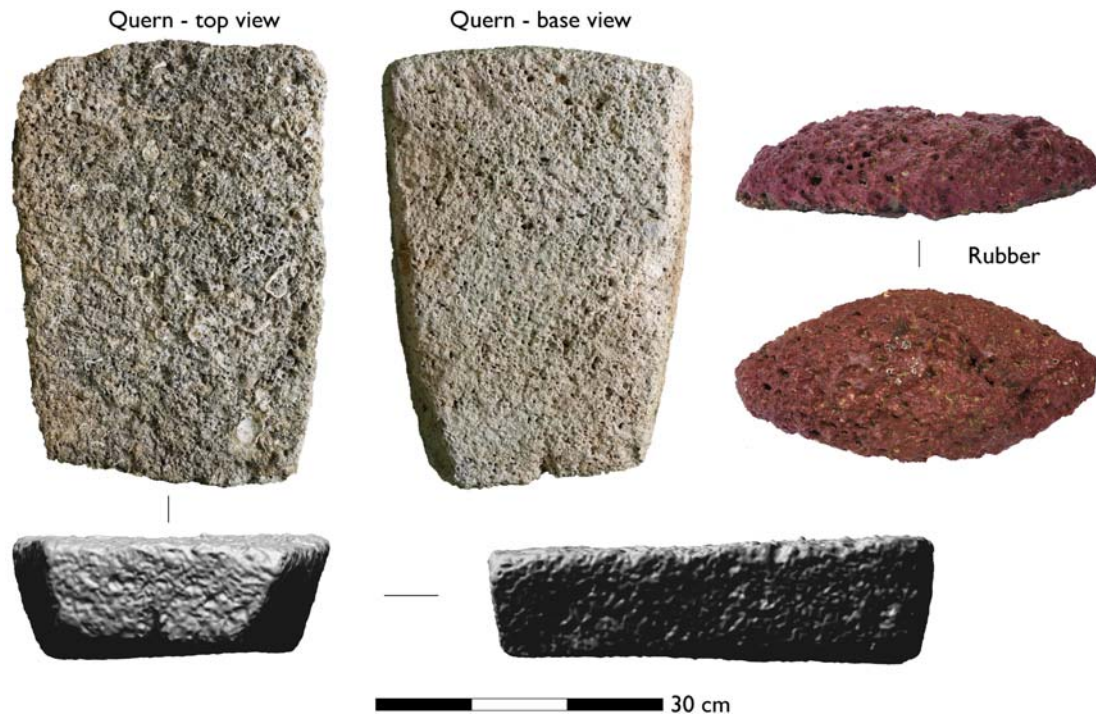


Figure 4. Saddle quern (RW GS004) and handstone (RW GS052) lifted from the Phoenician shipwreck. Side views are rendered in 3D relief laser scans.

of the cargo and also stacked in between the piles of querns. The overall layout of the cargo, indicates a clear association of the amphora pile with the limits of the stowing areas dedicated to the saddle querns (Figures 2 and 3). Indeed, no stone elements have yet been observed in the central part of the cargo. Also, no quern that may have been used by the crew on board has as yet been identified.

The chronological framework for querns is relatively imprecise. This type of saddle quern is the oldest and most basic form known, and has been in use at least since the late Palaeolithic. During that period, grinding stone bases can be traced in different settlements in a variety of shapes, including oval, rectangular, and asymmetrical shapes (Williams & Peacock, 2011). Small, hard stones were utilized as the rubbing component of the implement (Bloxam, 2011). During the Bronze and Iron Ages, saddle querns became widespread in the Mediterranean, as can be seen in both Cyprus and Israel (Elliott et al., 1986). At some point in the 8th and 7th centuries BC, both the saddle quern and the rubbing stone underwent some improvements in their design (Curtis, 2001). The next major evolution in grinding technology was not until the development of the hopper-rubber mill that was developed in the area of Greece during the 5th century BC (Frankel, 2003).

Analysis of samples taken from the recovered querns and rubbing stones confirmed that all elements of the stone cargo are made from basaltic rock. Moreover, these same samples confirmed a provenance in the north-west area of the island of

Pantelleria, which is situated *c.*110 NM west of Gozo (Renzulli et al., 2019). The significance of this provenance is twofold. Firstly, because it sheds light on Pantelleria as a centre for production of saddle querns in the Archaic period; and secondly because we may start to formulate ideas about sailing networks that existed in this part of the central Mediterranean at the time.

Amphoras and Other Containers

The visible objects forming part of the upper layer of the cargo were divided into five main categories with some objects being more numerous than others. Each individual object was assigned a number and recorded in an electronic database, which was built around a very high-resolution 3D photogrammetric model.¹ Three main amphora shapes were recognized and divided into three groups: Groups I (subdivided into Groups Ia and Ib) and II, and two shapes of ollas with horizontal handles designated as Groups IIIa and IIIb. All groups consist of specimens that vary in their state of preservation from excellent to fragmented. The following sections describe in detail the objects assigned to each group.

Group I

Two main types of amphora with ovoid walls and flat bases appear to form the main part of the cargo. These two types are subdivided into Groups Ia and Ib (Figure 5).

Group 1a

Amphoras from this group constitute the majority of examples from Group I (Figure 5.1–4). They are characterized by two vertical strap handles that are attached to the shoulder, but that are separate from the neck. The handles are circular in section. They have a rounded, slightly squat profile. A number of intact examples are present from the specimens raised, all with a distinct flat base, but which varied slightly in size. An elevated cylindrical neck with a small rim distinguishes these amphoras apart from those in Group Ib. Despite the fact that some of the necks were broken, some still exhibited this raised neck. Due to the size variation one cannot easily define a unique or standardized form for this category.

Despite variety of sizes, the general morphology of these objects, with the high handle position over the shoulders and the presence of flat bases allows us to reject the hypothesis of an eastern origin (see Pedrazzi, 2005). Despite some common elements that show similarities between eastern and western examples, specific features suggest a western production. In addition, these amphoras are not included in the inventory of eastern shapes that spread in the central and western Mediterranean as established by J. Ramón Torres (1995, pp. 267–274, fig. 225–226) or Carthage, where new eastern examples have been identified (Docter, 2007, pp. 644–646).

In all probability we are dealing with one or probably more centres of production of a Tyrrhenian

typology as described by Ramón (Ramón Torres, 1995, pp. 277–278, 2000, pp. 278–279, 285–286). Such typologies have also been described in some works by M. Gras (Gras, 1985, chap. 5–8: 254–390) as well as by R. Docter (Docter, 1998, 2007; Docter et al., 1997). Docter classified these as ZitA (Zentral-italische Amphoren), which in turn are sub-divided into five distinct groups, depending on their supposed provenance: (ZitA1 and ZitA2: Sardinia; ZitA3: Sardinia and/or Tyrrhenian Italy; ZitA4: Pithecusae; ZitA5: Etruria ‘proto-Etruscan’). Even within these groups one may note shapes with rounded bases (shape 1) and others with flat bases (shape 2). The oldest of these types (ZitA1/2) was produced in Sardinia from the end of the 9th century BC/beginning of the 8th century BC based on the amphoras evidence from Sant Imbenia (Oggiano, 2000). The shape spread from the first half of the 8th century BC, reaching Carthage where a similar model was adopted by the local artisans (type Karthago 1 A1; Docter, 2007, pp. 621–623, fig. 339). This is listed as T-3.1.1.1 by Ramón Torres (1995, pp. 180–182 and 518, 2000, pp. 278–279). Despite such research, the sub-categories are still poorly understood, and detailed characterization is yet to be fully carried out (Petacco, 2003; Sourisseau, 2011, pp. 157–161). The amphoras from the Xlendi shipwreck probably fit into the ambit of ancient western production centres.

Despite the abovementioned differences in size and profile, one may observe a common element present in

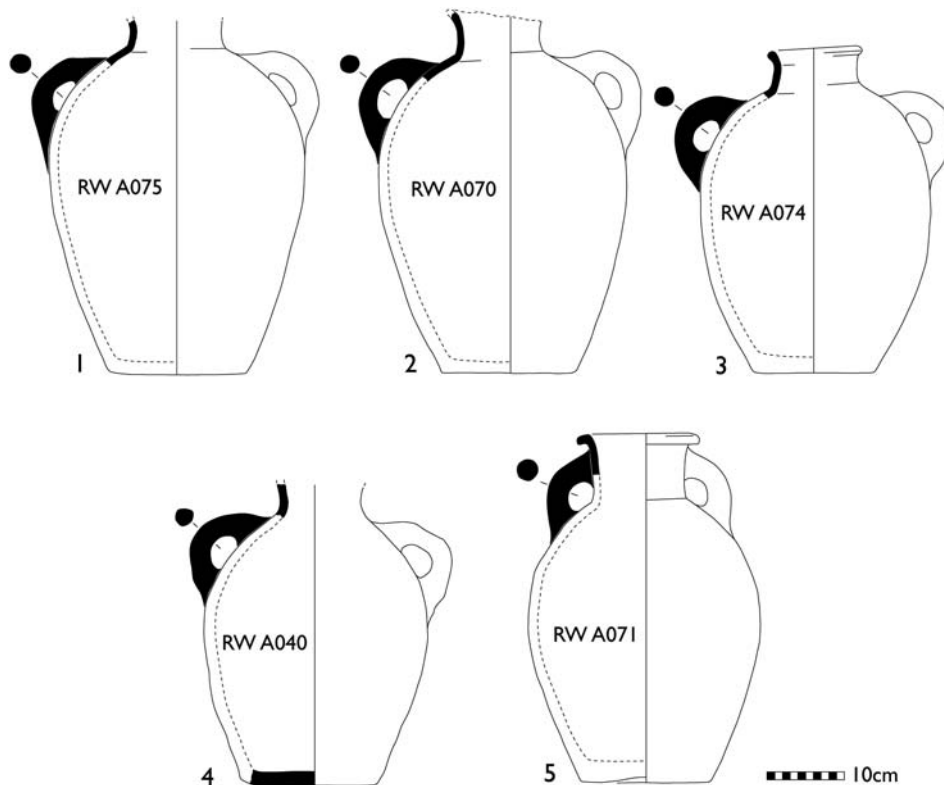


Figure 5. Pottery containers recovered from the Phoenician shipwreck. (1–4) Group 1A amphoras (5) group 1B amphora (Drawings by M. Anastasi).

the majority of objects from Group Ia: the high and very distinct neck, and large, flat base. The only parallel that may be proposed is from Pithecusae; more specifically to a variety from local amphora of type A (Buchner & Ridgway, 1993; Durando, 1989) equivalent to ZitA4 (Docter et al., 1997, pp. 26–27) and designated as Variant A β by V. Nizzo (Nizzo, 2007, pp. 140–141, tav. 8, type B180 (AL) A1 var. β). This shape is characterized by an ovoid body, with the high shoulders registering the widest diameter, a flat base, rounded strap handles attached at the shoulder, and a well-defined cylindrical neck topped by a rolled rim. This parallel seems the most acceptable, however only one example was found in tomb 366 from the necropolis of San Montano (Buchner & Ridgway, 1993, p. 413, tav. CXCII and 199). This assemblage is dated to the beginning of the local Late Geometric II period (c.720–680 BC) (Nizzo, 2007, level 21), thus pushing back the date to earlier than 700 BC. However, one must tread with caution so as not to establish a link based on a single parallel.

Group Ib

This group is characterized by a single isolated example brought up from the cargo (A071), however, based on a preliminary visual examination, it is probable that this form shares the same fabric as those in Group Ia (Figure 5.5). The form has an ovoid body with a flat base like those in Group Ia. The difference lies in the straight and high cylindrical neck, which is very distinct from the shoulders. The rim is elevated, rounded, and slightly flared. The handles are round in section and are attached from the lower part over the shoulder to the top part of the neck, just below the rim. No traces of paint have been identified.

When seen within the chronological context of the shipwreck, the specific shape of the neck and the handles point to a Greek tradition. Once again, it is the necropolis of Pithecusae that provides a corpus of reliable comparative data. There seems to have existed a particular local production of amphoras (Buchner & Ridgway, 1993, tomb 430, 443–444, tav. CXCIV and 203; tomb 440, 452, tav. CXCIV and 203; tomb 524, 522, tav. CXCIV and 202; and eventually tomb 660, 647, tav. CXCIV and 202), inspired by Aegean Euboean types (Blandin, 2007, tomb 11, 25 and 172–173, Pl. 39–40; Buchner & Ridgway, 1993, tomb 503, tav. CXCVII and 205; tomb 575, tav. CXCVI and 204; tomb 613, tav. CXCVII and 207) and one of the only Greek-type amphora produced in the west during this period (Sourisseau, 2011, pp. 150–154). Although the morphology of these amphoras of the Pithecusian/Euboean type is relatively variable, amphora A071 from Xlendi wreck can nevertheless be compared more precisely with specimens from tomb 440, and even 524. These tombs are associated with the island's Late Geometric

II horizon (c.720–680 BC) (Buchner & Ridgway, 1993; Nizzo, 2007).

Origin

As has been discussed, these two shapes are well known in the Archaic central Mediterranean, mainly through the work of G. Buchner and D. Ridgway on the necropolis of San Montano in Pithecusae (Buchner & Ridgway, 1993). However, one must keep in mind the probable existence of other production centres. Petrographic analysis on some samples from the shipwreck has been conducted by C. Capelli and M. Anastasi.² Although still in their preliminary phases, tests are pointing to a Maltese origin for at least two forms from the wreck. Should these results be confirmed it is clear that we are dealing with a cargo composed of two clearly identifiable types: Euboean types from the west and central Mediterranean; and Phoenician types from Malta. One potential research avenue could be the gradual spread and integration of Euboean artisans (or at least knowledge) out of Pithecusae.

Group II

This group represents the most discernible amphoras from the cargo. There are four ovoid amphoras with a slightly tapered and pointed base, which are whole or mostly complete. The rounded shoulder is located very high and supports two small protruding and rounded vertical handles. Due the absence of a neck, the rim abuts the shoulder and the diameter of the mouth is quite narrow.

The shape of the Group II amphoras can be linked to Ramón's types T-2.1.1.1/T-3.1.1.2 (Ramón Torres, 1995, pp. 177–178, 373, fig. 24; 515, fig. 152; 182: 380, fig. 31; 518, fig. 155); and are similar to type B5 documented by P. Bartoloni (1988, p. 36, fig. 5), which correspond to western Phoenician productions (Figure 6.1–3). The difference between the two types is that one has a flared body with its maximum diameter at the shoulder (T-3.1.1.2), whilst the other has a cylindrical body (T-2.1.1.1). Such differences would have been brought about by slightly varying manufacturing methods employed in workshops throughout the central Mediterranean.

The western origin of these typologies has been established thanks to research conducted over the last 30 years (Gras, 1985, pp. 287–323). It is, however, still difficult to precisely identify the exact centres of production. For types T-2.1.1.1/T-3.1.1.2, Ramón³ proposed the existence of workshops in western Sicily (specifically on Mozia), along the Tunisian coast (particularly in Carthage), and possibly in Sardinia and Malta (1995, 2000). Ramón considers that the particular type found in the cargo of the shipwreck, T-2.1.1.1, was produced in Carthage and more widely along the coast of Tunisia, and possibly also on Malta. The samples recovered from the shipwreck fall into two

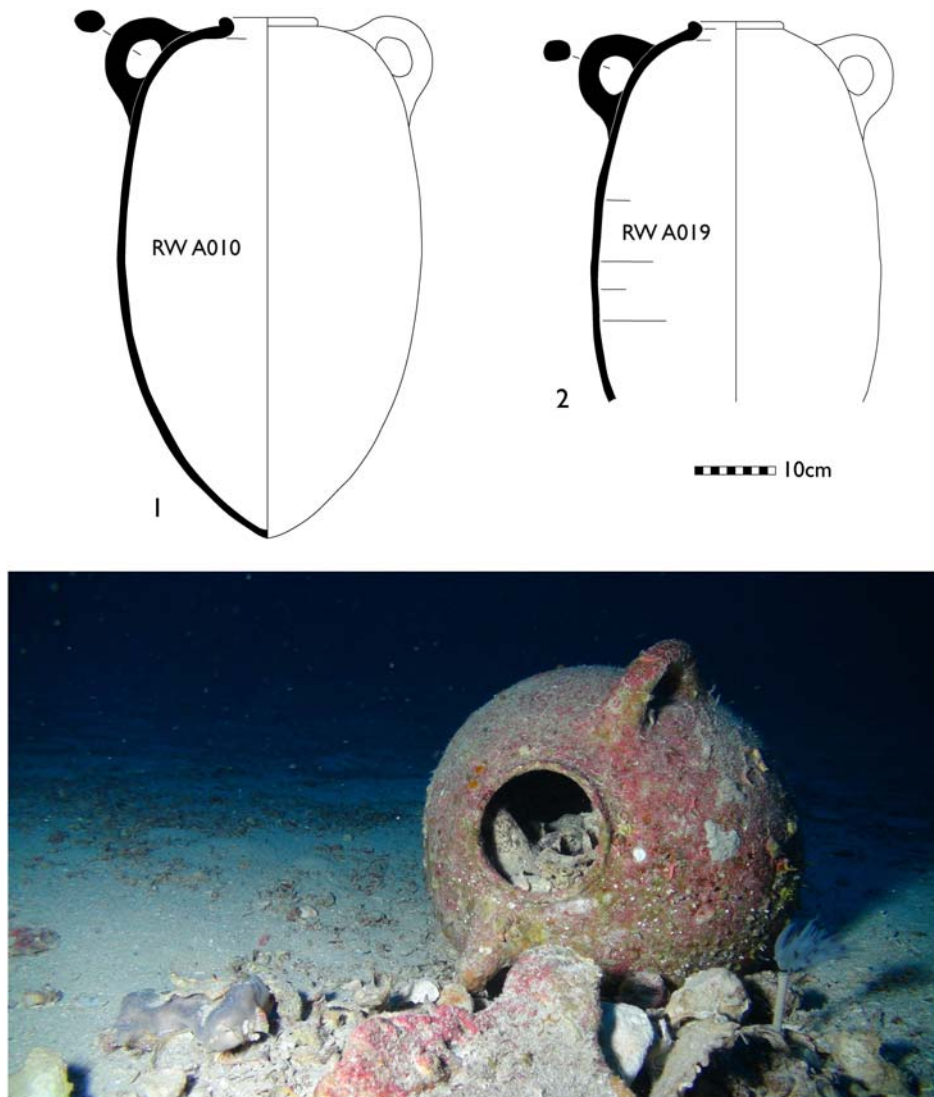


Figure 6. Group II amphoras from the Phoenician wreck (Drawings by M. Anastasi; image: Department of Classics and Archaeology, University of Malta).

categories that are distinguished by the position of the handles. In the first, the upper part of the handles is located clearly under the upper area of the mouth (A019; Figure 6.2). For the second type, the handles are placed very high and sometimes exceed the level of the mouth (A010 and A045; Figure 6.1). This distinction is also found in other comparable publications, particularly those related to Pithecusae. Most of the amphora types from Pithecusae belong to this first category, with the exception of the amphora from tomb 342 (Buchner & Ridgway, 1993, tav. 215 and CC). An isolated amphora recovered in Porto Ercole on the Tyrrhenian coast of Italy has the same characteristics, as does an amphora deposited in a tomb in Ghajn Qajjed in Malta (Sagona, 2002, p. 808, [tomb 105], no. 1, fig. 23: 3 and 25: 1).

Origin

In recent years, petro-chemical analysis conducted by separate teams appear to confirm Ramón's proposals. The production of amphora types T-3.1.1.2 and T-

2.1.1.1 is confirmed in Mozia and more widely in western Sicily (Alaimo et al., 2005; Bonazzi & Durando, 2000; Iliopoulos et al., 2002), as well as in Carthage and its region (Bonazzi & Durando, 2000; Durando, 1998), Sardinia (Botto et al., 2005), and possibly in the Aeolian Islands (Bonazzi & Durando, 2000). On the other hand, there are some recent data that suggests that there is also the possibility of a Maltese production referred to by Ramón Torres (1995, pp. 177–178) for some T-2.1.1.1 specimens (Bechtold, 2018, 262–264). It is therefore possible that the amphoras found on the shipwreck originated from a variety of workshops. The first petrographic analysis carried out on three samples by Capelli and Anastasi indicate North Tunisia as the probable origin without, however, totally excluding western Sicily.³ None of the Group II amphoras sampled from the wreck had a Maltese provenance.

Dating

These amphoras may be confidently dated to a chronology that spans from the last quarter of the 8th

century to the second half of the 7th century BC (Ramón Torres, 1995, pp. 177–178, 182). However, if we focus exclusively on the T-2.1.1.1 types, the oldest and most securely dated examples are those from tombs 350, 489, and perhaps 342, of the Pithecusae necropolis (Buchner & Ridgway, 1993, p. 397, tav. 215 and CC, [tomb 350]; 492, tav. 216 [tomb 489]; 393–394, tav. 215 and CC [tomb 342]). These are considered to fall within the local Late Geometric II phase, characterized by association with Early Proto-Corinthian pottery. The traditional chronology of proto-Corinthian ceramics therefore allows us to date these amphoras between 720 and 690/680 BC (Amyx, 1988; Neeft, 1987; Rouillard & Sourisseau, 2010). The recent revision of the relative stratigraphy of this necropolis makes it possible to further clarify the data (Nizzo, 2007, pp. 83–85). Amphoras have now been reassigned to the more recent phase of this chronological horizon, more precisely between 700 and 680 BC.

It is probably within this chronological horizon that we must consider dating a similar amphora from a tomb at Mtarfa in Malta (Sagona, 2002, pp. 882–886, figs 54–56). This tomb has been dated by association with a Proto-Corinthian *kylix* from the end of the Early Proto-Corinthian period (Semeraro, 2002, p. 492, cat. 1, fig. 2.1). We can therefore place the Mtarfa tomb assemblage towards the beginning of the 7th century BC.

Two other amphoras of the same type were found in a mass grave at Ghajn Qajjied (Baldacchino, 1953; Sagona, 2002 [cat. 105]: 808–812, figs. 23, 3 and 25, 1–2), with as debated chronology based mainly on the presence of two Greek vases associated with two separate individuals. C. Sagona proposed a dating towards the end of the 8th century BC for one of the two vases (Sagona, 2002, pp. 809–810, cat. 13, figs 24: 7 and 25: 13), and towards the second quarter of the 7th century BC for the second (Sagona, 2002, p. 810, cat. 14, figs 24: 8 and 25: 12). This point of view has been pertinently criticized by N.C. Vella, who, basing his argument on the work of G. Semeraro (Semeraro, 2002, pp. 492–493), considers, following other authors (Gras, 1985, pp. 299–300; Gras et al., 1989, pp. 165–166), that the two interments are dated within a relatively short period of time, between 675 and 650/40 BC (Vella, 2005, p. 439). For the purposes of this research we follow Vella's chronological interpretation placing the amphoras from this tomb in the second quarter of the 7th century BC. Tomb A142 from the necropolis of the Byrsa sector in Carthage also contains a similar amphora form, and is dated to the first half of the 7th century BC by association with a Middle Proto-Corinthian *kylix* (Lancel, 1982, pp. 334–340, fig. 544–559).

To conclude, we can confirm that these western Phoenician amphoras (type T-2.1.1.1/T-3.1.1.2 or similar) probably originated from the Tunisian coast

(Carthage or Utica), although possibly (but less likely), from western Sicily. They can be securely dated to between 700 and 650 BC.

Group III

One of the noticeable aspects of the visible cargo layers is the presence of amphoras alongside globular containers. The latter are characterized by vessels with flat bases and two horizontal strap handles attached to the mid-section of the body. These urns form part of a range of shapes originating from the Tyrrhenian area referred to as *stamnoide ollae* or 'globular ollas'. They have been present within Italic ceramic assemblages from the Tyrrhenian basin since the end of the Bronze Age (Bietti Sestieri, 1992, p. 256, form 8; Bartoloni & Cataldi Dini, 1980, tav. IV, 7–8 and tav. VII, 8), and continued throughout the Iron Age (Parise Badoni, 2000, tav. XXIII, 3 and tav. XXVII, 3). In Malta they are found mainly in funerary contexts contemporary with the Xlendi wreck (see Urn I:1; Sagona, 2002, pp. 93–94, 659, fig. 339).

The ollas present in the cargo are characterized by the absence of decoration (although this could also be due to deterioration brought about by natural processes) and by their different sizes. Two categories can be distinguished on the basis of shape: the first type is characterized by a relatively wide neck with an open profile (Group IIIa); the second, by a fairly high neck that is narrower and distinctly cylindrical (Group IIIb). To date, only two objects from this group have been recovered.

Group IIIa

The first category, which is made up of the wide-necked types, corresponds to a form well known in Etrusco-Latial and Pithecusian cultures. It should be noted, on some examples, and when observation is possible, the presence of two vertical pinches situated on the upper part of the shoulder and placed opposite each other, equidistant from each of the two horizontal handles (Figures 7.1 and 8.1).

Going by shape, objects that are similar in appearance to those from the wreck are found in the Lazio area and date to the mid-Orientalizing period (phase IV, c.730/720–640/630 BC) (Bartoloni & Cataldi Dini, 1980, p. 151, tav. 23:1b). This is especially true in Veies, where the oldest examples are known to date from the last quarter of the 8th century BC (Palm, 1952, tombs 4, 6–8, 10, and 20). In the necropolis of Tor de' Cenci, in the south of Rome, Bedini places these urns within a chronological span, dating from the mid-7th century to 630 BC (Bedini, 1988–1989, pp. 263–267, figs 44.1 and fig. 46.1 [tomb 7]; 272–277, figs 52 and 54.1 [tomb 11]). More evidence sheds light on similar ollas present in tombs from

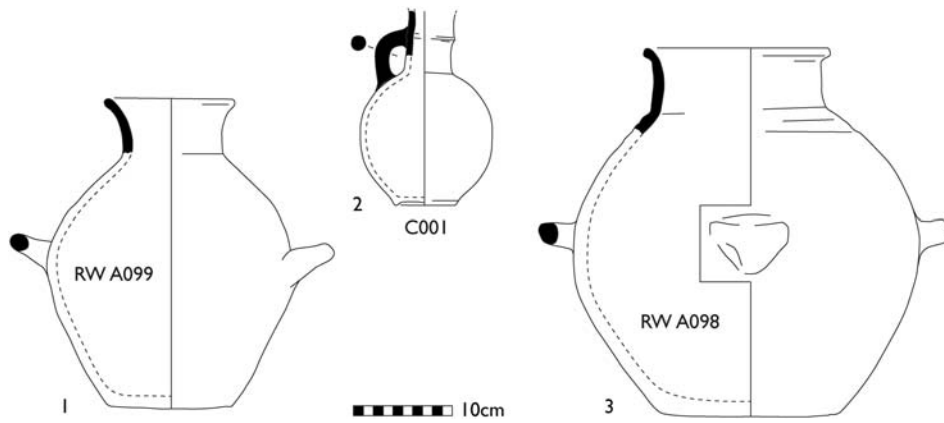


Figure 7. Profiles of a (1) Group IIIa container; (2) Phoenician round-mouthed jug; and (3) the isolated container located at a distance from the wreck (Drawings by M. Anastasi).

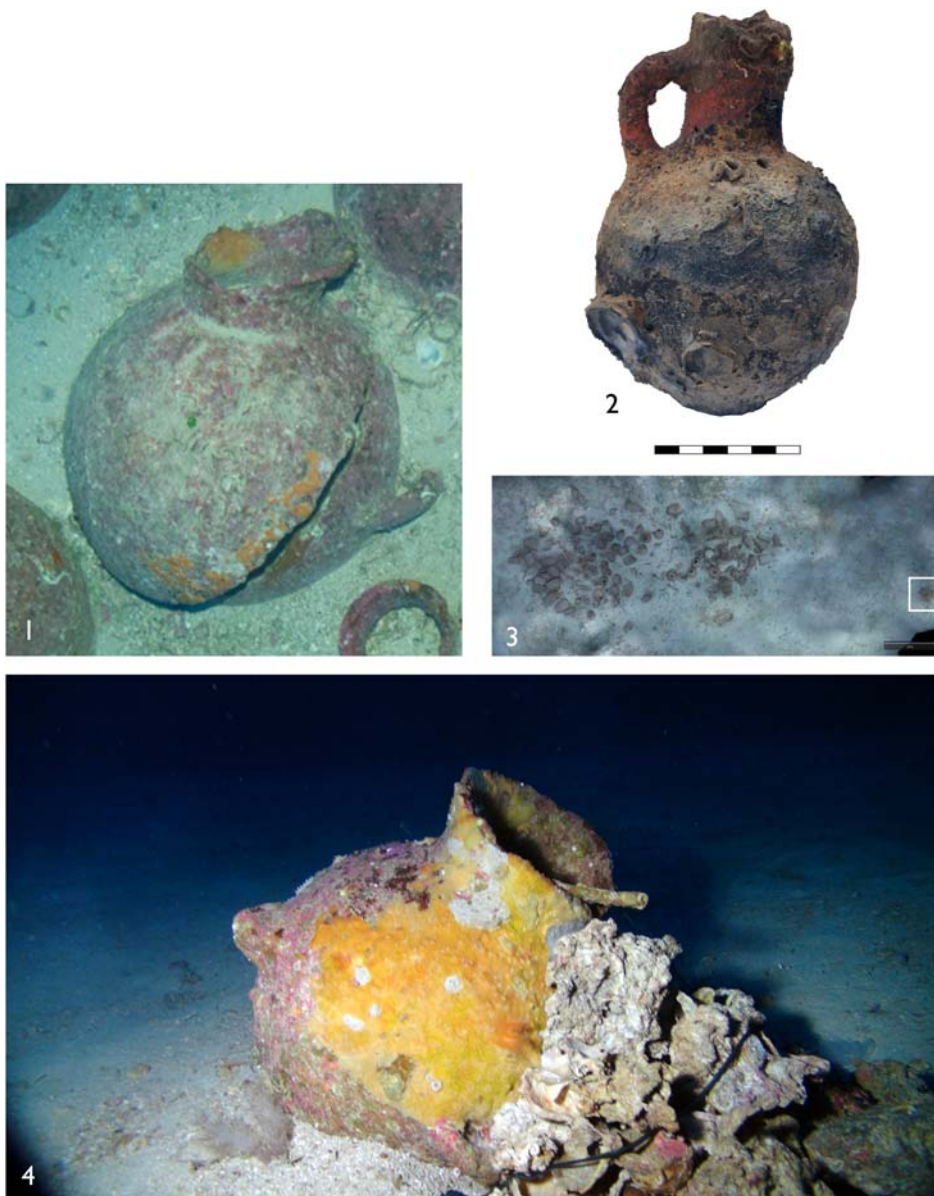


Figure 8. (1) Group IIIa olla with horizontal handles and large neck, with arrows highlighting the raised pinches; (2) Phoenician round-mouth jug; (3) location and (4) view of the isolated container found on the seabed (Department of Classics and Archaeology, University of Malta).

the first half of the 7th century BC in Decima (tombs 3, 4, and 7), in the forum's necropolis in Rome (tomb 1) and in the Colli Albani (Bedini, 1988–1989, pp. 273–275). Moreover, these types are well represented during the second half of the 7th century BC as demonstrated by the finds from the necropolis of Esquiline in Rome (Bedini, 1988–1989, tomb 128, fig. 16, bottom right), and those in Decima (tombs 8 and 68), and which continue up to the 6th century BC in the necropolis of La Laurentina (tomb 127).

Similar objects have also been discovered in the necropolis of San Montano on Pithecusae. These were probably made locally by Euboean settlers during the local Late Geometric II period [c.720–680 BC], but as larger versions of those discovered in Lazio (Buchner & Ridgway, 1993, tombs 391, 401, 518, 522 and 668). These ollas are still produced until the 6th century BC at Pithecusae (Gialanella, 1994, pp. 197–198, fig. 25, C12) and also at Cumae, but in a significantly different form (Cuozzo et al., 2006, p. 75, form 50).

Two objects recovered from the shipwreck are comparable to the forms from Group IIIa. These include what are described below as the 'pithos olla' and the 'small olla'.

Olla-pithos

An olla-like container, characterized by two horizontal loop handles and opposing pairs of raised pinched features on the upper shoulder, was recovered in 2016 (RW A012). Besides the sets of pinched features, the difference between this olla and the others raised off the seabed is its large size, measuring c.0.53 m in height. The neck is missing, probably a result of breakage. Although this object can be considered within Group IIIa, its large size allows us to identify it as a small *pithos* (Figure 9.1–2).

Small Olla

This urn was recovered in 2017 and its main characteristics are similar to the other vessels in Group

IIIa. It is characterized by a wide, flat bottom measuring 0.12 m, a relatively squat profile with two horizontal handles, and a distinct flared neck (Figure 8.1). However, this particular object is distinct from the others in Group IIIa due to its small size, measuring 0.32 m high, and the absence of any pinched features.

Origin of Group IIIa Ollas

Given the variety of shapes and sizes of the objects in this group, it is difficult to determine their precise origins. Moreover, at this point in time no exact parallels exist, while the lack of any decorations compounds the problem of identification. Capelli and Anastasi have conducted petrographic analysis on these two objects and initial indications suggest that they are made from Maltese clay. Some objects with a similar (albeit not identical) shape were found in a funerary context attributed to Malta's Archaic I phase (Sagona, 2002, p. 928 [Qalillija tomb 361], figs 103.8, 104.2 and 105.1). On the other hand, based on typological observations, we must point out two other possible origins for these olla types (or at least particular morphological features): these include olla types from Lazio and Pithecusae. The large size of certain examples from the shipwreck suggests a closer link to the production centres of Pithecusae. However, this is a working hypothesis that is subject future comparison with material from Lazio, which is largely unpublished (and hence poorly understood), as well as further petrographic studies that are yet to be carried out on ceramic samples from this group.

Group IIIb

Some objects, despite having many features in common with the group IIIa ollas, exhibit distinct morphological characteristics of their own. In particular, they are characterized by a narrow and high, cylindrical neck. Several examples of this type have been identified during surveys of the Xlendi wreck, but to

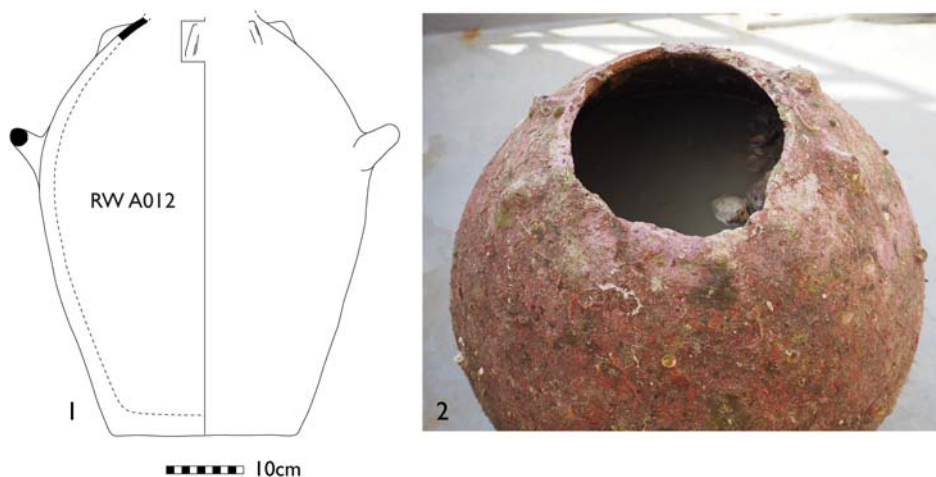


Figure 9. 'Olla-pithos' from Group IIIa (Drawing by M. Anastasi).

date, none have been recovered (Figure 10). There do not seem to be parallels in Lazio, Pitheculae, Sardinia, or Carthage. However, somewhat similar types from the inland areas of Campania do exist, but these are much smaller in size and are decorated, thus making them distinct from the objects on the shipwreck.

On the other hand, there is a series of such objects from Mozia, which offer significant parallels. These objects were often used as cinerary urns in the necropolis (Ciasca, 1979, tomb 164; Tusa, 1978, tombs 96, 144, 150, 155). They seem to correspond fairly well with varieties present on the shipwreck. Similarities between the Mozia examples are those from the Xlendi shipwreck are noticeable in both size and shape. To date, these objects have been attributed to workshops in Mozia; an attribution that is based on the sheer volume of these objects that are concentrated in the funerary contexts of this island. However, it is important to note that Ciasca believed these objects to be part of an indigenous repertoire based on a Geometric-period tradition (Ciasca, 1970, p. 78). This would support the notion of a regional production. Although little known outside of Mozia, one example is known from Milazzo/Mylai [Tomb 83] that does not seem to be locally made (Bernabò Brea & Cavalier, 1959, p. 62, tav. L, 2).⁴

Based on the existing parallels, the chronological framework for this type can also be established. Tomb 83 of Milazzo/Mylai did not contain any datable elements itself, but it is in an area of the necropolis where other tombs date from the end of the Bronze Age to the first half of the 7th century BC. In the opinion of the excavators, this tomb belongs to the latter phase and should be placed between the end of the

8th century and the middle of the 7th century BC (Bernabò Brea & Cavalier, 1959, p. 62). In Mozia, the chronology of tombs 96, 144, 150, 155 and 164, from which the olla types originate, spans from the end of the 8th century to the end of the 7th century BC, and possibly to the beginning of the 6th century BC (Tusa, 1978, p. 10, no. 6). However, objects from Mozia tombs 96, 144, and 150 were associated with Phoenician round-mouthed jugs, the chronology of which has been firmly established by the work of Peserico (1996). The three vessels in question belong to the same typological group, itself dated by association to the third quarter of the 7th century BC with local vases imitating those of Proto-Corinthian production (Peserico, 1996, p. 59, 61). We therefore conclude that the ollas with cylindrical necks fit into a chronological span dating from the end of the 8th century to the third quarter of the 7th century BC.

Other parallels can be observed from contemporary funerary contexts in Malta (Sagona, 2002, [tomb 98 – Ghajn Klieb], 801–802, no. 1 and 338, fig. 18:2; [tomb 361 – Qalillija], 929–930, no. 1 and 423–425, fig. 103:8, 104:2 and fig. 105:1, [Tomb 459 – Rabat, Nigret], 1003–1005, no. 2 and 484–485, fig. 164:6 and fig. 165:3). Sagona places these local ollas in her Archaic to Early phase I period, which she dates to the second half of the 8th century and the first half of the 7th century BC (Sagona, 2002, pp. 29–39).

Origin of Group IIIb Ollas

No object of this type has been recovered to date. There are therefore no precise observations to indicate the possible origin of group IIIb vessels. However, two



Figure 10. Cluster of Group IIIb containers on the seafloor (Department of Classics and Archaeology, University of Malta).

possibilities are suggested: Mozia, in reference to the funerary urns found in the necropolis of western Sicily; or a Maltese production that is part of an ancient tradition of producing forms of this type.

The Other Ceramic Objects

Phoenician Round-Mouthed Jug

One Phoenician round-mouthed jug (RW C001) was recovered from the south-western limits of the shipwreck. Only the truncated neck and part of the handle were visible on the surface of the sediment. Controlled excavation and the successful recovery of this object were carried out in 2016. It is not yet clear whether this object formed part of a secondary cargo placed at the top of the main objects, or whether it belonged to the ship's crew.

The shape is characterized by a globular body, a barely distinct annular base, and a fairly high and relatively wide cylindrical neck, the upper part of which is incomplete (Figures 7.2 and 8.2). Halfway up the neck one notes a protruding horizontal ring. The handle has a rounded profile that is circular in section. This is placed on the upper part of the shoulder and is attached to the neck at the level of the horizontal ring. These characteristics are similar to Sagona's jug form I:3b (Sagona, 2002, pp. 120–122, fig. 340: 8).

This type of object is generally considered as a perfume container. It is representative of Phoenician production and consumption patterns, both in the east and in the west Mediterranean, and has been discovered in both domestic and funerary contexts (Peserico, 1996). Malta provides excellent comparative samples for similar jugs with ringed and wide cylindrical necks, the majority of which come from funerary contexts. Sagona's compendium places these objects within the broad chronological horizon of Early to Late Phase I (Sagona, 2002, pp. 120–121, with indication of all occurrences in Maltese funerary contexts). We consider a Maltese provenance for this object to be highly likely. There are very few examples known outside the Maltese Islands. However, one possible Maltese jug, which has the same wide-necked shape and globular body, was excavated at the necropolis situated at the lighthouse of Rachgoun in Algeria. The chronological horizon of this necropolis coincides with that being proposed for the Xlendi shipwreck (Vuillemot, 1965, pp. 71–72, fig. 18:12).

An Isolated Object from the Wreck

In 2014, one object was recovered approximately 6 m from the main site, making it the only outlier object known to date. The recovered urn is globular in shape, with an uneven flat base, and a tapering profile that leads to a short, wide cylindrical neck (Figures 7.3 and

8.3–4). The maximum height of this object is 382 mm. At the widest part of this urn are two small horizontal handles with a round section, with an additional two lugs positioned perpendicular to the handles.

The shape fits perfectly into the typology established by Sagona (2002, p. 659, fig. 339). It seems to be some form of hybrid shape, combining the body, position of the lugs, and the shape of the neck of her Urn form I:1 with her Urn form I:2b, characterized by the inclusion of handles and lugs on the same object. This object is probably derived from local cooking pots that were present at least since the earliest Phoenician contact with the islands. The contexts listed by Sagona indicate a date that is compatible with that suggested for the shipwreck.

A small break on the rim permitted us to observe the composition of the fabric, which has a clear two-tone appearance: red with a grey core. In all probability this object was 'reduction-fired' with some oxygen being supplied at the end of the firing process. The clay seems fairly fine, but is dense and contains foraminifera. This feature is often observed in Maltese ceramics dateable to several periods. These early observations have been confirmed by ongoing petrographic analysis by Capelli and Anastasi. This analysis points to a probable Maltese origin for this object, as well as for the amphoras in Group I.

The Chronology

Despite certain gaps in our data we deem it possible to suggest a reasonably accurate date for the shipwreck. Indeed, individual vessels from the shipwreck's cargo offer reliable and consistent chronological information (Figure 11). Particularly relevant are the western Phoenician amphoras (Group II) and ollas (Group IIIb) that date the shipwreck to between the beginning and the middle of the 7th century BC. It is more than likely that the wide-necked and flared-necked ollas (Group IIIa) and the two isolated objects (Phoenician round-mouthed jug – Sagona type I:3b) and urn hybrid (Sagona Urn types I:1/I:2b) also fall within the same chronological framework. This is especially true given the parallels from the tombs datable to the Late Geometric II phase of the Pithecusae necropolis. On the other hand, the Group Ia amphoras cannot be securely dated. However, even if these typologies remain poorly known, their suggested circulation between the 8th and the first half of the 7th centuries BC is not incompatible with the chronological data already noted (Docter, 2007). These chronological data thus support a date between 700–650 BC for the sinking of the ship.

Concluding Remarks

The **Phoenician shipwreck** that sunk off Xlendi Bay is an exceptional archaeological deposit. Despite only

being partially studied, it offers important insights into Archaic-period Phoenician networks in the central Mediterranean. In this section we list a number of observations that our work permits us to put forward.

Origin and Route of the Ship

One of the most important aspects concerns of the route of the ship prior to its sinking, and its intended destination. These are as yet impossible to conclude definitively. We must wait for the final results of the petrographic tests that are currently being concluded, and a systematic study of other objects that are planned for recovery. However, even a comprehensive knowledge of the provenance of the objects will not permit a full understanding of the routes sailed. One must keep in mind the possibility of goods being transhipped to one or more locations. The seemingly large amount of material from the Maltese islands present in the cargo, and the location of the wreck off the Maltese coast, makes it reasonable to assume that the vessel was leaving the islands. It is, however, too premature to distinguish the Maltese objects from the bulk of the cargo and use these to hypothesize on the origin of the crew.

Size and Tonnage of the Boat

This is the **first early Archaic-period ship of this size to be discovered in the western Mediterranean.** We estimate, on the basis of the visible deposit of approximately 11 m in length, that the ship would have been **no longer than 15 m.** The visible part of the cargo would have weighed approximately 6½ tonnes. Given that part of the archaeological deposit is about 1.8 m below the surface of the seabed, it can be concluded that the ship was carrying **a cargo of between 12 and 15 tonnes.** In the western Mediterranean, the closest ship from a similar, but slightly later chronological period, with comparable dimensions and carrying capacity, are Jules-Verne 7 and Cala Sant Vicenç for the second part of the 6th century BC (Pomey, 2008, p. 61).

On the other hand, there are two comparable shipwrecks from the eastern Mediterranean. The wrecks of Tanit and Elissa were discovered at a depth of 400 m off Ashkelon, both dating to the second half of the 8th century BC (Ballard et al., 2002). These two shipwrecks were found on a rocky seabed close to each other. The hulls have since disintegrated leaving most, if not all of the objects exposed and *in situ*. Each ship was carrying between 500 and 600 amphoras from a Phoenician settlement on the southern Levantine coast (probably Ashkelon).

If we compare the size of these shipwrecks to that of Xlendi we may observe that these are both roughly the same size (around 11 m long). In terms of tonnage, the

estimate for Tanit ranges from 15 to 16 tonnes, with our conservative estimate for the Xlendi wreck at 12–15 tonnes.

The Xlendi ship is therefore part of a very old class of ships of significant size, within a Phoenician context. It is first attested in the eastern Mediterranean and in the central Mediterranean approximately half a century later. This points to a very specific archaic shipbuilding tradition. Should parts of the surviving hull of the Xlendi ship be exposed and studied, it may offer additional data on Archaic-period shipbuilding traditions and their development in the eastern and central Mediterranean.

The Composition of the Cargo

Unlike the homogeneous cargoes of Tanit and Elissa, the cargo from the Xlendi shipwreck consists of objects that vary significantly in typology, as well as in provenance. We can safely say that this cargo is representative of a trade in manufactured goods (saddle querns) as well as foodstuffs; the latter probably stemming from agricultural surplus from various parts of the western Phoenician area of influence. The movement of these goods within western Phoenician networks is also indicative of established centres of consumption, which may or may not have been colonies. This dynamic exchange was occurring in spite of the Greek colonies that had been recently set up in the area. To date, it seems that large-scale Phoenician trade ran parallel to that of the western Greeks. This is not to say that there did not exist nodal points where the two would meet. To date, however, there is an absence of significant quantities of products from the Greek world present on the Xlendi shipwreck.

Docter's quantitative analysis of amphoras from Carthage dated between 760 and 675 BC, dovetails with the aforementioned study of the Xlendi cargo (Docter, 2007). The vast majority of amphoras in Carthage are western Phoenician, with eastern imports accounting for 7–8%, and Greek products, less than 3%. This quantitative analysis highlights a clear distinction with what is occurring in areas settled by Greeks in the second half of the 8th century BC. Newly established Greek colonies were mainly supplied by produce from Corinth and Attica, as seen with the amphoras of the 7th century BC in the necropolis of Megara Hyblaea (Duday & Gras, 2017–2018). To date, there is no evidence of amphora production in the western Greek colonies during the 7th century BC, with the notable exception of the Euboean settlement of Pithecusae (Sourisseau, 2011, p. 173).

We therefore conclude that the Xlendi cargo represents a development specific to the central and western Mediterranean. This phenomenon consists of **Euboean-Phoenician exchanges based on agricultural**

surpluses emanating from Sardinia, Malta, Carthage, and western Sicily. One of the most important nodal points in this network seems to have been Pithecusae, where there is a distinct cultural and economic tradition that persists into the first half of the 7th century BC.

The final point of discussion related to the cargo concerns the importance of newly quarried and worked millstones being transported alongside amphoras. This is a unique example datable to the early Archaic period and it is pertinent to ask who the intended recipients may have been. These must have been destined for individuals who could afford higher grade equipment for grain processing. Landowners, whose aristocratic status was denoted by the consumption of imported wine in particular, might also be associated with imported millstones used to process the produce of their estates. Such clients were not limited to the central Mediterranean, as recent tests have shown that Pantellerian grinding stones have been excavated in the Archaic levels of Cadiz (Renzulli et al., 2019). We are not suggesting that the Xlendi ship would have sailed all the way to the Atlantic, but it certainly could have conducted trade further to the west at nodal points that connected the central and western Mediterranean basins.

Material from the first seasons of work on the Xlendi shipwreck invites us to reconsider the economic, social, and cultural paradigms of the central Mediterranean in the Archaic period. Discussions for the Archaic period have often been characterized by an apparent division between academic traditions relating to Phoenician and Greek studies. Pithecusae, a Greek-Euboean settlement at the heart of Greek colonization for some, but for the vast majority of researchers today, a cultural mix made up of Greek-Euboeans, Phoenicians, and natives, offers a model of western Phoenico-Euboean collaboration (see Docter & Niemeyer, 1994; Gras, 1990) that fits the pattern discernible from elements observed in the wreck. In this context, the most explicit element being the Maltese production of an amphora type, two variants of which have the same morphological characteristics as those observed in the production kilns of Pithecusae. This should also help future studies concerned with the nature of the earliest phases of Phoenician colonization in Malta, which remains relatively unknown.

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Notes

1. The 3D photogrammatic model can be accessed and viewed at http://139.124.41.79/groplan/article/art_Xlendi2014_orthophoto.html.
2. Of the five extracted amphoras four were sampled for analysis (RW/A040, A070, A074 and A075). The results of this study will be published shortly.
3. The three Group II amphoras samples belong to RW A010, A015, and A019.
4. We will not include the imitations from Calabria, which are too modest in size and are likely local in production to Torre Galli (Orsi, 1926, tomb 278, tav. II, 18) and Murge di Strongoli (Sabbione, 1984, p. 275, fig. 21).

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