

THE INTRUSIVE CERAMICS FROM THE LATE HELLENISTIC  
'COLUMN WRECK' AT KIZILBURUN, TURKEY

A Thesis

by

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## ABSTRACT

The 2005-2011 excavation by the Institute of Nautical Archaeology (INA) of the late Hellenistic “column wreck” at Kızılburun, Turkey recovered ceramic artifacts clearly postdating the wreck by a number of centuries. The majority of these are amphorae, though other forms are represented in the assemblage. In summer 2016, these ceramics were quantified, recorded, and cataloged for further study, the goal of which was to restore some degree of context to the assemblage. With proper study, they can be placed within trade networks and developments of their specific periods, and in turn provide material evidence for maritime trading activity.

Upon study, the entire intrusive assemblage was found to cover a date range from the late first century to the seventh century C.E. The majority of the intrusive ceramics date approximately to the sixth century. These ceramics may be tentatively connected to two roughly sixth-century wrecks upslope and east of the column wreck. After a survey of the relevant chronology, from the height of the Roman Empire to the Arab conquests of the seventh century, the ceramics provide evidence for trading patterns of both cabotage and long-distance direct trade. The intrusive assemblage evinces both private and state-sponsored merchant activity along the Turkish Aegean coast, reflecting broader trends in North Africa, the eastern Mediterranean, the Aegean, and the Black Sea.

## DEDICATION

To my mother.

δεινὰ τοῖς γε σοφοῖς τὰ τῆς θαλάττης.

## ACKNOWLEDGEMENTS

I am filled with gratitude for being allowed to take on this project and work with this material. I would like to express my sincerest thanks to Dr. Deborah Carlson, my committee chair, for her help in writing this thesis, making connections, finishing on time, and making my way as a student at Texas A&M. Thanks are also due to Dr. Cemal Pulak, who is an enviable fount of advice and knowledge. Dr. Lilia Campana, too, deserves thanks for her advice, understanding, and for keeping me motivated and focused.

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Any work, including (especially) this thesis, is only accomplished thanks to millions of little daily contributions. The folks at the library who ordered mountains of books and articles for that kid with the bow tie who cares way too much about pottery; the people who listen; the ones who help you figure out how to say what you mean; the

ones who give you space to figure it out for yourself—all of these people matter.

Gratitude and recognition are due to all of them.

I have been reminded recently that in one way or another, each of us is only able to do what we do because someone believed. Someone thought I was worth their time. Someone believed I could thrive at Duke, where I received my B.A. Someone thought I was worth a place here at Texas A&M. Someone (and they know who they are) gave me access to material to study for this thesis because they thought I could do something worthwhile with it. I owe everything to quite a few somebodies. Many have regretfully gone unnamed here, but my gratitude is theirs as well.

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## CONTRIBUTORS AND FUNDING SOURCES

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All work for the thesis was completed by Philip L. Watson, under the advisement of Dr. Deborah N. Carlson of the Department of Anthropology. Drawings done by others have been credited where appropriate.

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Its contents are solely the responsibility of the author and do not necessarily represent the official views of INA.

## NOMENCLATURE

H	Height
D	Diameter
T	Thickness
R	Rim
Body	Body Wall Thickness
p.	Preserved (e.g., p. H: Preserved Height)
r.	Reconstructed (e.g., r. H: Reconstructed Height)
AM	Amphora
CW	Coarseware
FW	Fineware
LR	Late Roman (amphora type designation)

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## CHAPTER I

### INTRODUCTION

#### *Introduction*

A 1993 underwater survey conducted by the Institute of Nautical Archaeology (INA) at Texas A&M University revealed five shipwrecks at Kızılburun (“Crimson Cape”), a promontory off the Turkish Aegean coast (fig. 1). The wreckage around the area indicates the treacherous nature of travel around the cape. Two shipwrecks date approximately to the sixth century C.E.; two, one of which was noted for its cargo of millstones, are medieval; and the fifth, the “column wreck,” likely dates to the third quarter of the first century B.C.E.<sup>1</sup> Of the two sixth-century wrecks, one contains marble architectural elements likely intended for a church, which initially led to a tenth-century date for the wreck; the other is notable for a wide scatter of Late Roman 2 (LR 2) amphorae.<sup>2</sup> Both of these wrecks lie on the southern slope of Kızılburun, upslope and to the east of the column wreck, with the church wreck lying furthest east.<sup>3</sup> The column wreck itself lies at the westernmost tip of the cape.

The late Hellenistic column wreck was excavated by an INA team from 2005 to 2011, under the direction of Donny Hamilton and Deborah Carlson (figs. 3-5).<sup>4</sup> The cargo consisted largely of eight unfinished Proconnesian marble column drums, one

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<sup>1</sup> Pulak and Rogers 1994, 17-19. Carlson (2014, 60) gives the suggested date of the wreck.

<sup>2</sup> Pulak and Rogers 1994, 17-19. For re-dating the wreck, see *infra* p. 72.

<sup>3</sup> C. Pulak, pers. comm.

<sup>4</sup> Carlson and Aylward (2010, 145-50) address excavation methodology. For the hull itself, see Littlefield 2011 and 2012.

capital, and a number of miscellaneous marble objects. The transport amphorae found on the wreck included at least eight Lamboglia 2 amphorae, an intact Knidian amphora, and Koan amphorae. Radiocarbon dating of the hull allowed the felling of the trees used for hull planking—giving a rough date for the construction of the ship itself—to be dated to the Hellenistic period. Analyses of the recovered ceramics—notably Lamboglia 2, Dressel 2-4, Dressel 5, Kolkhian Variant B, and a later form of *bitroconique* amphorae, and a lamp with double lugs—narrowed the likely sinking date to the third quarter of the first century B.C.E.<sup>5</sup>

Along with the Hellenistic ceramics, a significant number of intrusive ceramics were recovered from two major areas. The first is the area immediately surrounding the column wreck, and in some cases, directly atop the column drums themselves. This area contained primarily early Byzantine material. The second, an area roughly 20 meters west-northwest of the wreck, referred to as Area P after the nearest datum point, contained material from a wider range, though early Byzantine ceramics had a significant presence here as well.

These ceramics, disturbed from their original context, lack a good deal of the basic contextual information that allows for archaeological analysis. Nevertheless, they form a kind of assemblage, with a certain degree of context, as their locations—occasionally relative to other artifacts, sometimes absolute—were recorded during excavation. Final deposition is not in question. It is possible to restore context to these artifacts, albeit in a somewhat speculative manner. Through thorough study, the intrusive

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<sup>5</sup> Carlson 2014, 54, 55-60.

ceramics can be placed in broader contexts—of trade patterns, historical events, and settlement patterns. By contextualizing the intrusive ceramics recovered at Kızılburun, the ceramics can regain some of their informative power, providing material evidence for early Byzantine trade mechanisms. These mechanisms are inextricably connected to their historical context. These ceramics—particularly the transport amphorae—tell of agriculturally rich regions taxed to support activity, primarily of a military nature, along unstable frontiers as what was once a unified *mare nostrum* fell to external and internal pressures.

### ***Methodology and Objectives***

All vessels were conserved either at the INA Research Center in Bodrum, Turkey, or the Bodrum Museum of Underwater Archaeology. Vessels were conserved and restored to the fullest extent possible while taking minimal interpretive liberties. During the summer of 2016, the intrusive material was quantified, photographed, and cataloged. Ceramics were dry and desalinated when fabrics were characterized. Munsell color charts were used to provide an objective description of the color of each artifact. Color is a reflection not only of the specific kind of clay used, but also firing temperature as well as evenness and thoroughness of firing. Representative pieces were drawn. A number of non-diagnostic amphora body sherds were clearly Byzantine in date, indicated by telltale horizontal ridging, but were left out of the catalog. Thus, the number of ceramics in the catalog is smaller than the exact number of intrusive vessel fragments found across the site. The catalog contains comprehensive qualitative and quantitative

information about each artifact, and references to associated photographs and drawings are included.

Fabric study is vital to a complete analysis of ceramics. Ideally, residue analysis and petrographic study would have been done on the ceramics; however, lacking a cohesive database for cross-referencing and given resource and time limitations, this study is traditional, focusing on morphological characteristics and typological dating, and preliminary.

Material excavated at a site, even intrusive material, is indicative of that site's history. Perhaps the most applicable example is Slane's study of ceramics at the Serçe Limanı anchorage.<sup>6</sup> This study of ceramics predating the eleventh-century C.E. shipwreck allowed the author to create an archaeological history of the site. Though the ceramics were not associated with any specific wreck or stratigraphic profile, they were contextualized within the history of Serçe Limanı. While Slane's study dealt with ceramics predating the medieval Serçe Limanı wreck, and the current study concerns ceramics postdating the Kızılburun column wreck, the aims and limitations are the same—cataloguing ceramics with a view to contextualizing them within the history and trading patterns of a region. By contextualizing intrusive material, it can be used as material evidence for larger economic, political, and maritime trends. This study, then, is another source of evidence for the value of studying responsibly excavated intrusive materials.

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<sup>6</sup> Slane 2004.

CHAPTER II  
CATALOG AND ANALYSIS

The format for the following catalog is modified from the Athenian Agora catalogs. All measurements and abbreviations are adapted from INA standards (e.g. Slane 2004), with the addition of body thickness measurements. Measurements are in cm. Abbreviations are enumerated in “Nomenclature,” page ix. Other find sites for each type are included in “Comparanda,” while collected typologies can be found under “Alternate Classifications.” Find locations correspond to points on figs. 3 and 4, in the Appendix.

*Catalog of the Intrusive Ceramics*

*Amphorae*

**AM 1 LR 4a Amphora**

Lot 1764.01            Figs. 6.1, 25, 26

Body: 1.0            RT: 1.4

Find Location: Southern slope of Kızılburun

10% complete, reconstructed from 3 sherds.

Half of rim, one handle. Rounded shoulder, small ring-shaped handle with single ridge, no neck, and rounded rim. Parallel examples feature rounded base and roughly cylindrical body, not preserved here. Horizontal grooves along body, from top of handle.

Small protrusion under rim, an accretion of fired clay, may be remnant of support used when vessel inverted to attach base. Fifth or sixth century C.E.

Fabric: Coarse grain, sandy, with smaller black flecks. Thoroughly fired. Large voids (ca. 0.5 cm in length), and some marine degradation, but minimal encrustation or staining. 7.5 YR 5/6 “strong brown.”

Comparanda: Bonifay and Piéri 1995, fig. 9.62 (Marseille); Leidwanger 2007, fig. 7 (Avdimou Bay, Cyprus); Zemer 1978, 61, pl. 19, no. 52 (“recovered from the sea between Atlit to Caesarea”); Riley 1975, 29, no. 12 (Caesarea Type 2); Goldman 1950, pl. 167, cat. no. 835 (Tarsus); Papadopoulos 1989, 92-93, fig. 14a (Torone Type IV); Lloyd 1984, 20-25 (Iskandil Burnu).

Alternate Classifications: Majcherek 1995, pl. 6.1 (Form 3); Peacock and Williams 1986, 198-99 (Class 49).

## **AM 2 Keay 8B Amphora**

Lot 0973	Fig. 6.2	p.H: 22.5	Mouth D: 12.5
RT: 1.6	RH: 3.5	Body: 0.5	

Find Location: Approx. 8 m NE of Drum 2

20% complete, one pc.

Rounded shoulders, cylindrical neck. Short vertical handles, oval in section. Concave rim approximates pulley-wheel shape. Parallels feature cylindrical bodies and elongated bases with a flattened spike toe, not preserved here. Second half of the fifth to the sixth century C.E.

Fabric: Coarse grain. Significant voids. Covered in marine encrustation and staining (>90% of body). 5YR 5/4-5/6 “reddish brown” to “yellowish red.”

Comparanda: Santamaria 1995, 32-34 (Dramont E wreck, France); Fulford and Peacock 1984, 133-35, fig. 42, nos. 90-91 (Carthage Form 61); Opař 2004, 36 (Tomi); Bonifay and Piéri 1995, 99-100, fig. 2, nos. 12-14 (Marseille); Keay 1984, 126-28, fig. 48.3 (Catalonia); Lloyd 1986, 16-20 (Iskandil Burnu).

### **AM 3 LR 5 Amphora**

Lot 0901	Fig. 7	p.H: 22.5	Mouth D: 12.5
RT: 1.6	RH: 3.5	Body: 0.5	

Find Location: Approx. 5 m SSW of Drum 7, 4 m S of louterion basin (fig. 3, pt. 9)

70% complete, constructed from 7 sherds.

Rounded base not preserved. Globular bag-shaped body and very gently sloping shoulders. Small ring-shaped handles, ovoid in section. Short neck (H: 2.5 cm) and round rim. Poor quality handle-shoulder join, with gaps.

Very fine horizontal ridges from below neck, widening toward base. Sixth century C.E, possibly late fifth century.

Fabric: Coarse grain, with black flecks; few voids from inclusions. Covered in marine encrustation and staining (> 90% of vessel). Between 7.5 YR 5/4 and 4/3 “brown.”

Comparanda: Reynolds 2005, 606, fig. 145 (Caesarea); Fulford and Peacock 1984, 121-3, fig. 35, no. 7 (Carthage); Landgraf 1980, 71, nos. 1, 4, 5, 11, 19, 24, 25, fig.

22.17-18 (Tell Keisan); Egloff 1977, pl. 60(4) (Kellia, Type 186); Slane 2004, 44, AS 136 (Serçe Limanı).

Alternate Classifications: Peacock and Williams 1986, 191-2 (Class 46).

#### AM 4 LR 1 Amphora

Lot 0017	Fig. 8	p.H: 34.6	Mouth D: 6.5
RT: 0.9-1.0	p. Max D: 25.8	Body: 0.4	

Find Location: Approx. 5 m NW of Drum 1

50% complete, reconstructed from approx. 20 sherds.

Rounded base not preserved. Cylindrical body, beginning of waist visible. Curved shoulders. Large symmetrical handles with single vertical ridge. Slightly tapering neck with small rounded rim. Mouth and neck size smaller than other LR 1 examples.

Two neck ridges: at shoulders and at handle join. Horizontal ridges along the body, tightly-spaced where handle meets shoulder, widening to max 0.6 cm apart, ends 29 cm down, 5 cm above the extent of preservation. Early sixth to seventh century C.E.

Fabric: Coarse grain, with numerous small ( $\leq 0.1$  cm) voids. Marine encrustation and staining over 90 % of vessel. 5YR 5/6 “yellowish red,” lighter core.

Comparanda: Bass and van Doorninck, Jr. 1982, fig. 8-1 (Yassıada wreck); Opreș and Rațiu 2016, cat. nos. 1, 3, 4, fig. 17.1 (Capidava); Fulford and Peacock 1984, 119, fig. 34, nos. 1-2 (Carthage); Opaiț 2004, 8 (Troesmis); Riley 1979, 212-15, fig. 91 (Benghazi).



Alternate Classifications: Peacock and Williams 1986, 185, fig. 104 (Class 44).

**AM 5** LR 1 Amphora

Lot 0097	Fig. 9	p.H: 32.7	Mouth D: 8.5
RT: 1.4	p. Max D: 28.2	Body: 0.5	Neck D: 9.2

Find Location: Drum 4

50% complete, reconstructed from 3 sherds.

Rounded base not preserved. Cylindrical body and rounded shoulders. Large asymmetrical handles with double-stepped concave molding. Handles slightly more round in profile than other LR 1 examples. Cylindrical neck and deformed rounded rim.

Thick ridge where handles meet neck. Horizontal ridges along body, tightly-spaced where handle meets shoulder, widening to 3.8 cm apart, stops 13.3 cm down the body. Groove inside amphora where neck meets shoulder. Flap on the inside below this groove, where neck would have overlapped shoulder when inserted before firing (see **AM 8**). Early sixth to seventh century C.E.

Fabric: Coarse grain with small black flecks. Poorly fired. 7/5YR 6/6 “reddish yellow,” lighter core.

Comparanda: *Agora V*, Pl. 32, M 333 (Athens); Fulford and Peacock 1984, 119, fig. 34, nos. 1-2 (Carthage); Opait 2004, 8 (Troesmis); Tekocak and Zoroğlu 2013, cat. no. 30, fig. 32 (Kelenderis); Riley 1979, 212-15, fig. 91 (Benghazi); Papadopoulos 1989, 87-9, fig. 12 (Torone Type II); Sagui 1998, 319 fig. 9.2 (Crypta Balbi).

Alternate Classifications: Peacock and Williams 1986, 185, fig. 104 (Class 44).

**AM 6 LR 1 Amphora**

Lot 0469.01	Fig. 10	p.H: 46.5	Mouth D: 7.7
RT: 0.8	Max D: 24.1	Neck D: 7.9	

Find Location: Approx. 5m NNE of Drum 2

60% complete, reconstructed from 8 sherds.

Rounded base, narrow cylindrical body, straight sides. Tall handles with asymmetrical double-stepped concave molding. Cylindrical neck and rounded rim. Rim uneven, appears carelessly made; gaps at handle joins. Horizontal ridges from handle-shoulder join to base. One ridge inside, where neck meets shoulder. Mid-neck ridge on outside of neck. Early sixth to seventh century C.E.

Fabric: Coarse, with black and brown grains. Black staining over 10% of body. Marine encrustation and staining over 70% of amphora. 7.5YR 5/6 “strong brown.”

Comparanda: Fragoulis et al. 2014, figs. 5.1, 5.2 (Cemetery Basilica, Dion); Zemer 1978, Pl. 23, no. 63, 65; Opait 2004, 8 (Troesmis); Tekocak and Zoroğlu 2013, cat. nos. 29, 32, figs. 31, 34 (Kelenderis); Riley 1979, 212-15, fig. 91 (Benghazi); Papadopoulos 1989, 87-9, fig. 12 (Torone Type II); Saguì 1998, 319 fig. 9.2 (Crypta Balbi).

Alternate Classifications: Peacock and Williams 1986, 185, fig. 104 (Class 44).

**AM 7 LR 1 Amphora**

Lot 0498	Fig. 11	p.H: 27.5	Mouth D: 8.5
RT: 0.9-1.0	Body: 0.5	Neck D: 9.3	

Find Location: Approx. 7m NNW of Drum 1

25% complete, one pc.

Rounded base not preserved. Cylindrical body with rounded shoulders. Large asymmetrical handles with double-stepped concave molding. Cylindrical neck and rounded rim.

One ridge where neck meets handles, aligned with the ridges on the handles; second ridge lower, roughly middle of neck (cf. Lot 469.01). Tightly-spaced horizontal ridges along body, beginning below handle-shoulder join. Dent on shoulder above handle-shoulder join. No internal grooves. Early sixth to seventh century C.E.

Fabric: Coarse grain, poorly fired. Numerous voids (0.1-0.3 cm). Marine encrustation and staining over 90% of vessel. 7.5YR 5/4 "brown," with lighter core.

Comparanda: Abadie-Reynal 1989, fig. 10 (Argos); Zemer 1978, Pl. XXIII, no. 63, 65; Čangova 1959, fig. 3 (Varna); Fulford and Peacock 1984, 119, fig. 34, nos. 1-2 (Carthage); Opaiç 2004, 8 (Troesmis); Tekocak and Zoroğlu 2013, cat. nos. 30, 32, figs. 32, 34 (Kelenderis); Riley 1979, 212-15, fig. 91 (Benghazi); Papadopoulos 1989, 87-9, fig. 12 (Torone Type II); Saguì 1998, 319 fig. 9.2 (Crypta Balbi).

Alternate Classifications: Peacock and Williams 1986, 185, fig. 104 (Class 44).

#### **AM 8 LR 1 Amphora**

Lot 0613	Fig. 12	p.H: 30	Mouth D: 8.5
RT: 1.0	p. Max D: 29.2	Body: 0.6	Neck D: 10.2

Find Location: Approx. 5 m NNE of Drum 2

50% complete, reconstructed from 5 sherds.

Rounded base not preserved. Cylindrical body and rounded shoulders. Large asymmetrical handles with double-stepped concave molding. Cylindrical neck and uneven rounded rim (cf. **AM 5**). Gaps in handle-shoulder join.

Large ridge on neck, just beneath rim, as continuation of handle ridge (cf. **AM 7**); second smaller ridge just above where the neck meets shoulders. Horizontal ridges begin below handle-shoulder join, widening along body. Inside of neck is grooved, with large depression where neck meets shoulders. Overlap inside below neck groove (cf. **AM 5**). Inside body is grooved. Early sixth to seventh century C.E.

Fabric: Fine grain, smooth fabric. Few small ( $\leq 0.1$  cm) voids. Body is 5YR 5/6 “yellowish red,” while neck is 10YR 6/4 “light yellowish brown.” Fired thoroughly. Marine encrustation and staining covers 30% of vessel.

Comparanda: Bass and van Doorninck, Jr. 1982, fig. 8-1 (Yassıada wreck Type 1); Fragoulis et al. 2014, fig. 5.1 (Cemetery Basilica, Dion); Lloyd 1984, 26-9, ill. 7, pl. 9 (Iskandil Burnu); Fulford and Peacock 1984, 119, fig. 34, nos. 1-2 (Carthage); Opaıt 2004, 8 (Troesmis); Tekocak and Zorođlu 2013, cat. no. 28, fig. 30 (Kelenderis); Riley 1979, 212-15, fig. 91 (Benghazi); Papadopoulos 1989, 87-9, fig. 12 (Torone Type II); Sagui 1998, 319 fig. 9.2 (Crypta Balbi).

Alternate Classifications: Peacock and Williams 1986, 185, fig. 104 (Class 44).

### **AM 9 LR 1 Amphora**

Lot 0823

Fig. 13.1

p.H: 30.2

p. Max D: 19.4      Body: 0.8

Find Location: Approx. 20 m W of drums (Area P)

20% complete, one pc., base.

Later LR 1 variant base. Rounded base, slightly tapering cylindrical body.

Horizontal ridges along body. Sixth or seventh century C.E.

Fabric: Coarse. Heavily degraded. Many reddish-brown and grey inclusions; large voids visible. Black staining on 30% of outside surface; marine encrustation and staining covers 65% of the remaining surface. 2.5YR 5/6 “red;” much lighter core.

Comparanda: Pulak and Rogers 1994, 18 fig. 2 (Kızılburun).

### **AM 10 LR 3 Amphora**

Lot 1381      Figs. 13.2, 24

p. H: 37.0      Body: 0.5

Find Location: Approx. 20 m W of drums (Area P)

30% complete, one pc., base.

Pointed hollow toe, knobbed base. One ridge runs along the body in a spiral pattern. Late sixth century C.E.

Fabric: Dark and micaceous. Few inclusions and voids. Fine grain. Black staining on the inside. 5YR 4/4 “reddish brown;” darker core.

Comparanda: Bass and van Doorninck 1982, 183-4, fig. 8-19, P74 (Yassıada wreck); Vulpe and Barnea 1968, 537, fig. 48, no. 5 (Dinogetia); *Agora V*, 119, pl. 40, P 12861, pl. 41, M 373 (Athens); Picard and Sodini 1972, 948, fig. 46 (Thasos); Fulford

and Peacock 1984, 121, fig. 34, nos. 4—5 (Carthage); Riley 1979, 229-30 (Benghazi); Egloff 1977, pl. 60(2) (Kellia); Hayes 1992, 61-2 (Saraçhane Type 3).

Alternate Classifications: Piéri 2005, 95, fig. 57 (LR 3A3); Peacock and Williams 1986, 188-90 (Class 45).

### **AM 11 LR 2b Amphora**

Lot 0459	Fig. 14	H: 50.1	Mouth D: 6.1
RT: 1.0	Max D: 39.1	Neck D: 8.0-10.5	

Find Location: Approx. 7 m NW of Drum 1

80% complete, reconstructed from 10 sherds.

Rounded base, globular body, rounded shoulders, conical neck. Large curving symmetrical handles with a single ridge. Rounded rim.

Very fine straight horizontal grooves from just under the handle-shoulder join to 33 cm down the body. One large groove at 42 cm. Fine grooves are clumsily made, overlapping at points. Internal groove where neck meets shoulders, with thicker section from overlapping clay below (cf. **AM 5**). Late sixth to seventh century C.E.

Fabric: Coarse, with light red and black flecks. Few medium-sized (ca. 0.3 cm) voids. 75% covered in marine encrustation and staining. 5YR 5/4 “reddish brown.”

Comparanda: Bass and van Doorninck 1982, fig. 8-5, CA 20 (Yassiada wreck); Hayes 1992, 71, fig. 23.2 and 3 (Saraçhane); Portale 2014, fig. 6 (Gortyn); Riley 1979, 233, cat. no. D379, fig. 94 (Benghazi); Boardman 1989, 107 fig. 36, no. 236 (Emporio, Chios).

**AM 12** “Spatheion” Amphora

Lot 0857                      Figs. 15, 24

p. H: 54.3                      Max D: 11

Find Location: Approx. 20 m W of drums (Area P)

80% complete, one pc.

Tapered spike base and cylindrical body with very slight taper. Rounded shoulders and barely-preserved cylindrical neck. Slight remnant of small vertical handle preserved on shoulder. Rim, either triangular or everted, not preserved. Faint vertical tool marks from shoulder downward, terminating 10 cm above base. Sixth or early seventh century C.E.

Fabric: Reminiscent of Lot 613. Coarse grain, thoroughly fired. Dark staining over 20% of body, marine encrustation and staining over 60%. 7.5YR 5/6-5/8 “strong brown.”

Comparanda: Perko and Župančič 2005, 534, fig. 9 (Koper); Tudor 1965, 119, 121, pl. IV, no. 4 (Sucidava); Bass and van Doorninck 1982, 181, P 66 (Yassiada wreck); Riley 1979, 226-7, cat. nos. D362-4, fig. 92 (Benghazi); Arthur 1989, 83 fig. 3 (Tomb 167, Castel Trosino).

Alternate Classifications: Bonifay 2004, 127-8 fig. 69 (Spatheion 3C).

**AM 13** Amphora

Lot 0279.03                      Fig. 16.1                      p. H: 16

RT: 0.9                      Body: 0.3

Find Location: Approx. 5 m NW of Drum 1

10% complete, reconstructed from 3 sherds.

Handle and neck fragment of small amphora with rounded shoulder. Single vertical handle, thick flaring rim.

Fabric: Fine grain. Dark red slip preserved on neck. Micaceous. Degraded surface. Well-fired. 5YR 4/4 “reddish-brown” where slip preserved.

#### **AM 14 Amphoriskos**

Lot 0852.02                      Fig. 16.2                      p. H: 10.5  
RT: 0.5                              Body: 0.5

Find Location: Approx. 3 m NE of Drum 2

15% complete, one pc.

Simple rounded rim, cylindrical ribbed neck, one ear-shaped handle preserved. Rounded shoulder. Horizontal ridges along neck, appearing on the inside as well. One groove along center of handle. Seventh century C.E.

Fabric: Fine grain, well-fired. Micaceous. 7.5YR 5/6 “strong brown.” Marine staining.

Comparanda: Ricci 1998, 368 fig. 10.8 (Crypta Balbi)

#### **AM 15 Amphoriskos**

Lot 0785                              Fig. 17                              p. H: 23.9  
Mouth D: 4.1                              RT: 0.4                              Max D: 12.7



Find Location: Roughly 20 m W of drums (Area P)

80% complete, one pc.

Tapered body, base originally tapering to a rounded point. Rounded shoulders, ear-shaped handles, and rounded rim. Horizontal ridges along body, beginning just below where handles meet body. Two 1.3 cm long incisions on one handle. Fourth to sixth century C.E.; other parallels ninth through twelfth century.

Fabric: Coarse, with large light brown inclusions. Well-fired. 7.5YR 6/6 “reddish yellow.” Marine staining from encrustation, dark brown and black staining on entire vessel.

Comparanda: Kalavrezou 2003, 191, cat. no. 104 (Turkey, poss. Bodrum); Hayes 1992, 76, pl. 13a (Saraçhane); Lassus 1972, 24 (Antioch-on-the-Orontes).

### *Coarsewares*

#### **CW 1 Flat-Bottomed Cooking Pan**

Lot 0766	Fig. 19.1	H: 5.1
D: 28.5	T: 0.5	RT: 1.3

Find Location: Roughly 20 m W of drums (Area P)

80% complete, reconstructed from 4 sherds.

Terracotta baking pan, possibly Roman. Flat bottom, sharply angled sides, straight thick walls, everted (flaring) rim. Mid-first to third century C.E.

Fabric: Coarse. Large black, brown, and grey inclusions. Black staining and white staining from marine encrustation primarily on outside. Pan is two colors, divided roughly down the middle: 7.5YR 5/6 “strong brown” and 7.5YR 5/4-5/3 “brown.”

Comparanda: *Agora V*, 67, pl. 72, K89 (Athens); Riley 1979, 351-2, cat. no. D946, fig. 128 (Mid-Roman Ware 7a; Benghazi).

### **CW 2 *Doliolum***

Lot 0841	Fig. 19.2	p. H: 36.2	r. H: 50
r. Max D: 25	r. Mouth D: 25	R Width: 3.1	Body: 0.9

Find Location: Roughly 20 m W of column drum assemblage (Area P)

30% complete, one pc.

Small *dolium* (*doliolum*). Globular body, large flat rim, flat base (seen in parallels) not preserved. Possibly fifth century C.E.

Fabric: Coarse. Large black and reddish-brown inclusions up to 0.5 cm in length. Thoroughly fired. 5YR 6/6 “reddish yellow.”

Comparanda: Quilici 1976, 302, fig. 43.

### **CW 3 Two-Handled Cooking Pot**

Lot 0917	Fig. 19.3	Mouth D: 9.3
RT: 0.3	Body: 0.2	

Find Location: Roughly 20 m W of column drum assemblage (Area P)

10% complete, reconstructed from 2 sherds.

Small rounded rim, globular body not preserved, thin walls. Two short vertical handles, one preserved, attach to top of rim. Fifth to seventh century C.E.; possibly North African.

Fabric: Coarse. Oxidized. 2.5YR 5/6-5/8 “red.”

Comparanda: Opaït 2004, 45-6, 155, pl. 35 (Histria, Murighiol, Dinogetia, Topraichioi); Vulpe and Barnea 1968, 538, fig. 49.4 (Dinogetia); Fulford and Peacock 1984, 184-6, fig. 69, no. 24 (Carthage).

#### **CW 4 One-Handled Cup**

2005-A/W.01<sup>7</sup>            Fig. 20.1            H: 15.0

Mouth D: 9.9            Max D: 16.5            RT: 0.6

Find Location: S of Kızılburun, near church wreck

Intact.

Flat base, thin walls, round rim, and single flat strap handle. Horizontal ridges on upper third of body; surface degraded below. Early or mid-Byzantine.

Fabric: Coarse, micaceous, small black flecks and numerous inclusions. Marine encrustation and staining. 7.5YR 5/6-5/8 “strong brown.”

Comparanda: Bass and van Doorninck 172, fig. 8-14, P32 (Yassıada); Morgan 1942, 55, fig. 36.5, cat. no. 196; Hayes 1992, 56, 222-3, fig. 20.14 (Saraçhane, 10<sup>th</sup>-13<sup>th</sup> c.); Hayes 1992, 116, fig. 61.14 (Saraçhane, 10<sup>th</sup> c.); Hayes 1992, 113, fig. 58.6 (Saraçhane, 9<sup>th</sup> c.).

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<sup>7</sup> Bodrum Museum of Underwater Archaeology inventory number.

### **CW 5 One-Handled Cup**

2005-AW.02<sup>8</sup>      Fig. 20.2      H (base-rim): 15.8      H (base-handle): 17  
Mouth D: 10.2      Max D: 16.7      RT: 0.6

Find Location: S of Kızılburun, near church wreck

Intact.

Flat base, thin walls, round rim, and single flat strap handle rising above rim.

Horizontal ridges from under rim to where handle meets body. Early or mid-Byzantine.

Fabric: Coarse, micaceous, numerous inclusions. Marine staining on entire vessel. 5YR 5/4 “reddish brown.”

Comparanda: Bass and van Doorninck 172, fig. 8-14, P32 (Yassıada); Morgan 1942, 55, fig. 36.5, cat. no. 196; Hayes 1992, 56, 222-3, fig. 20.14 (Saraçhane, 10<sup>th</sup>-13<sup>th</sup> c.); Hayes 1992, 116, fig. 61.14 (Saraçhane, 10<sup>th</sup> c.); Hayes 1992, 113, fig. 58.6 (Saraçhane, 9<sup>th</sup> c.).

### *Finewares*

#### **FW 1 Knidian Reliefware Neck-Amphoriskos**

Lot 0572      Figs. 21, 23      H: 16  
Mouth D: 5.45      Max D: 10.3      RT: 0.4

Find Location: Approx. 27 m E of wreck, on the S slope of Kızılburun

Intact.

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<sup>8</sup> Bodrum Museum of Underwater Archaeology inventory number.

Small freestanding neck-amphoriskos depicting two Dionysian scenes in the Knidian reliefware style. Carinated shoulder, small round handles, thin everted rim. Details are lost to surface degradation, but one figure on each side preserved. 2-3 figures per side, framed by vines and clusters of grapes. Fluted tongues on shoulder. Second century C.E.

Fabric: Fine grain. 7.5 YR 6/8, “reddish yellow.”

Comparanda: Bonis 1952, 23, 25 (Tarentum; Zara, Croatia); British Museum no. 1859, 1226.512 (gymnasium, Knidos); British Museum no. 1859, 1226.507 (gymnasium, Knidos); Heath and Tekkök 2006-9, Lower City cat. no. 221-2 (Troy); Kenrick 1985, 328-31, fig. 61 (B487), 62 (B487.1) (Benghazi).

Alternate Classifications: Hausmann 1954-5, 136, Beil. 46 (Type II); Heimberg 1976 (Type D).

## **FW 2 Jug**

Lot 0863.01	Fig. 22.1	p. H: 21
RT: 0.6	Body: 0.4	

Find Location: Approx. 3 m N of Drum 2

20% complete, reconstructed from 2 sherds.

Thin piriform body, rounded shoulders, handle elliptical in section, everted rim. Flat or slightly convex bottom not preserved. Possibly seventh century C.E.

Fabric: Fine grain. Traces of original surface preserved near base. Rest of vessel degraded; upper 50% covered in staining. 10YR 6/6 “brownish yellow.”

Comparanda: Ricci 1998, 368 fig. 10.6 (Crypta Balbi; *con orlo a fascia* type differentiated from **FW 2** by rim shape).

**FW 3** Narrow-Necked Jug

Lot 0947	Fig. 22.2	p. H: 12
Mouth D: 6.5	RT: 0.2	Body: 0.4

Find Location: Approx. 7 m NNE of Drum 2

30% complete, reconstructed from 3 sherds.

Gently rounded shoulders; narrow, short neck; larger elongated, everted mouth. Lip not preserved. Single handle stub at shoulder. Small, thin ridges on mouth and upper shoulder. Late sixth or seventh century C.E.

Fabric: Fine grain, well-fired. Small black flecks. Dark red slip, 5YR 4/6 “yellowish red.”

Comparanda: Harrison et al. 1968, 212-3, no. 101 (Saraçhane).

**FW 4** Jug

Lot 0500	Fig. 22.3	p. H: 11.5
p. Neck D: 3.2	Neck T: 0.2	Body: 0.3

Find Location: Drum 1

10% complete, 1 pc.

Small ear-shaped handle, rounded shoulder, and narrow thin cylindrical neck. One ridge along center of handle. Groove inside where neck meets shoulder. Two widely-spaced grooves along shoulder, under handle-shoulder join.

Fabric: Fine grain, well-fired. Micaceous. Unslipped. 5YR 4/6-5/6 “yellowish red.”

### ***Background and Analysis***

#### *Late Roman 1 Amphorae (figs. 8-13)*

This is the most well-represented type of transport amphora in the Kızılburun intrusive assemblage. Primarily Cypriot in origin, and frequently found in fourth- to seventh-century contexts across the Mediterranean, it is the most common eastern Mediterranean amphora in the early Byzantine period.<sup>9</sup> Examples dating to the fourth century C.E. are distinguished by their wedge-shaped toes, narrow handles, and narrow necks that are longer than later examples.<sup>10</sup> Wide bodies, broad handles, rounded bases, and wider cylindrical necks characterize fifth-century LR 1 amphorae.<sup>11</sup> Sixth-century examples resemble the finds at Kızılburun, narrowing slightly from fifth-century examples. These feature thick rims, ridges along cylindrical necks, handles that approach the neck at ninety degrees and typically feature asymmetrical double-stepped concave

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<sup>9</sup> Riley 1981, 120. Reynolds (2005, 565-7) and Demesticha (2014) provide overviews of the type, along with typological changes and considerations.

<sup>10</sup> Reynolds 2005, 566-7, figs. 24-30.

<sup>11</sup> Leidwanger 2007, 312; Reynolds 2005, 567.

moulding, and cylindrical bodies with ridges.<sup>12</sup> The asymmetrical double-stepped concave molding of the handles, a feature seen in the sixth and seventh centuries, is the result of a technique by which handles were formed with a twisting and folding action.<sup>13</sup> In the later sixth and seventh centuries, the body narrows further, with a more significant taper, and a pinched midsection known as a “waist” develops.<sup>14</sup> LR 1 examples from the mid-seventh to eighth centuries are thinner and more tapered.<sup>15</sup>

The broad “Late Roman 1” designation unites a number of independent typologies based on finds from North Africa (notably Carthage and Benghazi), Scythia, and the Levant, among others.<sup>16</sup> Peacock and Williams collected these typologies into their Class 44.<sup>17</sup> The examples from the seventh-century shipwreck at Yassiada were divided into eleven types by van Alfen, on the basis of slight morphological differences.<sup>18</sup> The overarching term LR 1 is used here, in accordance with standard practice, to describe this distinct amphora type, with all its slight kiln variations. Why particular variations may appear at certain points in time in one region and not another—a question of comparing regional typologies and distribution patterns—bears further study, and is beyond the scope of this thesis.

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<sup>12</sup> Leidwanger 2007, fig. 4; Bass and van Doorninck 1982, fig. 8-1; Reynolds 2005, 567; Bonifay and Piéri 1995, 108-9.

<sup>13</sup> Reynolds 2005, 567.

<sup>14</sup> Leidwanger 2007, 310, 312.

<sup>15</sup> Arthur 1998, 165, fig. 5.3.

<sup>16</sup> Carthage: Hayes 1976, 116; Fulford and Peacock 1984, 119; Benghazi: Riley 1979, 212-15; Scythia: Opaïț 2004, 8-10; Levant: Reynolds 2005, 565-67. Additional typologies referenced in the catalog entries at supra pp. 8-13.

<sup>17</sup> Peacock and Williams 1986, 185-7.

<sup>18</sup> van Alfen 1996, 192-201.



Kiln sites evincing LR 1 amphora production are confined to the eastern Mediterranean. The southern coast of Cyprus and the Cilician coast have revealed multiple kiln sites.<sup>19</sup> Possible sites at Arsuz, Turkey and at Syria have been recorded, though Reynolds takes a negative view of the evidence on the basis of a paucity of wasters and fewer-than-expected amphora finds.<sup>20</sup> Demesticha, however, is much more confident in the presence of workshops in Syria, and fabric studies appear to support Syrian manufacture of LR 1 amphorae.<sup>21</sup>

Distribution of LR 1 amphorae is extensive. Their presence along the Mediterranean and Aegean coasts of Turkey is attested by the intrusive material at Kızılburun, the excavation of the seventh-century shipwreck at Yassiada, and the survey of a sixth- or seventh-century wreck at Iskandil Burnu, Turkey.<sup>22</sup> The type has been found across Cyprus, as a 2004 study of amphora distribution by Jacobsen shows.<sup>23</sup> On the Black Sea coast and inland, LR 1 amphorae are common, and frequently found with LR 2 amphorae, as was the case at Viminacium, Iatrus, Sucidava, and Capidava, all in the Roman provinces of Moesia and Scythia, the modern-day Balkans.<sup>24</sup> These amphorae frequently appear at military installations, such as the fort at Independența (now Murighiol), in modern-day Romania.<sup>25</sup> Saraçhane, in Istanbul, has presented a

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<sup>19</sup> Manning et al. 2000; Reynolds 2005, 565-66. Demesticha 2003 addresses the production of LR 1 and 13 amphorae at multiple sites on Cyprus.

<sup>20</sup> Reynolds 2005, 565-66.

<sup>21</sup> Demesticha 2003, 469; Williams 2005, 162.

<sup>22</sup> Bass and van Doorninck 1982, 155-7; Lloyd 1984, 26-29.

<sup>23</sup> Jacobsen 2004, 143-48; Leidwanger 2007.

<sup>24</sup> Karagiorgou 2009, 53; Oprüş and Raşiu 2016. Unpublished examples are referenced in Zemer 1978, 76.

<sup>25</sup> Karagiorgou 2001, 153.

similar picture.<sup>26</sup> LR 1 amphorae have been found in significant quantities in North Africa and the Levant, at sites such as Benghazi, the late Roman fort at ‘Abu Sha’ar, Carthage, Cyrenaica, Caesarea Maritima, Jerusalem, Tell Keisan, and Mt. Nebo.<sup>27</sup> Examples from the western Mediterranean and beyond are plentiful as well, from Marseille to Cartagena to southwestern Britain.<sup>28</sup> Perhaps most pertinent to the present discussion is the LR 1 amphora that was recovered from Kızılburun during the 1993-4 INA Turkish shipwreck surveys. It is associated with the sixth-century church wreck located upslope and to the east of the Hellenistic column wreck.<sup>29</sup>

Early studies speculated that the primary agricultural product transported in this amphora type was oil. Riley, for example, connects LR 1 amphorae to oil production in Antioch.<sup>30</sup> More recent studies have supported wine as the primary cargo of LR 1 amphorae. Bonifay and Piéri, for example, claim oil was not frequently imported to Marseille in LR 1 amphorae, but preserved pitch linings on their LR 1b sub-type 2 amphorae indicate wine transport.<sup>31</sup> Pitch linings have been attested in other contexts as well. Amphorae from the seventh-century Yassiada shipwreck were found to have a similar lining, and grape seeds and pitch linings were found in LR 2 amphorae on the

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<sup>26</sup> Karagiorgou 2001, 132.

<sup>27</sup> Reynolds 2005, 565; Peacock and Williams 1986, 186; Zemer 1978, 76; Riley 1979, 212-16; Tomber 2004, 400. Piéri (2005, 181-87) provides a lengthy collection of find sites and publications for each geographic area.

<sup>28</sup> Bonifay and Piéri 1995, 108-9. Reynolds (1995, 70-82) provides an overview of eastern amphora distribution in the western Mediterranean. See also Peacock and Williams 1986, 186; Karagiorgou 2009, fig. 4.4; Piéri 2005, 69-85, 181-87.

<sup>29</sup> Pulak and Rogers 1994, 18, fig. 2; Piéri 2005, 186.

<sup>30</sup> Riley 1981, 120.

<sup>31</sup> Bonifay and Piéri 1995, 109.

same ship.<sup>32</sup> Additionally, LR 1 amphorae appear to have been imported to oil-producing regions, namely North Africa. Thus, frequent transport of wine and other agricultural products has been postulated for LR 1 amphorae.<sup>33</sup>

The examples recovered at Kızılburun date from the early sixth to early seventh century C.E. The parallels from Benghazi, referred to by Riley as type “1a,” are particularly informative. The similarities in ridging, body shape, and handle profile refine the date of the Kızılburun examples to within the sixth century.<sup>34</sup> Opaıt, in his study of amphorae found in Scythia, identifies a rim change in the sixth century, thickening from what previously was a plain band.<sup>35</sup> The thick rims and widely spaced mid-body ridges seen in sufficiently preserved examples from Kızılburun (e.g., **AM 6**) strengthen the likelihood of a sixth-century date. **AM 4** is distinguishable on the basis of its smaller mouth and neck, as well as its symmetrical ridged handles. Bonifay and Piéri identify a late sixth- and early seventh-century variant, LR 1b subtype 2, to which **AM 4** may belong.<sup>36</sup> Overall, the LR 1 amphorae from the intrusive assemblage at Kızılburun can be confidently dated from the sixth to early seventh century, with a mid-to-late sixth century date as a strong possibility within that range.

Slight differences in form, size, and fabric between each amphora—for example, between **AM 8** and the four other examples—do not necessarily indicate any kind of chronological difference, and external color may only indicate differences in kiln

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<sup>32</sup> Bass and van Doorninck 1982, 164-65.

<sup>33</sup> Decker 2001, 78-80.

<sup>34</sup> Riley 1979, 216, fig. 91, nos. 346-47.

<sup>35</sup> Opaıt 2004, 8.

<sup>36</sup> Bonifay and Piéri 1995, 108.

temperature, though the LR 1 examples may represent multiple fabrics and thus multiple production sites.<sup>37</sup> Contents were not preserved, as the majority of examples were only preserved to just below the shoulders. The lack of a pitch lining on the more complete examples indicates, albeit weakly, these may have been involved in oil transport.

#### *Late Roman 2 Amphorae (fig. 14)*

LR 2 amphorae, an Aegean type, appear from the fourth to the seventh century C.E.<sup>38</sup> They are characterized by globular bodies, relatively narrow necks, and sweeping handle profiles. This amphora type appears around the Mediterranean in great quantities, particularly in the Balkans and Aegean, though its distribution range is akin to that of LR 1 amphorae.<sup>39</sup> It is found predominantly in the Aegean, the Black Sea, and northern Africa, and has been found as far west as Marseille.<sup>40</sup> A significant morphological change occurs in LR 2 amphorae near the end of the sixth century. Earlier examples, known as LR 2a, feature rims that flare out sharply, short necks with short handles, and toes projecting from the rounded base.<sup>41</sup> In the second half of the sixth century, the LR 2b type emerges. The neck and handles elongate, the rim becomes thinner, and the knob at the base is removed, leaving a rounded base.<sup>42</sup> Undulating grooves on the body also

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<sup>37</sup> Demesticha (2003, 470-1) discusses the three known Cypriot fabrics, corresponding to three known LR 1 production sites at Paphos, Zygi, and Amathous.

<sup>38</sup> Riley 1979, 217-19.

<sup>39</sup> Karagiorgou 2001, 132-33.

<sup>40</sup> Riley 1981, 122; Bonifay and Villedieu 1989, 25-27. Riley (1979, 218-19) mentions the high frequency with which LR 2 amphorae have been found in Romania.

<sup>41</sup> Karagiorgou 2001, 130-31, fig. 7.1, nos. 1-4. See also Fulford and Peacock 1984, 119-20 (British Bi).

<sup>42</sup> Karagiorgou 2001, 130-31, fig. 7.1, nos. 5-8; Opaïţ 2004, 11. A and B classifications are from Karagiorgou (2009, fig. 4.2).

appear at this time, though their appearance is not uniform across examples and regions.<sup>43</sup>

Peacock and Williams tentatively proposed kiln locations in the Aegean and Black Sea on the basis of the large quantity of finds there, but recent discoveries have provided evidence for production sites in the eastern Mediterranean and the Aegean, on Chios, at Knidos, and in the Argolid.<sup>44</sup> LR 2 amphorae, then, were likely produced closer to the Aegean than LR 1 amphorae, which are largely of Cypriot and possibly Levantine manufacture. The evidence for both amphora types leaves something to be desired, as the small number of kiln sites seems disproportionate to the high number of finds. For the moment, however, eastern Mediterranean and Aegean origins for this amphora type can be proposed with confidence.

LR 2 amphorae were distributed across the Mediterranean. This type has been found at sites such as Benghazi, Athens, Halmyris, Caesarea Maritima, and Marseille.<sup>45</sup> This is, of course, only a smattering of sites indicating the wide geographic range of distribution. They are most frequently found in the Black Sea region, accompanying LR 1 amphorae.<sup>46</sup> They were found in association with the Yassıada wreck, which dates to the seventh century, but some examples appear to predate the wrecking of the ship by several decades, placing them somewhere in the late sixth century.<sup>47</sup>

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<sup>43</sup> Opař 2004, 11.

<sup>44</sup> Peacock and Williams 1986, 182-84; Opař 2004, 11.

<sup>45</sup> Piéri (2005, 189-92) provides a list of find sites and publications. See also Riley 1979, 217-19; Robinson 1959, pl. 40 (M272); Opař 2004, 11-12; Riley 1975, 33; Bonifay and Piéri 1995, 109-11.

<sup>46</sup> Karagiorgou 2009, 53; Karagiorgou 2001, 132-33;

<sup>47</sup> van Doorninck 2015, 208.

Contents of LR 2 amphorae include wine and olive oil. Pitch was also found within a number of examples at Yassiada and at Tomis (modern-day Constanța, Romania).<sup>48</sup> Examples have been discovered without pitch as well, and the infrequent presence of LR 2 amphorae at Carthage, a site of oil production, may indicate its use as an oil carrier.<sup>49</sup> The lack of pitch inside the example recovered at Kızılburun, **AM 11**, indicates this amphora may have been similarly employed. The relation between LR 1 and 2 amphorae in terms of use is yet to be determined.<sup>50</sup> Karagiorgou, in a 2001 study, argues that the LR 2 form may have been initially intended for the sole transport of oil to the Danubian frontier via the *annona militaris*, state troop provisioning, with wine storage reflecting reuse by private merchants.<sup>51</sup> Her argument is convincing, though further archaeological evidence is needed to inspire confidence in such a strong claim.

**AM 11** is undoubtedly of the LR 2b variety. The morphological shift in the mid-sixth century is of great significance in present circumstances, as it gives a rough *terminus post quem* for this artifact, allowing it to be dated to the late sixth or seventh century C.E. If we were to pursue the hypothetical scenario in which all circa sixth-century material is from one single wrecking event, this chronological indicator becomes even more useful for dating and contextualizing these ceramics. The previously noted association between the two types further serve to link the ceramics in a relatively tightly-datable, though speculative, mid-sixth to early seventh-century assemblage.

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<sup>48</sup> Bass and van Doorninck 1982, 164-65; Riley 1979, 219.

<sup>49</sup> Opař 2004, 12.

<sup>50</sup> LR 1 use discussed at supra pp. 26-27.

<sup>51</sup> Karagiorgou 2001.

*Late Roman 3 Amphorae (figs. 13.2, 24)*

Though Robinson, in his analysis of this type's development, refers to the vessel type as a "micaceous jar," this form has since been classified as the LR 3 amphora type.<sup>52</sup> The form is characterized by a body that tapers to a hollow toe, with two ear-shaped handles attached to a narrow neck.<sup>53</sup> Its fabric, more consistent across examples than other types in this catalog, is characterized by a reddish-brown to black micaceous clay.<sup>54</sup> This type has origins in the first century B.C.E., and persists through the sixth century C.E. Over this time period, the jar's morphology becomes slender and tapering, and what was initially a ring foot becomes tubular, finally becoming the tapering hollow foot seen in sixth-century examples.<sup>55</sup> Early examples feature one handle, with a second handle appearing at the end of the fourth century.<sup>56</sup>

Proposed origins for LR 3 amphorae vary widely, from Thasos to western Turkey, specifically Caria.<sup>57</sup> The latter theory stems from an inscription on an LR 3 amphora found in Ravenna reading ἀφροδίσιος [οἶνος], possibly referring to wine from Aphrodisias, a settlement in Caria.<sup>58</sup> Whatever the origin, the consistent fabric of LR 3 amphorae indicates a limited area of manufacture for this type. This type of amphora has been found primarily in the Black Sea, the Aegean, and the eastern Mediterranean, with some examples from southwestern Britain, the Levant, and northern Africa. Dinogetia,

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<sup>52</sup> *Agora* V, 17; Piéri 2005, 94-101; Opař 2004, 13; Peacock and Williams 1986, 188.

<sup>53</sup> Piéri 2005, 94-96.

<sup>54</sup> Opař 2004, 13.

<sup>55</sup> *Agora* V, 17.

<sup>56</sup> Opař 2004, 13.

<sup>57</sup> Bass and van Doorninck 1982, 183; Hayes 1992, 63; Piéri 2005, 100.

<sup>58</sup> Piéri 2005, 100, citing Fiaccadori 1983, 239 nos. 23.1a-b.

the Athenian Agora, Thasos, Saraçhane, and the cargo of the Yassiada shipwreck compose a small selection of find sites.<sup>59</sup>

These amphorae may have been used as wine containers, though in the Athenian Agora, holes broken in the shoulders of a number of such jars indicates reuse for drawing water.<sup>60</sup> A fragment recovered in Italy analyzed with gas chromatography revealed some kind of oil content, though Piéri notes this may reflect reuse.<sup>61</sup> Study of a number of LR 3 amphorae from Port-Vendres and Marseille revealed pitch linings, a strong indication of wine as the primary contents.<sup>62</sup>

**AM 10**, with its numerous late sixth-century parallels, is contemporaneous, and shares distribution patterns, with many of the other ceramics in this intrusive assemblage. The presence of a parallel in the seventh-century Yassiada wreck, alongside LR 1 and 2 amphorae and other ceramics paralleled in this assemblage, is further evidence that the ceramics cataloged here may be related. If it is Thasian in origin, its presence prompts the question of the place of a Thasian jar in an assemblage dominated by North African and eastern Mediterranean wares. An origin further southeast, however, would align more closely with the other items in this assemblage.

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<sup>59</sup> Vulpe and Barnea 1968, fig. 48, no. 5; Opař 2004, 13-14; *Agora V*, 17, 119; Picard and Sodini 1972, fig. 46; Hayes 1992, 63; Bass and van Doorninck 1982, 183. *Agora V* (17) addresses find sites of earlier forms, also concentrated in the eastern Mediterranean and northern Africa, while Piéri (2005, 193-95) provides a list of find sites and publications for each geographic region.

<sup>60</sup> *Agora V*, 17.

<sup>61</sup> Piéri 2005, 100-1.

<sup>62</sup> Piéri 2005, 101.



*Late Roman 4 Amphorae (figs. 6.1, 25, 26)*

The LR 4 amphora has a long history of development from the first to the seventh century C.E.<sup>63</sup> Examples dating from the first to third centuries are bag-shaped, with later forms becoming more slender with time.<sup>64</sup> Within this trend, there is a significant degree of variability in shape and rim type.<sup>65</sup> The distance from the handles to the rim varies within types, as do groove patterns and rim shapes.

Technological and petrographic analyses led Riley and Peacock to conclude that LR 4 amphorae, referred to as Caesarea Type 2, were produced in Gaza to carry Gazan white wine.<sup>66</sup> Their distribution is far more widespread. Later forms of LR 4 amphorae have been found across the Mediterranean and beyond. Find sites include Carthage and Benghazi; Tarragone, on the Mediterranean coast of Spain; Atlit, Ashdod, and Caesarea Maritima, in the Levant; Saraçhane in Istanbul; and Histria, Dacia, and Murighiol in the Balkans.<sup>67</sup> LR 4 finds in the Balkans are generally limited to coastal regions.<sup>68</sup> The Levant has the highest concentration of LR 4 amphora finds.<sup>69</sup>

Gazan white wine, the proposed contents of this amphora type, was famous in antiquity as *vinum optimum*.<sup>70</sup> The flourishing of the area from the fourth through the sixth century C.E. was based largely on high-quality viticulture and massive production

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<sup>63</sup> Majcherek 1995, 165.

<sup>64</sup> Majcherek 1995, 166-9.

<sup>65</sup> Reynolds (2005, 574-5) addresses this complexity, summarizing LR 4 morphological changes.

<sup>66</sup> Gaza production, Peacock petrographic report, and white wine: Riley 1975, 30-31. See also Glucker 1987, 93-94.

<sup>67</sup> Piéri (2005, 197-200) provides an overview of find sites and publications, divided by geographic region. See also: Riley 1975, 27-30; Riley 1979, 219-23; Opaît 2005, 20-22.

<sup>68</sup> Curta 2001, 187.

<sup>69</sup> Riley 1979, 221.

<sup>70</sup> *GGM* II, 518(29).

and export of produce. The wide distribution of later LR 4 types is a result of Mediterranean-wide demand within the context of an eastern Mediterranean economically unified by the Byzantine Empire.<sup>71</sup>

**AM 1**, the sole LR 4 amphora raised at Kızılburun, is datable to the mid-fifth or sixth century C.E. on the basis of the grooves level with the handle, the irregular clay accretion, and the grooved rim profile. This particular amphora appears to belong to Type 3 of Majcherek's typology.<sup>72</sup> It has a strong similarity to a Caesarea Type 2 amphora from roughly contemporaneous Byzantine levels.<sup>73</sup> Saraçhane Type 6, also dated to the mid-fifth to sixth century, is a form distinct from **AM 1**, Majcherek Form 4, which persists into a later period.<sup>74</sup> The fabric of this amphora matches the drab brown of other amphorae from Gaza.

LR 4 amphorae were found in association with LR 1 amphorae at the site of the Avdimou Bay shipwreck, off the southern coast of Cyprus.<sup>75</sup> The Dor D shipwreck, which may have been returning used jars for recycling, featured a cargo of LR 4 and 5 amphorae.<sup>76</sup> Abadie-Reynal attests to the presence of LR amphora types 1, 2, 4, and 5 at Argos.<sup>77</sup> Other LR 4 amphorae were found at Kızılburun, but were left in situ (figs. 25-26).

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<sup>71</sup> Viticulture and demand addressed in more detail at *infra* pp. 61, 67.

<sup>72</sup> Majcherek 1995, 168.

<sup>73</sup> Riley 1975, 27-30.

<sup>74</sup> Hayes 1992, 64-65, fig. 22.4; Majcherek 1995, 169.

<sup>75</sup> Leidwanger 2007, 311-14.

<sup>76</sup> Kingsley 2003, 88.

<sup>77</sup> Abadie-Reynal 1989, 54-55.

*Late Roman 5 Amphorae (fig. 7)*

The LR 5 amphora has its origins in a local Palestinian tradition (i.e., in Samaria, Judea, and Galilee).<sup>78</sup> It is characterized by a bag-shaped body, small ring handles, rounded base, and collar neck. What is termed LR 5 for present purposes is also known as Carthage LR 5, in contrast to Berenice LR 5, a much smaller version featuring a neck that flares outward.<sup>79</sup> A distinct drop in production quantity can be seen after 551 C.E., the date of a violent earthquake with Beirut at its epicenter. The mid-sixth century was one of significant disruption, though agricultural production—particularly viticulture—in the Levant continued to flourish despite troubles along the Byzantine eastern frontier.<sup>80</sup>

LR 5 amphorae were manufactured throughout Palestine in the Roman and Byzantine periods.<sup>81</sup> This amphora type is found across a wide geographic range, from the Black Sea to Greece to the Levant, though it appears infrequently in the western Mediterranean.<sup>82</sup> This infrequency can be attributed to the division of the Roman Empire in the fourth century and the collapse of its western half in the fifth, making eastern markets both more accessible and more lucrative than those to the west.

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<sup>78</sup> Reynolds 2005, 573.

<sup>79</sup> Riley 1979, 224; Opař 2004, 24.

<sup>80</sup> See *infra* pp. 61, 67.

<sup>81</sup> Fulford and Peacock 1984, 22-24, 121; Kingsley 2001, 49-51; Reynolds 2005, 574.

<sup>82</sup> Black Sea: Opař 2004, 23; Greece: *Agora V*, Pl. 32, M329, M330; Abadie-Reynal 1989, 55; Levant: Riley 1975, 26-27. For the western Mediterranean: Reynolds 2005, 611, Table 1. Bonifay and Piéri (1995, 112-3) attest to its presence at Marseille, where LR 4 and 5 together represent only 12% of amphora finds.

Pitch found inside many LR 5 jars indicates this type was primarily used to transport Palestinian wine.<sup>83</sup> The lack of pitch in certain examples, the amphora from Kızılburun included, implies the form may also have been used for oil transport.<sup>84</sup> However, absence of evidence is not evidence of absence, and an argument *ex silentio* is hardly conclusive.

**AM 3** features a neck and rim profile markedly similar to that of an amphora from Caesarea dating to approximately 551 C.E.<sup>85</sup> It appears to belong to Piéri's subtype 3, a sixth-century development of the form.<sup>86</sup> The amphora matches exactly with morphological observations made by Fulford and Peacock from finds at Carthage, where this type was found to correspond to early sixth-century examples from Athens.<sup>87</sup> Its profile and fine ridging at the shoulder parallel finds from Caesarea as well, closely resembling Riley's type 1B and C. Riley broadly dates this type to the mid-fifth and sixth century, though additional parallels seem to indicate the sixth century is the most likely date of manufacture in this case.<sup>88</sup> Its use, likely site of production, and probable sixth-century date of manufacture, with a possibility of a late fifth-century date, link it to the LR 4 example raised nearby. The former originates in Caesarea and the latter some 150 km away in Gaza.

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<sup>83</sup> Bonifay and Piéri 1995, 113; Opař 2004, 23; Kingsley 2001, 49-51.

<sup>84</sup> Kingsley 2001, 51.

<sup>85</sup> Reynolds 2005, 574, 606, fig. 145.

<sup>86</sup> Piéri 2005, 119-21.

<sup>87</sup> Fulford and Peacock 1984, 121.

<sup>88</sup> Riley 1975, 26-28, figs. 2-3.

The concurrence of LR 4 and 5 amphorae, both in shipwreck and terrestrial contexts, has been previously addressed.<sup>89</sup> Palestinian amphorae were commingled with LR 1 amphorae in mid-sixth and seventh-century contexts at Paphos.<sup>90</sup> LR 1 and 4 amphorae have been found in similarly dated contexts off the coast of Cyprus.<sup>91</sup> It is possible that these two amphorae are elements of a single cargo heading north from the Levant.<sup>92</sup> The Dor D shipwreck may provide the closest parallel, in which case the direction may be reversed, with the ship traveling southward to the Levant, with the prevailing winds. Ultimately, the recycling attested to by the Dor D wreck remains puzzling, and the directionality of cargo movement is difficult to ascertain.

*Keay 8B Amphorae (fig. 6.2)*

This type dates from the late fifth to the mid-seventh century C.E.<sup>93</sup> It features a characteristic rim with a grooved collar; small, flat handles; and a cylindrical body.<sup>94</sup> It is a North African type, known to have been produced at the sites of Majoura, near Gafsa, Tunisia; and Iunca, in Byzacena.<sup>95</sup> As an African product, this amphora stands with the spatheion in contrast to other amphorae recovered at Kızılburun, most of which have eastern Mediterranean origins. In Spain, Keay himself remarked initially that none of the available contexts allowed for dating, though he notes that this type appears in a

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<sup>89</sup> Commingled LR 4 and 5 at supra n. 76.

<sup>90</sup> Riley 1979, 214.

<sup>91</sup> Leidwanger 2007.

<sup>92</sup> Possible trade routes discussed at infra pp. 75-87.

<sup>93</sup> Keay 1998, 147.

<sup>94</sup> Bonifay 2004, 132, fig. 71.

<sup>95</sup> Bonifay 2004, 132; Keay 1984, 129.

fifth-century context at Luni, Italy, and in a late fifth- to early sixth-century context at Carthage.<sup>96</sup> This type occurs across the eastern Mediterranean as well.<sup>97</sup> It is far less well-represented in the western Mediterranean, though its original classification by Keay was based on finds in Spain, and the type appears in Marseille from the end of the fifth to the beginning of the sixth century C.E., concurrent with Vandal control of the western Mediterranean and North Africa.<sup>98</sup> Similar amphorae were part of the cargo of the mid-to-late fifth-century Dramont E wreck off the coast of France.<sup>99</sup>

Bonifay cites the location of workshops manufacturing Keay 8B amphorae and the lack of pitch inside extant examples as evidence that these amphorae may have carried oil, in agreement with Keay's initial study.<sup>100</sup> North Africa was the largest producer of oil in the Mediterranean during the time of this amphora's production, a trend begun in the mid-to-late third century.<sup>101</sup> As **AM 2** was only preserved to the shoulders, it is impossible to know the contents of this specific example, particularly in the absence of any organic residue analysis; however, for the reasons cited above, this amphora may have carried oil.<sup>102</sup> Chronologically, this amphora appears to be contemporaneous with other intrusive amphorae from Kızılburun. Its origins, however, are markedly different, being a North African product. Its relation to the other ceramics

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<sup>96</sup> Keay 1984, 129.

<sup>97</sup> Fulford and Peacock 1984, 116-18, 135; Bonifay 2004, 132.

<sup>98</sup> Keay 1984, 126, fig. 48.3; Bonifay 2004, 132; Bonifay and Piéri 1995, 100.

<sup>99</sup> Santamaria 1995, 27-34.

<sup>100</sup> Bonifay 2004, 132; Keay 1984, 417-27.

<sup>101</sup> Keay 1984, 411.

<sup>102</sup> Keay 1984, 417-30.

in the intrusive assemblage, as well as its place in trade networks linking North Africa with the eastern Mediterranean, will be explored in Chapter III.

*Spatheia* (figs. 15, 24)

The “spatheion” (pl. spatheia) amphora, also known as Keay 26, has origins in northern Africa.<sup>103</sup> The type extends from the fifth to the seventh century C.E, as reflected in Bonifay’s typology.<sup>104</sup> The term originates in Egyptian papyrus and was first used by Grace.<sup>105</sup> Restudy has indicated its original Egyptian usage may not relate to what is now known as the spatheion, but rather to amphorae of the *bitroconique* type produced in Egypt, one of which was an element of the cargo of the Hellenistic column wreck.<sup>106</sup> Now the term is considered something of a misnomer. However, it has been in use for some time, and creating new terminology is outside the scope of this current study. Spatheia are characterized by small handles, a long tapering spike base, a high length to circumference ratio, and a large everted rim.<sup>107</sup> Bonifay delineates three subtypes, differentiated on the basis of production date, a change reflected primarily in size and rim profile. Spatheia are generally between 50 and 100 cm in height.

Production of spatheia is attested at Sidi Zahrani, near modern-day Nabeul, Tunisia, though differences in fabric indicate other production sites must have existed,

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<sup>103</sup> Bonifay 2004, 125-29.

<sup>104</sup> Bonifay 2004, 125-29.

<sup>105</sup> Grace 1979, fig. 67.

<sup>106</sup> Santamaria 1995, 51. Hellenistic *bitroconique* amphora in Carlson (2014, 58).

<sup>107</sup> Peacock and Williams 1986, 202.

particularly for later examples.<sup>108</sup> This type has been found across the Mediterranean, from Rome to the eastern Mediterranean to the Balkans and Slovenia to northern Africa.<sup>109</sup> Reynolds catalogues its appearances in the western Mediterranean, citing distribution to Spain, Italy, and southern France.<sup>110</sup> Late fifth- and early sixth-century examples can be connected, as in the case of Keay 8B amphorae, to Vandal control of the western Mediterranean and North Africa in this period. Type 3 spatheia, to which the intrusive spatheion from Kızılburun **AM 12** likely belongs, are no less geographically widespread.<sup>111</sup> The cargo of the seventh-century Yassiada shipwreck comprised LR 1 and LR 2 amphorae, along with spatheia.<sup>112</sup> The Dramont E wreck off the French coast, of slightly earlier date than the ceramics under discussion, carried earlier versions of both North African amphorae recovered from Kızılburun. The Dramont E wreck had a cargo of both fifth-century spatheia (Bonifay Type 1) and cylindrical amphorae similar to **AM 2**.<sup>113</sup>

Spatheia likely carried both fish sauce and oil.<sup>114</sup> Oil may have been the most frequent content of spatheia, as it was the primary export from North Africa under the Byzantine Empire.

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<sup>108</sup> Ghalia et al. 2005, 495-8; Panella 1982, 179.

<sup>109</sup> Bonifay (2004, 125-28) summarizes a large number of finds by type and by site. See also: Rome: Filippi et al. 2014, 1005-6; Eastern Mediterranean: Bass and van Doorninck 1982, 181, P 66-7; Balkans and Slovenia: Opař 2004, 33, 38; Perko and Župančič 2004, 523; Tudor 1965, pl. IV, no. 4; Carthage: Fulford and Peacock 1984, 134-35, fig. 42, cat. nos. 66-69.

<sup>110</sup> Reynolds 1995, 52, figs. 41-43.

<sup>111</sup> Bonifay 2004, 127.

<sup>112</sup> Bass and van Doorninck 1982, 181, P 66-67.

<sup>113</sup> Santamaria 1995, 32-34, 51-57; Bonifay 2004, 125.

<sup>114</sup> Reynolds 1995, 50, 119; Cirelli 2014, 542.



**AM 12** appears to belong with Bonifay's Type 3. This determination was made despite the absence of the rim, neck, and handles from this amphora. The small diameter of the neck and body fits the description of Type 3, what Bonifay referred to as "miniature spatheia."<sup>115</sup> The taper of the body is more significant than a number of cylindrical Type 2 examples, and its dimensions are generally smaller than Type 1 spatheia. The remnants of a handle preserved at the shoulder indicates this spatheion did not have handles attached solely to the neck, but rather to the neck and shoulder. Type 3 amphorae largely feature handles in the latter configuration, while Type 1 examples feature handles applied to the neck.<sup>116</sup> Certain examples of Type 2 spatheia appear to also have handles that attach at the shoulders. Its thin, elongated base most closely parallels Bonifay's Type 3C.<sup>117</sup> The height of **AM 12** is greater than a typical Type 3 spatheion by 10-15 cm, so this attribution is still tentative.

Parallels can allow us to narrow down the date in spite of any unanswered, or perhaps unanswerable, morphological questions. Spatheia from Sucidava, Romania, closely resembling this example are dated to the sixth century C.E.; the seventh-century Yassiada wreck featured similar examples, both with and without handles; and late Roman finds from Koper, in Slovenia, have been dated to approximately the sixth century.<sup>118</sup> Riley, in his publication on the coarse pottery from Benghazi, notes the type's infrequent occurrence in sixth-century levels, and sixth- to seventh-century

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<sup>115</sup> Bonifay 2004, 127.

<sup>116</sup> Bonifay 2004, 124-29.

<sup>117</sup> Bonifay 2004, 127.

<sup>118</sup> Sucidava: Tudor 1965, 119, 121, pl. IV, no. 4; Yassiada: Bass and van Doorninck 1982, 181, P 66; Koper: Perko and Župančič 2005, 534, fig. 9.

contexts for similar finds from Histria, Kythera, Cetatea, and Cartagena.<sup>119</sup> Bonifay Type 1 or 2 spatheia, earlier and larger forms than Type 3, were found in a warehouse at Ravenna, at Classe, dated to the early sixth century. These amphorae show signs of reuse, however, likely placing their manufacture somewhere in the fifth century.<sup>120</sup> Parallels and dates for earlier forms suggest that the spatheion recovered from Kızılburun can be dated to the sixth, or perhaps the early seventh, century.

*Amphoriskoi (figs. 17, 18)*

The design of **AM 15**, an amphoriskos with a tapering body, finds parallels across a broad chronological range, largely from the eastern Mediterranean. Perhaps the best parallel dates between the fourth and seventh centuries C.E., comes from Turkey (possibly Bodrum), and now sits in the Arthur M. Sackler Museum at Harvard University (fig. 18).<sup>121</sup> Unfortunately, information on this artifact's provenience is sorely lacking, and its only publication is that of an exhibit catalog.<sup>122</sup> Bakirtzis, in a summation of later Byzantine amphora shapes, claims a direct lineage from this type of amphoriskos, referred to as an "Early Christian amphora," to the ninth to eleventh-century examples seen frequently at Byzantine sites.<sup>123</sup> Parallels were found at Antioch-

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<sup>119</sup> Riley 1979, 226.

<sup>120</sup> Cirelli 2014, 542.

<sup>121</sup> Kalavrezou 2003, 191, cat. no. 103, inv. no. 1992.256.184. See fig. 13.

<sup>122</sup> Kalavrezou 2003.

<sup>123</sup> Bakirtzis 1989, 74-75.

on-the-Orontes, as well as at Saraçhane in Istanbul.<sup>124</sup> The former dates from the tenth to eleventh century, and the latter to the twelfth century C.E, where it appears frequently.<sup>125</sup>

It is possible that this amphoriskos is one of the “Early Christian” amphorae referred to by Bakirtzis; in this case, the slightly raised rim compared to later examples is informative. Generally speaking, this amphora type underwent morphological changes from the early Byzantine to later periods, with the handles rising to eventually attach to the top of the rim, and then a lengthening and further rising of the handles over the rim. In this development, **AM 15** finds itself in the earlier category, roughly contemporaneous with much of the other intrusive material raised at Kızılburun. However, given its find spot far away from the column wreck, in an unstratified scatter of objects from different time periods, it is possible that this amphora belongs to a later period, even into the eleventh or twelfth century.

Its diminutive size indicates its contents were likely a more valuable commodity than wine. No reports have indicated the presence of pitch inside an amphora of this size and shape, and no pitch was found inside **AM 15**. The amphoriskos in question, then, may have contained scented oil, or oil for a liturgical purpose.

#### *Flat-Bottomed Baking Pans (fig. 19.1)*

**CW 1** is notable for its upturned or everted rim profile, typical of vessels from the second through fourth centuries C.E., with a few examples from the mid-first

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<sup>124</sup> Antioch-on-the-Orontes: Lassus 1972, 24; Saraçhane: Hayes 1992, 76, pl. 13a (Type 65).

<sup>125</sup> Lassus 1972, 24; Hayes 1992, 76.

century. A number of late Hellenistic wares recovered with the column wreck featured everted rims, possibly dating **CW 1** to the first century B.C.E. If it postdates the column wreck, this particular example appears to correspond to Riley's Mid-Roman Plain Ware 7a type. At Benghazi, this type was found infrequently in contexts from the second half of the first century C.E., with increasing frequency in the second, finally reaching its greatest frequency in the third.<sup>126</sup> A parallel form from the Athenian Agora dates to the middle of the third century.<sup>127</sup> The late Imperial period features similar everted rim profiles on a number of vessels. For example, excavation at the Roman site of Urbs Salvia in Italy uncovered late Imperial vessels dating from the second to fourth century C.E., some of which feature everted rims.<sup>128</sup> However, these vessels exhibit curving sides, rather than the straight sides of **CW 1**. An uncomplicated type, this style sees wide distribution—though this may be due to its uncomplicated, easily replicated, and practical form.

### *Dolia (fig. 19.2)*

An all-purpose jar and the home of Diogenes, the *dolium* is not a device for transport, like an amphora.<sup>129</sup> Rather, it is similar to a *pithos*, a simple, handle-less storage container.<sup>130</sup> The Roman mentality regarding *dolia*, particularly its use as a storage jar, rather than a jar for transport like an amphora, is made clear in the *Digesta*.

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<sup>126</sup> Riley 1979, 351.

<sup>127</sup> *Agora V*, 58-59, 67 (K89).

<sup>128</sup> Giuliadori 2014, 555, 561, figs. 5.3-5.4.

<sup>129</sup> Juv. *Satire XIV*, 308.

<sup>130</sup> Brenni 1985, 32.

In *Digesta* 33.6.15, the jurist Proculus asserts that *dolia* are not to be considered *vasis vinariis*, wine containers, and belong rather to a separate category of “wine storage,” as the wine will be poured into amphorae or *cadi* for transport later. In *Digesta* 33.6.3, Ulpian, an early third-century jurist, states that when wine are sold in amphorae, the amphora is included in the sale; however, when sold in *dolia*, the *dolia* should not be owed, as they are typically sunken into the floor of a wine cellar or otherwise too large to move.<sup>131</sup>

Dimensions of *dolia* vary widely, from 75 to 200 cm in height, and 212 to 1,425 L in capacity.<sup>132</sup> *Dolia* have a number of shared characteristics, including globular bodies, thick walls, flat bases, and large rims, though there is currently no overarching *dolium* typology. Distinctions between *dolia* are made largely on the basis of their rims, whether they are flat or sloping, with or without a beveled edge, and whether the rim continues into the curve of the body, or instead returns inward, forming something of a channel directly below the rim.<sup>133</sup> Below the rim, the body is roughly egg-shaped, curving out to the point of maximum diameter, below which the form features a slight decrease in diameter and a flat base.<sup>134</sup> There is, additionally, variation in body shape, with certain examples appearing more cylindrical than others.

The form of the *dolium* leaves little room for meaningful morphological differentiation, though the size of its mouth has an effect on its use. Columella describes brine preparation in a wide-mouthed *dolium* (*dolium quam patentissimi oris*), using the

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<sup>131</sup> Translation and commentary in Peña (2007, 47-48).

<sup>132</sup> Brenni 1985, 30.

<sup>133</sup> Brenni 1985, 31. See Pereira (2011, 79-82) for such a typology from Vale do Mouro.

<sup>134</sup> Brenni 1985, 31-32; Cuming 1896, 113-14.

jar to collect rainwater.<sup>135</sup> A more typical use for *dolia*, and one borne out in numerous *horrea* excavations, is wine storage, as related by Pliny the Elder, who recommends that vessels not be broad or pot-bellied; a more narrow-mouthed vessel would be better suited to wine.<sup>136</sup> Other contents include dry goods and oil, in addition to wine and vinegar.<sup>137</sup>

*Dolia* are frequently attested in shipwreck sites, largely in the western Mediterranean. The late second- to first-century B.C.E. Cap Bénat B wreck near France, the first century B.C.E. to first century C.E. Port-Vendres D wreck near France, the mid-first century C.E. Diano Marina wreck off the Italian coast, and the third century C.E. Punta Ala ship near Tuscany are typical wreck sites.<sup>138</sup> Land sites with *dolia* are typically Roman villas or *horrea*, such as Vale do Mouro in Portugal; a *villa rustica* at Boscoreale, Campania; and a *horreum* at Lyon.<sup>139</sup> Cuming reports early British *dolium* and *doliolum* finds.<sup>140</sup>

CW 2 fits the morphological profile of a *dolium*, but its small size, likely intended to avoid wasting space on a ship, warrants the diminutive *doliolum*. Based on its wide mouth and its shipboard use, it was likely not a wine carrier. On a ship, it may have found use holding goods or water for the crew. *Harper's Dictionary of Classical Antiquities*, citing Lucretius and Suetonius, notes that *dolia curta* were used as urinals, though the many possibilities of maritime waste disposal may have made such use of a

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<sup>135</sup> Columella, *Rust.* XII.6.1.

<sup>136</sup> Plin. *HN* XIV.27. Land excavations catalogued by Brenni (1985, 247-51).

<sup>137</sup> Cuming (1896, 113) gives a summary of ancient sources for *dolium* uses.

<sup>138</sup> Parker 1992, nos. 173, 877, 364, 912. See also Brenni 1985, 252-57.

<sup>139</sup> Pereira 2011, 75-82; Brenni 1985, 247-51.

<sup>140</sup> Cuming 1896, 114-16.

*dolium* unnecessary.<sup>141</sup> The flat rim of this example, which returns inward rather than connecting directly with the shoulder, finds a close parallel in an Italian *dolium* with a rather late date of the first half of the fifth century C.E.<sup>142</sup> The perpendicularity of this example's rim is not paralleled in earlier examples, which largely feature curved or sloping rims, no returns below the rim, or angular returns distinct from the morphology of **CW 2**.

### *Cooking Pots (fig. 19.3)*

The design of **CW 3**, a globular two-handled cooking pot, is a common one. The basic cooking ware of the Roman Mediterranean world, according to Hayes, matches the description of this vessel: a round pot with small handles near the rim.<sup>143</sup> Reasonably close parallels to the globular shape and rim and handle profiles of this pot come from contexts in the eastern Mediterranean and Black Sea, such as sixth-century contexts at Dinogetia, and fourth, fifth, and sixth-century contexts at Murighiol.<sup>144</sup> A similar body and rim shape occurs at Carthage in one mid-sixth and numerous seventh-century deposits. While no handles were found attached in the Carthage examples, Riley notes the form likely had handles.<sup>145</sup> **CW 3** is similar to Bonifay's Type 32, a fifth-century type with North African origins.<sup>146</sup> However, the handle profile is markedly different, indicating either a different place of production or a different date. Given the strong

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<sup>141</sup> *Harper's*, s.v. "Dolium;" Lucr. IV.1026; Suet. *Vesp.* 23.

<sup>142</sup> Quilici 1976, 302, fig. 43.

<sup>143</sup> Hayes 1997, 76. See also Hjohlman 2005, 118, note 9.

<sup>144</sup> Dinogetia: Vulpe and Barnea 1968, 538, fig. 49.4; Murighiol: Opaît 2004, 46.

<sup>145</sup> Fulford and Peacock 1984, 186-88.

<sup>146</sup> Bonifay 2004, 239-42.

similarity between **CW 3** and sixth- and seventh-century examples, it is possible that Type 32 represents an earlier form of the same vessel type. Opaıt, in addressing parallel pots (referred to as Type III), describes these as Scythian in manufacture, though the possibility that some examples were produced in Syria or Asia Minor is not discounted.<sup>147</sup>

Based on parallels, a number of origins are possible, though the similarity of the fabric of **CW 3** to that of Fulford and Peacock's African Red Ware indicates this may be a product with origins in North Africa.<sup>148</sup>

One final parallel illustrating the common nature of this cooking pot comes from the excavation at Tell Keisan. Level two of this excavation revealed a number of cooking pots that approximate the form in question. These have been dated from the end of the fourth to the second century B.C.E.<sup>149</sup> In light of all other material excavated, the dates of other wrecks in the area, and fabric differences between **CW 3** and the Tell Keisan pots, the likelihood of this example predating the column wreck itself appears minimal. However, as it was found in the unstratified Area P, it may well be one of the earliest artifacts recovered from Kızılburun.

#### *One-Handled Cups (fig. 20)*

**CW 4** and **CW 5**, the two cups found east of the column wreck, on the southern part of the cape near the sixth-century church wreck, are a not uncommon type from the

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<sup>147</sup> Opaıt 2004, 45-46.

<sup>148</sup> Fulford and Peacock 1984, 14-15.

<sup>149</sup> Briend 1980, 107-8, pl. 11.5b.



early and mid-Byzantine periods. A smaller early Byzantine example, in a fabric similar to that of the examples from Kızılburun, appears at Yassıada.<sup>150</sup> Later examples, particularly those at Saraçhane dating from the ninth to the thirteenth century C.E., parallel the form of the cups in question but are larger and defined as “cooking pots” by Hayes.<sup>151</sup> Examples from Corinth that parallel this shape, but in white ware, date from the ninth to eleventh century.<sup>152</sup>

As a basic undecorated form, manufactured across a wide geographic and temporal range, it is difficult to make any strict determinations about these specific examples. Their find site to the east of the column wreck, near the church wreck and the medieval millstone wreck, befits their likely date range, however broad. It can be said with confidence that the two cups are Byzantine (whether early or mid-), and as such provide additional evidence for movement of goods along the Turkish Aegean coast in that period.

*Knidian Reliefware Neck-Amphoriskoi (figs. 21, 23)*

The decorative style known as “Knidian reliefware” appears on a number of vessel forms, from oinophoroi to amphoriskoi to flagons, paterae, and zoomorphic vases.<sup>153</sup> These vessels were typically mold-made, created by joining two corresponding

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<sup>150</sup> Bass and van Doorninck 1982, 172, P32, fig. 8-14.

<sup>151</sup> 10<sup>th</sup>-13<sup>th</sup> c.: Hayes 1992, 56, 222-3, fig. 20.14; 10<sup>th</sup> c.: Hayes 1992, 116, fig. 61.14; early 9<sup>th</sup> c.: Hayes 1992, 113, fig. 58.6.

<sup>152</sup> Morgan 1942, 54-56, fig.36c.

<sup>153</sup> Hayes 1972, 411-2. Kenrick (1985, 327-37) provides a compendium of reliefware forms. Form B487 (fig. 61) is the same type as **FW 1**.

halves which were themselves shaped by pressing clay into molds.<sup>154</sup> The style is characterized by scenes in high relief on the body. While Dionysian scenes are common, characters such as Asclepius, Herakles, and the Dioscuri also appear, though somewhat less frequently.<sup>155</sup> Vessels with carinated shoulders, such as neck-amphoriskoi and oinophoroi, feature fluted tongues on their shoulders. The Knidian reliefware style, which may be the immediate successor to Hellenistic Knidian Grey Ware, dates to the second and third centuries C.E.<sup>156</sup>

As its nomenclature suggests, Knidian reliefware was produced on Knidos, as indicated by similarities between its fabric and that of early Roman Knidian lamps.<sup>157</sup> Imitations were produced in North Africa, as well as Pergamon and Athens, around the third century.<sup>158</sup> Authentic Knidian reliefware was distributed widely across the Mediterranean, with examples appearing in second- and early third-century contexts at Tunisia, Ampurias, Rome, Athens, Aquileia, Trier, Tulcea, Constanța, Neapolis, Aleppo, and even as far west as Colchester.<sup>159</sup> Reliefware is more well-represented in the eastern Mediterranean than the west.

The particular shape of **FW 1**, the *Halsamphoriskos* or neck-amphoriskos, is described as such by Hausmann in his work on oinophoroi, in which he classified it Knidian reliefware Type II.<sup>160</sup> At Benghazi, two fragments matching the profile of the

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<sup>154</sup> Bailey 1972-3, 12.

<sup>155</sup> Hausmann 1954-55, 133-37.

<sup>156</sup> Kenrick 1985, 327.

<sup>157</sup> Hayes 1972, 412.

<sup>158</sup> Hayes 1972, 412.

<sup>159</sup> Heimberg 1976, 254, fig. 1; Kenrick 1985, 327.

<sup>160</sup> Hausmann 1954-5, 136.

neck-amphoriskos from Kızılburun, one possibly belonging to a more cylindrical oinophoros, come from second-century contexts.<sup>161</sup>

One side of **FW 1** (fig. 21) depicts Dionysus standing with what may be a thyrsus in his left hand and a right hand raised to his head. The opposite features the drunken Silenus on a donkey, thyrsus held in his left hand, over his shoulder. Both sides are executed in a rough style. The grapevine motif appears on a number of examples.<sup>162</sup> The design, both of the vase and the figures, finds a direct parallel in two vessels recorded by Bonis, one from Tarentum, Italy, and the other from Zara, in Croatia.<sup>163</sup>

The amphoriskos from Kızılburun appears authentic, rather than an imitation in antiquity. Merlin attests to the poor quality of the handle joins and other various imperfections of imitations from the Navigius series at El-Aouja, which are typically cylindrical oinophoroi rather than amphoriskoi.<sup>164</sup> Furthermore, the fabric of **FW 1** matches well with both Kenrick's and Hayes' descriptions of the appearance of Knidian ware.<sup>165</sup> Thus, the neck-amphoriskos recovered at Kızılburun appears to be an example of a ceramic vessel produced at Knidos, only a few hundred kilometers south of Kızılburun, for export to a market that in this case may have been north of the place of manufacture.

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<sup>161</sup> Kenrick 1985, 329.

<sup>162</sup> Bonis 1952, 25; Bailey 1979, 267-68, 272.

<sup>163</sup> Bonis 1952, 23, 25.

<sup>164</sup> Merlin 1920, 26-28.

<sup>165</sup> Hayes 1972, 411; Kenrick 1985, 327.

### *Conclusion and Summary*

The ceramics represented in the above catalog have origins in three economically crucial regions of the later stages of the Roman Empire: North Africa, particularly around the area of Tunisia; the Levant, namely Gaza and Palestine; and a coastal region of the eastern Mediterranean encompassing portions of Asia Minor, Cyprus, and the Aegean. The first two are especially notable as areas of production, though the vast trade in Cypriot goods in LR 1 amphorae, and Aegean goods in LR 2 amphorae, grants a good deal of economic importance to the third region as well.

The majority of the ceramics date to approximately the sixth century C.E., with notable exceptions, including the Knidian reliefware neck-amphoriskos. The varying dates of these exceptions attest to the movement of merchant ships along this route around Kızılburun over the course of many centuries. The further implications of the ceramics will be discussed in Chapter III, providing historical context, making observations regarding site formation processes, and prompting final conclusions.

CHAPTER III  
CONTEXTS AND CONCLUSIONS

*Historical Context and Trade*

A historical background spanning the second to seventh century C.E. is essential to contextualizing the intrusive ceramics under study. Trade is a function of events, political climates, and cultural connections, and shipwreck cargoes reflect this in the material record. Trade in the time period in question consisted both of small-scale trade over short distances and subsidized long-distance large-scale direct trade. While state-sponsored trade in connection with the *annona*, the state supply of necessities such as grain and oil, was a significant force for the movement of goods, private enterprise formed a crucial part of the later Roman economy.<sup>166</sup> Goods for private sale were often carried along with *annona* shipments, and ships carrying both were exempt from port taxes, as were ships with solely state cargo.<sup>167</sup> Broekaert, Lo Cascio, and Christol have argued persuasively that part of the function of the *annona* was to stimulate private trade as well.<sup>168</sup>

This period, from the second through seventh century, is one of marked decrease, both economic and political. Trouble moved in an easterly direction, with the Western Roman Empire caving steadily until its fall in 476. Broadly speaking, decline spread from the west to the wealthy east, leading to smaller settlements and reduced trading

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<sup>166</sup> Kingsley 2001, 56-57.

<sup>167</sup> Reynolds 1995, 127.

<sup>168</sup> Broekaert 2011, 593, 612-20; Christol 2003; Lo Cascio 2002.

activity.<sup>169</sup> By the end of the seventh century, the waning was complete and the flow of goods from east to west stopped, in what McCormick calls “the end of the Roman economy.”<sup>170</sup> Certainly, with losses of territory came the end of Roman economic unity, a major factor in prior Mediterranean trade. However, before the decline reached the region, the eastern Mediterranean experienced an expansion in population and agriculture.<sup>171</sup> The trade in Near Eastern, Levantine, and Cypriot goods implied by a large portion of the intrusive ceramic assemblage from Kızılburun is a direct result of this growth.

### *Second Century C.E.*

Beginning with Trajan’s rule (98-117) and ending with Septimius Severus (193-211) obtaining control of the empire after the tumult of the early 190s, the second century C.E. is characterized by relative placidity. The rule of the Nerva-Antonine dynasty for the vast majority of the century led to increased unification of the Roman Empire.

The strong military presence in the entirely Roman-controlled Mediterranean ensured open and uninhibited trading, even across great distances, and something resembling uniformity in consumption across provinces.<sup>172</sup> A peaceful Mediterranean was essential to the *annona civica*, the state supply of food, primarily grain, to the public. The mechanism of this supply was provincial taxation, the products of which

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<sup>169</sup> McCormick 2001, 32-33, Map 2.2, 2.3.

<sup>170</sup> McCormick 2001, 29.

<sup>171</sup> McCormick 2001, 32; Mitchell 2007, 330.

<sup>172</sup> Reddé 1986, 314-17, fig. 24; Arthur 1989, 79-81.

were transported by ship owners, *navicularii*, contracted by the state.<sup>173</sup> The *annona* was essential to second-century policy, both in sustaining the Roman populace and providing an economic stimulus to *navicularii*.<sup>174</sup>

By the second century, the Aegean had been thoroughly incorporated into long-distance trade, with increasing numbers of imports from the eastern Mediterranean to the Aegean.<sup>175</sup> The Roman presence in the Balkans in this century consists of Trajan's annexation of Dacia and Hadrian's subsequent withdrawal from portions of the region. The civilian settlement at Sucidava, in Dacia, was established at the end of the second century.<sup>176</sup> The Roman-held Levant grew in population and expanded its borders, the first part of a trend that continued into the third century, paused for roughly 50 years, then resumed from the fourth to the sixth century.<sup>177</sup> The Roman state stimulated oil production in North Africa, though the archaeological evidence does not allow for conclusions as to scale.<sup>178</sup> Its dominance in the later third century would appear to indicate production was at least competitive with regions like Baetica. The Empire, at its greatest extent in this century, facilitated trade between all areas, from the "producer" regions—the eastern, western, and southern provinces—to the center of power in Rome. Roman investment in western Asia Minor is evinced by the massive building program in Pergamon under Trajan and Hadrian, as well as intense construction in both Hierapolis

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<sup>173</sup> Reynolds (1995, 107-8) describes the *annona* and its mechanisms in detail. See also Palomera (2010, 15-34).

<sup>174</sup> Palomera 2010, 16.

<sup>175</sup> Abadie-Reynal 2005, 44-47.

<sup>176</sup> Karagiorgou 2001, 135.

<sup>177</sup> Mitchell 2007, 331; Kingsley 2001, 44.

<sup>178</sup> Keay 1984, 411.

and the smaller settlement of Aphrodisias, which extended into the third century.<sup>179</sup> Near Kızılburun, the Maeander flood plain, now the Büyük Menderes River in southwestern Turkey, was a thriving urban region characterized by clusters of cities and recently incorporated communities, evidenced by singular lengthy building phases, by the mid-second century.<sup>180</sup> The Maeander was the primary route inland from the Turkish Aegean coast at this time, a position which undoubtedly contributed to the prosperity of settlements along its basin.<sup>181</sup>

### *Third Century C.E.*

The economic outlook in the early third century was bleak. The letter from Cyprian, later Bishop of Carthage, to Demetrianus reflects the turn-of-the-century pessimism in apocalyptic terms, saying “the world itself is now speaking and giving witness to its death with the evidence of general decay.” A picture of declining industry and an unforgiving natural world concludes: “[the world] declines towards its final setting.”<sup>182</sup> Archaeological evidence such as an increase in coin hoards and a decrease in inscriptions supplements this picture of decline, and by 230-50, there was a drop in western exports (e.g., from Spain) to Rome.<sup>183</sup> The vast reaches of the Roman Empire—with differences in geography, climate, foreign incursions, and more—necessitate a more nuanced picture. Settlements in the Levant and North Africa expanded, for

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<sup>179</sup> Radt 2001, 49. Hierapolis: D’Andria 2001, 104. Aphrodisias: Ratté 2001, 123.

<sup>180</sup> Marchese 1986, 291, 323.

<sup>181</sup> Marchese 1986, 324.

<sup>182</sup> Translated by Hekster (2008, 130-34), with commentary at 31-2.

<sup>183</sup> Hekster 2008, 33; Reynolds 1995, 110.



example, in a trend contrary to that seen in Italy, many of the western provinces, and Egypt.<sup>184</sup>

Roman imperial power weakened in the third century, largely due to frequent usurpation.<sup>185</sup> Grant contrasts this weakness with the strength of the centralized monarchy of the Sassanian Persians at this time.<sup>186</sup> Persian incursions on Rome's eastern frontier were common, and Roman Syria was left particularly devastated.<sup>187</sup> Recovery was achieved to a degree by military reorganization under Gallienus, which was continued by Diocletian and his far-reaching military and administrative reforms.<sup>188</sup> In 289, Diocletian made Nicomedia, in northern Turkey, the center of Roman power in the East, and Ephesus was made the seat of administration of the Roman province of Asia. In 293, he instituted a tetrarchy, laying a foundation for the serious changes of the fourth century and later. The settled atmosphere brought about by his reforms contributed to increased trade and eastern Mediterranean growth in the following centuries. The region of Lycia in southwest Asia Minor was Romanized in this century, beginning an upward trend lasting roughly two centuries before a sixth-century decline.<sup>189</sup> The developments in Asia Minor begun in the second century largely continued in the third.

Early in the third century, the *annona militaris* was instituted by Septimius Severus to supply the troops.<sup>190</sup> Along with the *annona civica*, this was a significant

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<sup>184</sup> Mitchell 2007, 331; Hekster 2008, 34-35.

<sup>185</sup> Grant 1999, 13.

<sup>186</sup> Grant 1999, 19-20.

<sup>187</sup> Decker 2001, 71.

<sup>188</sup> Grant 1999, 35-38.

<sup>189</sup> des Courtils and Cavalier 2001, 170.

<sup>190</sup> Palomera 2010, 15.

force for the maritime movement of goods across the Empire. In addition to expanding the *annona*, Severus added oil, much of which was produced in North Africa, to the agricultural produce included in the *annona*.<sup>191</sup> Oil shipments may have been included in a less formalized way before this point in time, as texts from earlier periods indicate a link between oil merchants and administrators of the *annona*.<sup>192</sup> A second-century honorific inscription at Ostia from Baetican oil merchants to their patron, a *praefectus annonae*, provides a clear connection between the two groups.<sup>193</sup> State subsidies provided essential economic stimuli for private enterprise, even for traders not described as *navicularii*.

In the mid-to-late third century, North African oil, from Byzacena, Numidia, Mauretania, and Proconsularis, grew to dominate the Roman supply, overcoming Tripolitanian and Baetican produce.<sup>194</sup> Levantine growth continued its upward second-century trend for the first half of this century, though many local coin issues ceased because of rapid inflation, and Persian incursions and internal discord, manifesting as revolts, contributed to a generally unstable atmosphere.<sup>195</sup>

#### *Fourth Century C.E.*

The fourth century marks the beginning of the Late Roman period and the beginning of the decline in large-scale Roman shipping. With the shift of the capital

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<sup>191</sup> Reynolds 1995, 107. Lo Cascio (2002, 104-110) addresses Severus' contributions to the *annona* system.

<sup>192</sup> Broekaert 2011, 612-19, citing *CIL* 14.4458; *CIL* 6.1620; *Dig.* 50.4.5; *Dig.* 50.6.6.6.

<sup>193</sup> *CIL* 14.4458, context and commentary by Broekaert (2011, 615).

<sup>194</sup> Keay 1984, 411.

<sup>195</sup> Mitchell 2007, 331; Glucker 1987, 42; Decker 2001, 71

eastward, from Rome to Constantinople, the foundation was laid for the success of the Eastern Roman Empire, even as the Western Empire collapsed. Military emperors ruled for the vast majority of this century, and incursions along the Roman frontiers were continually troublesome. Zosimus writes that the Roman Empire was “being dismembered by barbarian incursions” to the west, north, and east.<sup>196</sup>

The results of incessant military activity were felt in the Balkans, an area that would soon require an influx of imported goods from the Aegean and elsewhere, trade that may be represented in the intrusive assemblage at Kızılburun. The arrival of the Huns along the northern coast of the Black Sea at some point after 350 led to significant changes in the region. The asylum requests of two Gothic tribes from the Danubian region can be directly related to this movement, which caused a buildup of pressure on the northern front, though full-scale warfare was not an immediate consequence.<sup>197</sup> At the end of the fourth and beginning of the fifth century, the Balkan military installations went under-supplied, as referenced in Themistius: ...ὄρῶντες τοὺς μὲν στρατιώτας οὐ μόνον ἀνόπλους, ἀλλὰ καὶ ἀχίτωνας τοὺς πολλοὺς, καὶ ταῖς ψυχαῖς καὶ τοῖς σώμασι καταπεπτωκότας (“the soldiers, seeing they were not only without weapons, but many without tunics, their spirits and bodies were fallen”).<sup>198</sup> Opatř connects this decrease to an increase in Hunnish attacks, and ascribes it as motivation for two imperial decrees in 395 and 408 attempting to proscribe *navicularii* from participating in private

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<sup>196</sup> Zos. 3.1 (trans. Ridley).

<sup>197</sup> Heather 1995, 5-10.

<sup>198</sup> Oration X.136b, ll. 18-21.

enterprise.<sup>199</sup> Heather implicates Gothic incursions rather than Hunnish attacks, as he holds the Hunnish center of gravity to be further east, towards the Caucasus.<sup>200</sup> Whether Gothic or Hunnish (or both, as is probably the case), late fourth-century military activity took a toll on the Balkans. Reddé notes the extant evidence for this period indicates naval forces that were previously concentrated in the region of the Black Sea were now being fragmented during Constantine's reorganizations and again after his death in 337.<sup>201</sup>

The major arteries for communication and trade followed the eastern Mediterranean coast, from Alexandria to Caesarea, north through Asia Minor to Byzantium, then north- and westward, supplying both the Balkans, Italy, and western Europe.<sup>202</sup> The new eastern capital shifted the trade axis in the eastern Mediterranean from predominantly east-west to north-south. Egypt provides interesting evidence for cultural unification in this period, as it seems beer, the traditional drink, was abandoned for wine, which was far more popular in, and characteristic of, Rome.<sup>203</sup> Economic unification suffered a setback, as the foundation of Constantinople led to an east-west split of *annona* payments. Payments from Egypt, for example, were diverted to the new eastern capital.<sup>204</sup> This, of course, was a development favorable to the soon-to-be Eastern Empire, and contributed to its stability and success in the wake of western collapse.

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<sup>199</sup> Opař 2004, 101-3.

<sup>200</sup> Heather 1995, 8-9, note 1.

<sup>201</sup> Reddé 1986, 319; 631-47.

<sup>202</sup> Mitchell 2007, 50 Map 3.1. See *infra* pp. 76-77 regarding currents and Mediterranean traffic patterns.

<sup>203</sup> McCormick 2001, 36-38.

<sup>204</sup> Reynolds 1995, 109; Keay 1984, 414.

From the fourth century onward, *navicularii* from western Europe, Italy, and Africa disappear.<sup>205</sup> The final reference to Spanish *navicularii* can be found in the *Codex Theodosianus* 13.5.8, dating to 336 CE, while no *navicularii* from Gaul are mentioned in the fourth century at all.<sup>206</sup> The decline of the western *navicularii* in this century is linked by McCormick to the diversion of *annona* payments to Constantinople, a move that privileged eastern fleets with shorter transit times.<sup>207</sup> This change fits the centuries-long late Roman trend of western contraction and eastern expansion. A law encouraging shipping for the state was passed in this century as well. According to this law from 371, the state would provide the timber needed to build ships for *navicularii*, thus absorbing much of the costs associated with ship ownership.<sup>208</sup>

Despite constant war and pressures across a now divided empire, the Roman Empire witnessed a population and settlement explosion in the Levant.<sup>209</sup> This growth would continue into the sixth century. Africa continued as the main oil-producing region of the Roman Empire. Gaza continued its upward trend in wine production and export, and **AM 1**, whether fourth or fifth-century, reflects the movement of Gazan wine across the Mediterranean. The text *Incipit Liber Junioris Philosophi in Quo Continentur Totius Orbis Descriptio*, dating to the middle of the fourth century, claims that Gaza and Ashkelon produce *vinum optimum*.<sup>210</sup>

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<sup>205</sup> McCormick 2001, 103.

<sup>206</sup> McCormick 2001, 105, citing De Salvo 1992, 396-412.

<sup>207</sup> McCormick 2001, 106.

<sup>208</sup> *Cod. Theod.* 13.5.14.1.

<sup>209</sup> Mitchell 2007, 331.

<sup>210</sup> *GGM* II, 518(29).

The fourth and fifth centuries were characterized by a great deal of building in Ephesus, indicating its importance and wealth in this period, after a late third-century earthquake.<sup>211</sup> Nearby Chios was soon to experience economically significant new settlement as well, as excavation at Emporio indicates.<sup>212</sup> In western Asia Minor, the centuries-old city of Pergamon remained active, though a fortification wall may suggest a downsizing of the city overall.<sup>213</sup> Natural disasters were particularly troublesome for the Aegean and eastern Mediterranean in this century. Salamis experienced two major earthquakes in the first half of the century; a 365 C.E. earthquake off the western coast of Crete destroyed Gortyn, Eleutherna, and Kisamos; and on the southern coast of Cyprus, Kourion was destroyed by an earthquake later in the fourth century.<sup>214</sup>

In this period, the Balkan settlements of Dinogetia, Dichin, and Topraichoi were established, the last of which was used as a storehouse for *annona* shipments.<sup>215</sup> The route for Roman Danubian supply was northward into the Black Sea, then inland via riverine craft.<sup>216</sup> Black Sea shipwrecks—notably an example near Nesebar, Bulgaria that carried an Aegean LR 2 amphora—provide evidence for this route, as do LR 2 distribution patterns in the Balkans.<sup>217</sup>

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<sup>211</sup> Foss 1979, 8-9; Scherrer 2001, 79.

<sup>212</sup> Boardman 1989, 86. See *infra* p. 65, n. 232.

<sup>213</sup> Radt 2001, 52.

<sup>214</sup> Costello 2014, 14-15.

<sup>215</sup> Karagiorgou 2001, 136-38; Opař 2004, 101-3; Swan 2004, 371.

<sup>216</sup> Karagiorgou 2001, 154.

<sup>217</sup> Parker 1992, 287; Bouzek and Kordač 1963.

### *Fifth Century C.E.*

The fifth century was one of tumult and reorganization. The Vandal conquest of North Africa in the middle of this century led to a period of agricultural production in Africa unhindered by *annona* taxation.<sup>218</sup> A change in amphora production, the discontinuation of the Keay 25 type and the appearance of a number of new types, has been interpreted by Keay to reflect an internal reorganization of industry.<sup>219</sup> While this separation from Rome was a boon to North Africa itself, which saw no decline in agricultural production, there was a decline in African ceramic types across the Mediterranean, and *navicularii* from the area were now without the stimulus provided by Roman subsidies.<sup>220</sup> In Carthage, the fifth century saw an increase in the proportion of imported amphorae to local amphorae. This is interpreted by Fulford to reflect the Vandals' ability to sell produce competitively on the market, leading to greater wealth and more imported goods, even if there was a smaller amount of produce being exported.<sup>221</sup> Mattingly and Hitchner note that by the late fifth century, the Vandal court was "a center of elite Roman-African culture with links to Constantinople."<sup>222</sup> Africa under the Vandals was not cut off from exchange networks, but rather the tenor of relations was changed, from taxation to sale, and the archaeological record reflects this.

Taxation and redistribution is more favorable to a state than purchasing outright, so trade mechanisms in the archaeological record will favor the former. The somewhat

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<sup>218</sup> Keay 1984, 419-20.

<sup>219</sup> Keay 1984, 423-24.

<sup>220</sup> Keay 1984, 423-24; Reynolds 1995, 113; McCormick 2001, 103-4; Abadie-Reynal 1989b, 150-51.

<sup>221</sup> Fulford 1984, 258-59.

<sup>222</sup> Mattingly and Hitchner 1995, 211.

diminished flow of goods from North Africa led to a greater proportion of Near Eastern and Levantine goods being exported throughout the Byzantine world.<sup>223</sup> The Vandal presence in the western Mediterranean effected a change in trade, as the economic center of gravity of the Byzantine Empire shifted eastward. Eastern ceramics suddenly appear in significant quantities in early fifth-century contexts in the western provinces, particularly Gaul.<sup>224</sup> Meanwhile, after a fourth-century increase in distribution, African Red-Slipped Wares are much less well-represented in fifth-century contexts.<sup>225</sup> Hayes notes a general decline in the importation of African wares in the middle of the fifth century; for example, Athenian Agora percentages drop to 10-20%.<sup>226</sup>

The eastern frontier had proved a near-constant source of difficulties with the Persians; however, a tenuous peace was maintained for much of the fifth century.<sup>227</sup> The pattern of eastern growth begun in the mid-fourth century continued, and the relative stability compared to the western Mediterranean allowed for a great increase in production and export from the eastern Mediterranean and the Aegean, exporting foodstuffs from regions such as Asia Minor and the Levant north- and westward, to cities such as Constantinople, Rome, and Marseilles.<sup>228</sup> Rural settlement peaked in this century, particularly in the Peloponnese and Cyprus.<sup>229</sup> The wide distribution of Late Roman settlements in the Aegean, indicating an increase in rural settlement, is attested

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<sup>223</sup> Reynolds 1995, 113.

<sup>224</sup> Piéri 2005, 171.

<sup>225</sup> McCormick 2001, 55, map 2.2.

<sup>226</sup> Hayes 1972, 417-18.

<sup>227</sup> Mitchell 2007, 123.

<sup>228</sup> Piéri 2005, 171; McCormick 2001, 101.

<sup>229</sup> Laiou and Morrisson 2007, 25; McCormick 2001, 33.



by numerous surveys compiled and summarized by Alcock, who describes the overall pattern as “remarkably uniform.”<sup>230</sup> Cypriot Red-Slip Ware (or Roman D Ware) production sites in Pisidia in southern Turkey, comprised of a number of small kilns spread across a region, appears to reflect this increase in rural settlement as well as a degree of self-sufficiency in Asia Minor.<sup>231</sup> On Chios, the coastal settlement of Emporio was established, the pottery of which indicates links to the trade networks under study presently.<sup>232</sup> Byzantine cities, from Constantinople to Antioch to Thessaloniki, were prosperous as well, with booming populations.<sup>233</sup> By contrast, the reuse of stone in churches along the Lycian coast, contrasted with better stonework and finer goods inland, indicates a decline along the coast of Asia Minor accompanying this rural shift.<sup>234</sup> On Cyprus, the site of Kourion was rebuilt after being destroyed in the fourth century, and was prosperous in the fifth and sixth centuries.<sup>235</sup>

In the Balkans, instability was the norm. The Balkan frontier became even more dangerous after 453, when Atilla’s death led to the collapse of the Hunnic empire, prompting tribal struggles for dominance in the region.<sup>236</sup> This instability would have proved a hindrance to any private trade in the region, especially as the relative stability of other regions made replenishing the Danubian frontier less worthwhile by comparison. *Annona militaris* activities likely composed the majority of trade in the

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<sup>230</sup> Alcock 1993, 37-49.

<sup>231</sup> Jackson et al. 2012.

<sup>232</sup> Boardman 1989, 86.

<sup>233</sup> Laiou and Morriison 2007, 26.

<sup>234</sup> Harrison 2001, 2.

<sup>235</sup> Costello 2014, 16.

<sup>236</sup> Mitchell 2007, 403; Moorhead 2001, 161.

Danubian region, and, as will be seen later, may have been a mechanism for the maritime movement of late Roman goods attested here.

The fall of the Western Roman Empire is conventionally dated to 476, when Romulus Augustulus was deposed by Odoacer. Mediterranean power was shared between Vandals in North Africa, the newly controlled kingdom in the West, and the Eastern Roman Empire. With the Vandals exerting power along the African coast, and the Mediterranean world divided amongst numerous groups, trade was more fraught than in previous centuries, and Roman economic unity had diminished.

#### *Sixth Century C.E.*

The retaking of North Africa by the Byzantines under Justinian in 534, and the subsequent resumption of taxation, could not undo the newfound primacy of eastern exports.<sup>237</sup> However, there was a corresponding increase in the export of African wares to Greece in the middle of the sixth century, and late sixth-century exports of African ceramics to the East are significant.<sup>238</sup> Reynolds notes that small spatheia are widely distributed in this period.<sup>239</sup> The late fifth- to mid-sixth-century wreck at Filicudi Porto, Italy, with a cargo of African amphora types, may reflect this resumed trade if the later date is accurate.<sup>240</sup> Economic growth in the eastern Mediterranean plateaued around the mid-sixth century, even as natural disasters such as the earthquakes in Beirut (551) and

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<sup>237</sup> Keay 1984, 426-27; Fulford 1984, 261; Reynolds 1995, 118-21.

<sup>238</sup> Hayes 1972, 418; Reynolds 1995, 119.

<sup>239</sup> Reynolds 1995, 119.

<sup>240</sup> Parker 1992, 178. If the earlier date stands, it would then reflect Vandal sale of produce rather than *annona* taxation.

Antioch (525 and 528) rocked the region. In 541 the plague, aided by seaborne transport, led to depopulation across the Byzantine world. Recurrences of plague would prove troublesome for the rest of the century. Harassment by Sassanian Persians contributed to difficulties along the eastern frontier. In the frequently unstable Balkans, the Bulgars and Slavic peoples were troublesome for the Byzantines.<sup>241</sup> By the late sixth century, Avar incursions into the Balkans were only held at bay by payments from the Byzantine Empire.<sup>242</sup>

In spite of difficulties on every front, viticulture surged in the Levant. Demand for the famous Gazan wine, praised since at least the fourth century and transported in LR 4 amphorae, was high.<sup>243</sup> To meet demand, intense production of wine went alongside production of other crops including cereals and fruits.<sup>244</sup> The late sixth-century wreck at Iskandil Burnu, Turkey, represents this particular branch of trade.<sup>245</sup>

Cyprus experienced a renaissance of sorts in the sixth century, the beginnings of which were seen at the end of the fifth century. The huge degree of LR 1 amphora production seen on Cyprus is a testament to its flourishing as a point of trade and a zone of significant maritime activity.<sup>246</sup> The southern Cypriot sites of Cape Zevgari, Cape Kiti, and Avdimou Bay are evidence for a high volume of early Byzantine maritime activity in the region.<sup>247</sup> The variety of proveniences, from Cypriot and possibly Syrian

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<sup>241</sup> Mitchell 2007, 407.

<sup>242</sup> Mitchell 2007, 406.

<sup>243</sup> McCormick 2001, 35.

<sup>244</sup> Gatier 1994, 31.

<sup>245</sup> Lloyd 1985; summarized in Parker (1992, 217).

<sup>246</sup> Papacostas 2001, 113-15.

<sup>247</sup> Leidwanger 2015, 158; Leidwanger 2007.

LR 1 amphorae to Gazan LR 4 amphorae, hint at the mercantile diversity in the area.<sup>248</sup> Also prosperous was the region of Lycia, as recounted in *The Life of Saint Nicholas of Sion*, which largely takes place in Myra, the main city of the region. It paints Lycia as a wealthy set of cities, such as Xanthos, Myra, and Phaselis, accompanied by equally prosperous rural villages.<sup>249</sup>

In 536, Justinian implemented a set of military administrative reforms, known as the *Quaestura Exercitus*, to strengthen the Danubian region. This reform reorganized two Danubian and three Aegean regions into one unit, and created the position of *quaestor exercitus*. This official's responsibility was to support troops in the Balkans, namely in the regions of Moesia Secunda and Scythia.<sup>250</sup> The Aegean regions of the Cyclades, Caria, and Cyprus were responsible for supplying the two Danubian regions. The fact that the Aegean regions roughly correspond to the production sites of LR 1 and 2 amphorae is noteworthy.<sup>251</sup> The duties of the *quaestor exercitus* consisted largely of coordinating *annona militaris* shipments, the route for which has been discussed.<sup>252</sup> This reorganization was intended to prevent the insufficient supply attested to in the fourth century, and greatly stimulated trading activity in the eastern Mediterranean, Cyprus, the Aegean, and the Black Sea.<sup>253</sup>

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<sup>248</sup> Leidwanger 2007, 309-12.

<sup>249</sup> Foss 1993, 19; Ševčenko and Ševčenko 1984.

<sup>250</sup> Karagiorgou 2001, 154, citing Jones 1964, 280, 661. See also Torbatov 1997, 78; Curta 2001, 76-77.

<sup>251</sup> Opař 2004, 105.

<sup>252</sup> Danubian supply route at supra p. 62.

<sup>253</sup> van Doorninck 2015, 208-9; Leidwanger 2015, 158-63; Karagiorgou 2001.

The church was likely involved in *annona militaris* activity, consistent with Justinian's close involvement with the church.<sup>254</sup> Curta's archaeological survey of the Balkan frontier provides evidence for the importance of churches to the landscape, and a pattern of contraction around, and focus on, churches.<sup>255</sup> The seventh-century ship that wrecked at Yassiada is believed to have been involved in such activity when it sank in 626.<sup>256</sup> Given the scale and needs of the settlements along the Danubian frontier, especially as the number of foreign incursions rose and local production was disrupted, this activity must have required a huge amount of traffic between the eastern Mediterranean, the Aegean and the Danube. As Karagiorgou notes, oil in particular was not a local product, and was in demand in the region.<sup>257</sup> Late sixth-century amphora finds from Murighiol, primarily eastern Mediterranean in origin, indicate a further economic decline in the Danubian region. The high ratio of amphorae to tableware is adduced by Opaït as an indicator of lowered economic power, with "the central government supplying the province only with the essentials of life carried by amphoras."<sup>258</sup> This is further indicated by the distinction between wealthy Black Sea coastal cities and the beleaguered interior, addressed below. The trend in this century was toward settlement subdivision and contraction, particularly around churches.<sup>259</sup>

Somewhat in contrast to the interior, cities along the Black Sea coast appear to have been prosperous, with inscriptions at Tomis and Callatis evincing independent

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<sup>254</sup> Curta 2001, 77.

<sup>255</sup> Curta 2001, 155-69.

<sup>256</sup> van Doorninck 2015, 212-13.

<sup>257</sup> Karagiorgou 2001, 147.

<sup>258</sup> Opaït 2004, 103. Arthur (1986, 659) addresses amphora production in the seventh century and later.

<sup>259</sup> Curta 2001, 143.

merchant activity and the appearance of a middle class.<sup>260</sup> The distinction between coastal cities and the interior in this period is best illustrated by lead seal distribution. In a small coastal section of the northern Balkans, over half of extant lead seals lack any government title or affiliation, indicating they are likely commercial stamps. The lack of similar seals in the interior, similar to the lack of LR 4 amphorae in the interior, suggests that independent merchants did not operate beyond the easily-accessed coastal cities, making the *annona militaris* the sole mechanism of supply.<sup>261</sup>

#### *Seventh Century C.E. and Later*

The first half of the seventh century saw disaster unfold for the Byzantine Empire under Heraclius, as the disintegration under pressures that began in the west finally arrived in the Eastern Empire. The Balkan frontier collapsed in the first quarter of the century under pressures both internal and external, from the Sclaveni (Slavs) and the Avars, both of whom contributed to the 626 siege of Constantinople by the Persians. This collapse, punctuated in 620 by Heraclius' movement of all troops eastward, out of Europe, was precipitated both by Phocas' rebellion in the Balkans and the fall of the Near East and Egypt, the loss of which led to a further decrease in agricultural produce available to the already under-provisioned Balkans.<sup>262</sup>

The final series of engagements between the Sassanian Persian and the Byzantine empires was prompted by the deposition of Maurice in 602. The Byzantines were

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<sup>260</sup> Curta 2001, 124.

<sup>261</sup> Curta 2001, 144, 188.

<sup>262</sup> Curta 2001, 189.

defeated in the early seventh century, allowing for Persian control of Asia Minor and Syria.<sup>263</sup> Excavations at Sardis show evidence for a great deal of destruction and abandonment in the first quarter of the seventh century. Ankara was similarly destroyed by Sassanian Persians in 622.<sup>264</sup> The formerly grandiose Hierapolis was also in decline by the mid-seventh century, when an earthquake ceased the building program in place at the time.<sup>265</sup> The Byzantines under Heraclius, however, were able to regain control of much of Asia Minor by 630.<sup>266</sup> Arabs, united by Islam, claimed Syria, and 'Amr ibn al-'As led their conquest of Egypt in 640.<sup>267</sup> The following year, Arab incursions into Asia Minor began.<sup>268</sup> Carthage fell in 698. The flow of goods from east to west ended by the conclusion of this century. Constantinople was still supplied by north-south trade routes, and amphora production continued, though the Roman economy in its unified, monolithic form was no more, subject to radical changes in both society and economy.<sup>269</sup>

Cyprus appears to have flourished in the beginning of this century, later declining after the Arab conquests.<sup>270</sup> Papacostas adduces, as evidence for Cyprus' flourishing, gold coin hoards, large-scale church-building, and dense occupation in the seventh century.<sup>271</sup> Once removed from the Byzantine aegis, Cyprus became a less stable environment and experienced marked decline from the earlier part of the century.

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<sup>263</sup> Foss 1975, 731.

<sup>264</sup> Foss 1975, 737; Foss 1977, 29.

<sup>265</sup> D'Andria 2001, 113.

<sup>266</sup> Foss 1975, 744.

<sup>267</sup> The degree to which the Islamic forces were united under Caliphal control has been debated. Donner (1995) presents a summation and analysis of the evidence, concluding the forces were likely centralized.

<sup>268</sup> Foss 1977, 72.

<sup>269</sup> Mitchell (2007, 306) addresses Roman economic unity.

<sup>270</sup> Papacostas 2001, 111.

<sup>271</sup> Papacostas 2001, 108-11.

### ***Site Formation Processes and Navigation***

The 1993-94 INA Turkish shipwreck surveys, which initially located the Hellenistic column wreck, provide information crucial to contextualizing the intrusive ceramics. The early Byzantine wreck at Kızılburun indicates the site formation processes that may have led to the presence of the intrusive artifacts recovered during excavation of the column wreck. A wreck carrying marble architectural elements, including spiral-fluted columns and a double column for a partition, was found lying at a depth of 39-40 m, upslope and east of the column wreck.<sup>272</sup> This wreck finds a clear comparandum in the sixth-century C.E. “Church Wreck” off Marzamemi.<sup>273</sup> In addition to their similar marble cargoes, both wrecks feature similar early Byzantine amphorae.<sup>274</sup> With the Kızılburun church wreck were a number of amphorae which led the wreck to be tentatively dated to the tenth century.<sup>275</sup> However, as Piéri has recently confirmed, the amphora type published with the survey report is a later version of the LR 1 amphora type, and can be dated to the late sixth or seventh century C.E.<sup>276</sup> The date of this amphora, in addition to the architectural peculiarities that appear to date to the sixth century, allows for a rough estimate of the date of the upslope wreck. The one-handled cups, **CW 4** and **CW 5**, were recovered from the context of this wreck. Thus, the wreck may be contemporaneous with a number of the intrusive finds cataloged here.

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<sup>272</sup> Pulak and Rogers 1994, 17-19. Marzamemi Church Wreck: Kapitän 1969; Leidwanger and Bruno 2013; Leidwanger and Tusa 2015.

<sup>273</sup> Kapitän 1969.

<sup>274</sup> Kapitän 1969, 125, 133; Pulak and Rogers 1994, 18.

<sup>275</sup> Pulak and Rogers 1994, 18.

<sup>276</sup> Pulak and Rogers 1994, 18 fig. 2. Piéri (2005, 186) refers to this very amphora as an example of the LR 1 type.



The second contemporaneous wreck came to rest further upslope, at a depth of 28-36 m, and was initially noted for its large scatter of LR 2 amphorae, one of which is present in the intrusive assemblage.<sup>277</sup> Unfortunately, no photography or other recording of the amphorae exists to allow typological dating of this site, perhaps the more promising of the two.

The intrusive finds came largely from two areas—Area P, named for a datum point roughly 20 meters west of the column drum assemblage (fig. 4), and the area immediately surrounding the column drums. The finds associated with the column drums date, with few exceptions, to the sixth or seventh century C.E. Some of these pieces may be stylistically datable to the fifth century, such as the LR 5 amphora **AM 3**, but the date ranges find a rough median in the sixth century. Area P, on the other hand, presents an entirely different picture. The range of materials represents a longer span of time, such as a mid-Roman baking pan (**CW 1**), a sixth or seventh-century spatheion (**AM 12**), and an amphoriskos (**AM 15**) that may date from the fourth to seventh century C.E., with a slight possibility of the ninth to eleventh century. Hellenistic material that may be from the column wreck itself was recovered from Area P as well. This material includes a fineware plate with a central depression, known as a “fish plate,” and a large amphora with a tapering body that finds an approximate comparison in a first-century amphora from Poiana, Romania.<sup>278</sup>

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<sup>277</sup> Pulak and Rogers 1994, 18-19.

<sup>278</sup> Opař 1987, fig. 1, 245, 256-7.

The sixth- and seventh-century finds—represented on the Kızılburun church wreck, the LR 2 wreck, the column wreck itself, and Area P—allow for a reconstruction of a hypothetical site formation process. If the assumption is made that all contemporaneous material originates from a single wrecking event, the roughly sixth-century material may belong to either of the two upslope wrecks. In this scenario, ceramics travelled downslope as a direct result of the wrecking process, coming to rest in the area of the column wreck. Disturbance by fishing nets and sponge fishermen, well attested in the area, may have scattered artifacts westward toward Area P.<sup>279</sup>

The disturbed context of these artifacts means the number of wrecking events represented can never be determined with certainty. Contemporaneity does not necessarily indicate all artifacts are from a single cargo. However, in the spirit of Occam's razor, the most likely possibility, and the one that warrants the most consideration, is that the only two attested contemporaneous wrecks in the area led to the deposition of the sixth-century ceramics at the site.

Evidence of two sixth-century wreck sites enables a site formation process to be proposed with a certain amount of confidence. However, for artifacts predating the sixth century, much less can be said. A possible Roman wreck site has not been identified in the area, though this may only serve to reflect cargo jettisoned from a sinking ship. The presence of simple galley wares, like the mid-Roman pan, and goods almost certainly intended for trade, like the Knidian reliefware neck-amphoriskos, indicates merchant

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<sup>279</sup> Carlson 2014, 55; Littlefield 2012, 7. Muckleroy (1998, 269 fig. 1, 278-79) provides a flow diagram representing shipwreck deposition and subsequent degradation processes. He then describes a hypothetical wrecking process that parallels the process envisioned here.

activity.<sup>280</sup> At this juncture, however, these artifacts can only be said to provide evidence for general seafaring activity on the Turkish Aegean coast.

Seafaring activity may have been prompted and supported by a number of sites near Kızılburun. Smyrna, because of its position at an inlet, is an ideal candidate for a harbor, and may have been a port of call for ships traveling along the Turkish Aegean coast. The prosperity of Lycia likely made its port cities, namely Phaselis and Myra, lucrative for a captain on semi-private business. Geoarchaeological research combined with survey has indicated Ephesus possessed a thriving Byzantine harbor in the area of Çanakgöl.<sup>281</sup> The reconstruction of the Ephesian Agora after the time of Theodosius, using columns from the Temple of Domitian, further indicates early Byzantine merchant activity in the city, undoubtedly furthered by Ephesus' position along the coast.<sup>282</sup> Excavations at Emporio, Chios, established in the fifth century C.E., revealed significant parallels with the material recovered at Kızılburun, from sixth-century spatheia to LR 2 amphorae to an LR 13 amphora, a type similar to the LR 1 amphorae presented here, though slightly later in date.<sup>283</sup> A number of these, particularly the LR 2 amphorae, may have been produced on Chios, linking the region to the Kızılburun intrusive assemblage. The time period of this activity indicates consistent movement of goods through the passage around Kızılburun in the Hellenistic, Roman, and Byzantine periods, though settlement patterns indicate specific ports of call may have changed.

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<sup>280</sup> Reynolds (1995, 129) addresses the evidence for trade provided *in absentia* by finewares.

<sup>281</sup> Stock et al. 2013.

<sup>282</sup> Foss 1979, 63.

<sup>283</sup> Boardman 1989, 106-15.

The use of this passage around Kızılburun likely has to do with prevailing winds in the Mediterranean and the exigencies of sail power. Maritime travel must contend with strong natural forces. Conditions in the eastern Mediterranean strongly favor travel from north to south, and west to east.<sup>284</sup> However, movement in the opposite direction is possible, and was typically achieved via cabotage, the very mechanism that may have allowed goods from a number of regions to commingle.<sup>285</sup> This strategy involves remaining close to the coast, avoiding open seas, and utilizing the current running in a counter-clockwise direction, which the *navicularius* of the ship that came to grief at Kızılburun may have been doing at the time of wrecking. Routes attested to by ancient authors connect the Levant to Cyprus and establish short routes between Cyprus and Asia Minor. Longer voyages between Egypt and Crete, Asia Minor, and Cyprus were utilized as well.<sup>286</sup> As an example from ancient literature, Arnaud describes the final voyage taken by the apostle Paul, as related in the Acts of the Apostles chapter 27. In this voyage, Paul travels along the Levantine coast from Caesarea to Myra on the Mediterranean coast of Asia Minor, then to Rhodes; another voyage uses a route from Seleucia to Cyprus, then to Attalia (now Antalya).<sup>287</sup> A similar route may have been taken by the hypothetical *navicularius* in question, ostensibly on semi-private business. Given the financial benefits of cabotage over long-distance direct shipping, it is likely that a number of *navicularii* and privately engaged merchants took such a route, from the major producer regions to the south and east toward consumers to the north, in the Aegean and

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<sup>284</sup> Arnaud 2005, 207-11.

<sup>285</sup> Arnaud 2005, 221-22; Rougé 1966, 85-93.

<sup>286</sup> Arnaud (2005, 212) visually summarizes these routes, with bibliography, as does Rougé (1966, 88-89).

<sup>287</sup> Arnaud 2005, 222.

beyond.<sup>288</sup> Though staying near the coast was more dangerous, and still is, the profit incentives combined with the ability to sail against the prevailing winds appear to have been sufficient for many *navicularii*.

Beyond the wreck site at Kızılburun, if the *navicularius* at the helm of the sixth-century ship had made it past the treacherous cape, a number of routes would have been available through the Aegean. A direct route northward to the west of Chios and Lesbos is possible, though remaining near the coast may have been easier.<sup>289</sup> After navigating the Aegean, passage through the Dardanelles, traversing the Sea of Marmara, then passing through the Bosphorus toward the Black Sea to fulfill an *annona militaris* shipment would have necessitated similar current management strategies, but was certainly well within the realm of possibility.

The possibility of the intrusive amphorae reflecting a southbound route cannot be ruled out, and is discussed further in the following pages. If this is the case, and the ship was headed to North Africa or another destination south of Asia Minor, the hypothetical *navicularius* would have made use of the prevailing winds which run in a roughly clockwise direction around the Mediterranean.

### ***Conclusions: Contexts, Disturbed and Restored***

Ceramics recovered from the sea provide an invaluable perspective on trade by providing material evidence for the movement of goods in transit, rather than after

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<sup>288</sup> McCormick 2001, 103; Whittaker 1983, 165-66.

<sup>289</sup> Arnaud 2005, 223-7.

import, reuse, and deposition. The material evidence of the intrusive ceramics recovered at Kızılburun—combined with knowledge of trading patterns, economic changes, and historical context—allows the ceramics to be contextualized and added to the growing corpus of material evidence for trade and economic patterns in the Roman and Byzantine empires.

The ceramics in the Kızılburun intrusive assemblage comprise both subsistence and luxury goods. Luxury goods are represented by the Knidian reliefware neck-amphoriskos, with subsistence goods being represented first and foremost by transport amphorae, which were used to carry agricultural produce. The coarse cooking pottery and the *dolium* are also included in this category. With a few important exceptions, the pieces within the assemblage date approximately to the sixth century. These ceramics represent three of the largest producer regions in the Byzantine Empire—North Africa, the Aegean, and the Levant.

The second or third century, characterized by the security and placidity of the Roman Mediterranean, is represented by the Knidian neck-amphoriskos **FW 1**. A luxury item, it may have been part of a cargo bound north from Knidos when the Kızılburun route, the difficulty of which is evidenced by the other wrecks in the vicinity, took its toll on the ship, and the cargo was either jettisoned or lost with the ship that subsequently broke apart.

The sixth century is the most well-represented period, with most transport amphorae and a number of coarse- and finewares estimated to date within this century. A number of mechanisms may have prompted the movement of goods along the Turkish

Aegean coast, and Byzantine economic unity—evident in the wide distribution of homogenous ceramic types from this period—hinders any attempt to enumerate specific ports of call and potential destinations. Nearby ports in both a northerly and southerly direction, e.g., Ephesus, Knidos, Chios, Attalia, and Kos, were likely stopover points, whether or not they were the final intended destination for this hypothetical ship.

The most well-supported possibility, and the one allowing for the most grounded speculation, relates to the perennially unstable and militarized Balkans. The *annona militaris* route into the region led from the eastern Mediterranean to the Aegean into the Black Sea, then to the Danube. Kızılburun itself is north of a number of all amphora production sites attested in this assemblage—Knidos for LR 2, Cyprus for LR 1, the Levant for LR 4 and 5, Asia Minor for LR 3, and North Africa for Keay 8B and spatheia. Further north of the wreck site, the Balkan fortifications and settlements were perpetually in need, and the Aegean and eastern Mediterranean were enlisted by the Byzantine state to fill that need. Karagiorgou, in her argument for the LR 2 amphora as a container specifically for the *annona*, establishes a strong link between the amphora type, Aegean oil production, and the need for oil on the Danubian front.<sup>290</sup> The large numbers of LR 2 amphorae found in the Black Sea region reflect this link. Justinian's creation of the *Quaestura Exercitus* in 536 provided a mechanism by which the supply could be more easily and consistently shipped to the demand.

The high proportion of comparanda from Balkan sites within the catalog in Chapter II is telling. It is the only region whose ceramic production is not attested in the

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<sup>290</sup> Karagiorgou 2001; Demesticha 2005, 176.

intrusive assemblage at Kızılburun, and the connection between the *Quaestura Exercitus* administrative region and Late Roman amphora production sites leaves the Balkans as a strong possibility as a destination.<sup>291</sup> Many of the intrusive ceramic types, such as LR 1 and 2 amphorae, are well-represented in the Balkans. Spatheia are common in the Balkans and are the only early Byzantine amphorae at a number of Slovenian sites.<sup>292</sup> The outlier in terms of date, find site, and type distribution is the fifth-century LR 4, which is unattested in inland Balkan sites, but found along the coast.<sup>293</sup> Even for this outlier, the possibility of a route to the Black Sea cannot be ruled out.

It is possible that many, if not all, of the ceramics discussed herein were cargo moving northward toward Constantinople and the Black Sea after stopping at Cyprus. Excavations and surveys on Cyprus have revealed a large number of coastal settlements in the early Byzantine period (e.g., Avdimou Bay, Paphos, and Mazotos) many of which feature evidence for harbors.<sup>294</sup> Coastal settlement patterns in early Byzantine Cyprus were substantial enough that small settlements were less than a day's journey apart.<sup>295</sup> Furthermore, Cyprus was a common stopover point, the basis of a significant amount of local and regional trade, and the high frequency with which Cypriot LR 1 amphorae are found is telling.<sup>296</sup>

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<sup>291</sup> The possibility of a North African destination is addressed at *infra* p. 84.

<sup>292</sup> Curta 2001, 187.

<sup>293</sup> Curta 2001, 187.

<sup>294</sup> Leidwanger 2015, 158-59.

<sup>295</sup> Leidwanger 2015, 159.

<sup>296</sup> Leidwanger 2015, 162-3. Arnaud (2005, 212) provides a map illustrating the importance of Cyprus as a waypoint.



The navigational and financial strategies addressed previously would have necessitated additional stops between the Near East, Cyprus, and Constantinople. Knidos is a likely candidate, evidenced by the Knidian reliefware amphoriskos found at Kızılburun and the possible Knidian origins of the LR 2 amphorae found at the site. Other possible LR 2 production sites provide additional possibilities for ports of call, with Chios immediately to the west of Kızılburun and the Argolid to the north. These areas would have been important to a route that utilized passage by Kızılburun, whether northbound with the counter-clockwise current or southbound with the prevailing winds. Chios, like many other regions, experienced a degree of settlement contraction in the seventh century, as evidenced by the abandonment of sites like Pindakas. Despite contraction, the sixth century saw a good deal of activity on the southern Aegean coast, as evidenced by finds from Emporio.<sup>297</sup> Surveys and excavations have indicated the coastal regions of Asia Minor were prosperous in the fourth, fifth, and sixth centuries.<sup>298</sup> Ephesus, which was described by Stephanus of Byzantium in his *Ethnica* as “remarkable among Ionian cities... a harbor in a gulf,” and the nearby Smyrna (modern-day İzmir, Turkey) and Phocaea would have been financially worthwhile and relatively safe ports of call further north. Ephesus in particular was a thriving commercial city.<sup>299</sup> The region of Lycia, namely its major coastal cities of Myra, Phaselis, and Xanthos, provided another set of viable ports for a sixth-century *navicularius*.<sup>300</sup>

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<sup>297</sup> Boardman 1958-59, 303; Boardman 1989.

<sup>298</sup> See Chapter III.1.

<sup>299</sup> Foss 1979, 8-9.

<sup>300</sup> Harrison 2001, 2-4. Also see *supra* pp. 68, 75.

If the sixth-century goods are one cargo, the presence of goods from a wide geographic range bears addressing. Much of early Byzantine trade was regional rather than long-distance; sailing from port to port over short distances was not an infrequent occurrence, and its relative rise in popularity after the fourth century has been connected to the disintegration of long-distance shipping across a unified Mediterranean.<sup>301</sup> Nor was it exceptional to see private merchants conducting personal and state business simultaneously, which may have led to a strategy of cabotage within long-distance direct trade subsidized by the state. It is likely that the sixth-century *navicularius* in question made a number of stops prior to the wrecking event at Kızılburun. Cabotage was an important navigational strategy for movement northward in the Mediterranean, and would have led to the mixed cargo implied by the so-called Kızılburun church wreck. *Annona* shipments tend to fit this profile of mixed cargoes.<sup>302</sup> The variation within types (e.g., the differences within LR 1 amphorae) at first appear to relate to a tax in kind for the *annona*, though this assumption is undermined by the predominance of wine in these amphorae. Wine was typically not collected as a tax in kind; as such, the appearance of these amphorae indicates additional private merchant activity.<sup>303</sup>

If a number of the intrusive ceramics are related to the Kızılburun church wreck—one of two strong possibilities at this point in time—it would not be the first time that the coincidence of church and state activities has been noted.<sup>304</sup> Much of

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<sup>301</sup> McCormick 2001, 103, citing Arthur 1986, 657-9.

<sup>302</sup> Reynolds 1995, 126-7; Whittaker 1983, 165-6.

<sup>303</sup> Royal and Tusa (2012, 49-52) address a similar situation from the fourth century C.E.

<sup>304</sup> van Doorninck (2015, 205) addresses the church affiliation of the seventh-century wreck at Yassıada, Turkey.

Justinian's state building program manifested itself in church construction.<sup>305</sup> It does, however, introduce yet another cargo element into the hypothetical itinerary.

Justinian's craze for building, as recorded in Procopius' *Buildings*, led to a huge number of marble shipments for churches from the imperial quarries on Proconnesus Island, though local stone and workmen were used as well.<sup>306</sup> Roman quarries that specifically exported marble have been noted along the southwestern Turkish coast, at sites such as Hasançavuslar, Belevi, and Göktepe, in addition to sites in Italy, northern Africa, and Greece.<sup>307</sup> The ship wrecked at Marzamemi appears to have begun its journey at Marmara (Proconnesus) Island, traveling through the Dardanelles, southward through the Aegean, around the Peloponnesus, and west toward Sicily or North Africa.<sup>308</sup> If the Kızılburun church wreck was northbound, why would it be moving a prefabricated church toward another source of marble? If south, why would it already contain products for export originating from the south? In the former case, it is possible the ship was engaged in cabotage over short distances, and was tasked with moving marble and agricultural produce along the Turkish Aegean coast, with the destination of its marble south of the Dardanelles. The state cargo may have been intended to continue onward into the Black Sea. In the latter, mass amphora reuse could explain southbound amphorae produced to the south of the wreck site. Theories regarding reuse are stymied somewhat by the lack of reuse evidence on the amphorae themselves. In the absence of

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<sup>305</sup> Beckwith 1979, 104; Serov and Kreydun 2016.

<sup>306</sup> Beckwith 1979, 104.

<sup>307</sup> Russell 2013.

<sup>308</sup> Kapitän 1969, 123; Leidwanger and Bruno 2013, 196.

excavation, it is impossible to provenience the stone from this wreck, and further speculation as to routes and quarries involved would be premature.

The Marzamemi church wreck provides an interesting and informative comparandum to the Kızılburun intrusive assemblage and the nearby sixth-century wrecks. Recent excavations have shown that LR 1 and 2 jars, and either an LR 4 or 5, were elements of the cargo.<sup>309</sup> Given its heading at the time of sinking, likely to the southwest, it provides a counterpoint to the possible northbound scenario envisioned for the sixth-century wrecks at Kızılburun. The intrusive material catalogued here may have been bound for North Africa, paralleled by the Marzamemi church wreck and its speculated destination.<sup>310</sup> The Kızılburun column wreck itself provides an earlier point of comparison as well, as it carried a cargo consisting in part of Proconnesian marble, north of the wrecking site, and amphorae from Knidos, Kos, and Egypt, all south of the wrecking site.<sup>311</sup> The trade mechanisms that may have produced this assemblage—possibly reuse, as has been suggested—are complex and deserving of separate treatment elsewhere.<sup>312</sup> Nevertheless, the column wreck shows that mixed assemblages from a number of geographically widespread regions, including products with southern origins on a southbound ship, are in fact possible in one cargo. Amphorae move far more quickly and easily than marble, and an amphora's presence on a ship does not necessarily indicate that the ship in question stopped near the amphora production site.

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<sup>309</sup> Leidwanger and Tusa 2015, 111.

<sup>310</sup> Leidwanger and Bruno 2013, 196.

<sup>311</sup> Carlson 2014, 51, 56-58.

<sup>312</sup> Carlson (2014, 60-61) addresses reuse and the wide availability of jars, particularly of the Lamboglia 2 type, as a possible mechanism for a seemingly mixed cargo.

Thus, the intrusive assemblage from Kızılburun may represent reused jars on a ship (or multiple ships) engaged in long-distance directed trade. Both cabotage and long-distance trade are viable options in light of the evidence at hand.

Notwithstanding the influence of the *Quaestura Exercitus* on the movement of goods, the ceramic types represented in this intrusive assemblage are widely distributed, and thus well-represented in regions other than the Balkans—namely North Africa, as the frequent comparisons to finds at Carthage and Benghazi indicate. It may be that the sixth-century ceramics and the marble of the Kızılburun church wreck were southbound for North Africa. This possibility still implies a combination of state and private merchant activity, with marble for a state-sponsored building program à la Justinian, and amphorae for private sale at ports of call.

If the as-yet unexcavated marble cargo of this wreck contains roughly finished features for a sixth-century church, akin to the Marzamemi (Sicily) church wreck, the associated amphorae may represent church involvement in *annona* shipments, not a particularly surprising connection.<sup>313</sup> The second early Byzantine wreck, because of its wide scatter of LR 2 amphorae, may provide a direct connection to Danubian supply for the *annona*, just like the sixth-century ceramics described here. It may be the case that some ceramics from Kızılburun originated with this wreck, and others with the church wreck, but in the absence of excavation or further survey, differentiating between the two potential wrecks as reflected in the assemblage will remain impossible. Even after

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<sup>313</sup> See supra p. 69.

excavation, the wide scatter of artifacts may frustrate attempts to differentiate between the two.

Most ceramics dating from the fifth to the early seventh century C.E. are connected to the flow of goods from the expanding and incredibly productive eastern Mediterranean. For example, the LR 4 amphora **AM 1** with a possible fifth-century date, though an outlier, can be connected to the newfound primacy of eastern Mediterranean goods after the fall of the Western Roman Empire in 476 and the decline of Africa as a Roman supplier. In this way, the reason for its existence—and its place in a late Roman trading network—is the same as the sixth-century ceramics. The kitchen wares such as **CW 3**, a two-handled cooking pot, may well have been galley ware on a ship engaged in trade within this network. In addition to long-range trade networks connecting the eastern Mediterranean and North Africa to the Aegean and the Black Sea, the wrecks at Kızılburun may relate the intrusive ceramic assemblage to the nearby prosperous provinces of Lycia, Pamphilia, and Asia in Byzantine Asia Minor.

The sixth-century vessel(s) in question carrying the ceramics recovered during excavation of the Kızılburun column wreck may have been traveling north with a cargo related to *Quaestura Exercitus* shipments intended for the inland regions of the Danube, an area neglected by private merchants and largely served through the state mechanism of the *annona*. The majority of the cargo, or cargoes, represents the movement of eastern Mediterranean agricultural produce, which saw a significant increase from the fourth to sixth centuries. The Keay 8B amphora **AM 2** and the spatheion **AM 12** represent resumed North African taxation and trade after the Byzantine reconquest. The southward

movement of similar goods in this time period, perhaps toward North Africa, is an second possibility that cannot be ruled out, despite the southern origins of the intrusive ceramics. As a third possibility, both routes may be reflected simultaneously in the ceramic assemblage.

A contextualization of intrusive artifacts can only produce results of limited specificity. Amphora reuse, wide distribution patterns, and the scale of the early Byzantine economy are complicating factors in this study. While in these circumstances it is impossible to write without speculation, context has been established for the intrusive ceramic artifacts, from historical context, to trade mechanisms evidenced by the ceramics, to a potential site formation process and two potential shipwrecks from which the majority of finds may have originated. These ceramics, though out of context, are evidence of early Byzantine trade along the Turkish Aegean coast, the movement of goods across a vast empire stretched thin.

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## APPENDIX

### FIGURES

Except where noted, all pictures and drawings of artifacts are by the author.



Figure 1. Map of the Aegean coastline of Asia Minor. Reprinted from Carlson and Aylward 2010, 146 fig. 1.

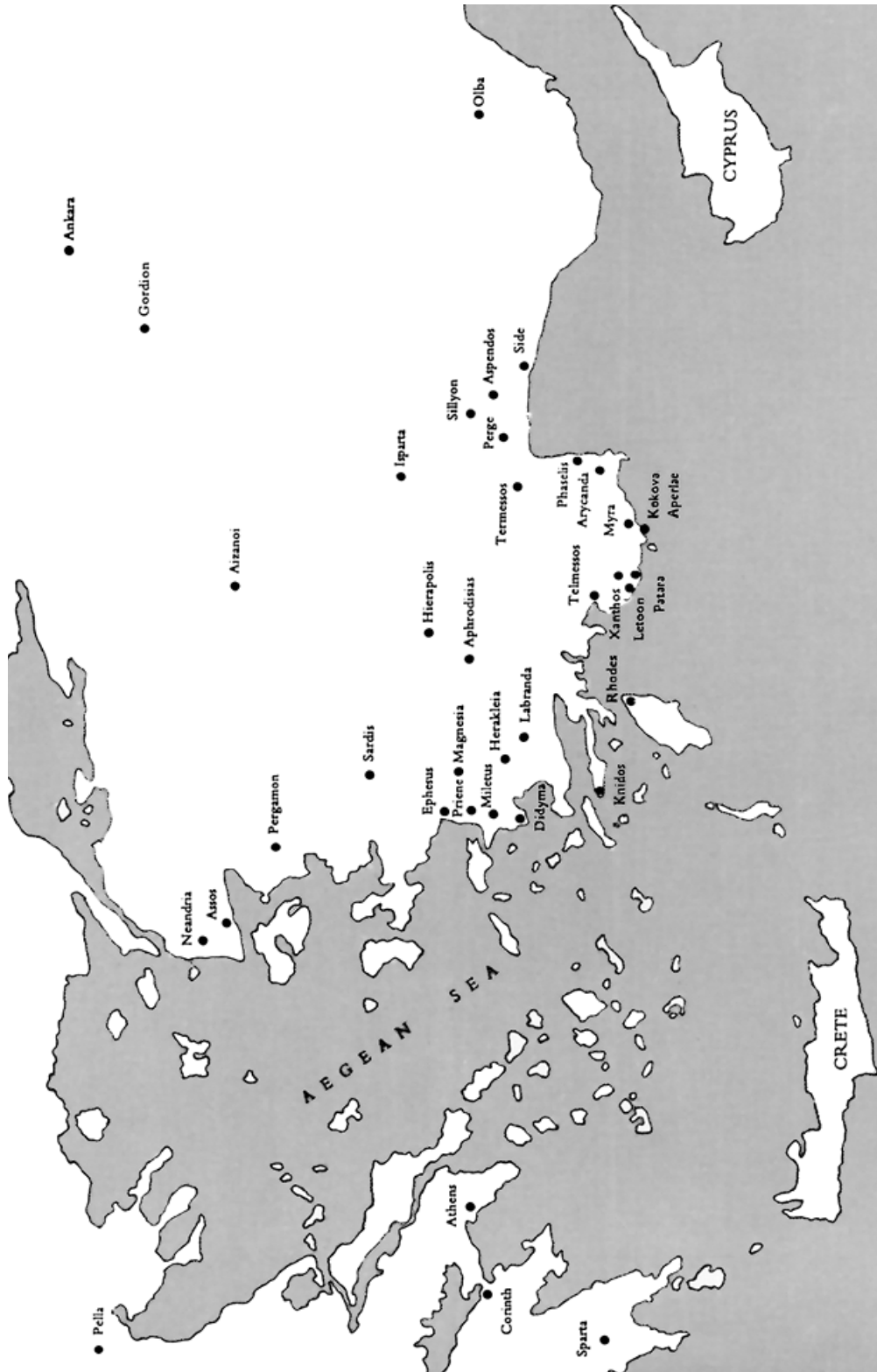


Figure 2. Map of Asia Minor and the Aegean.

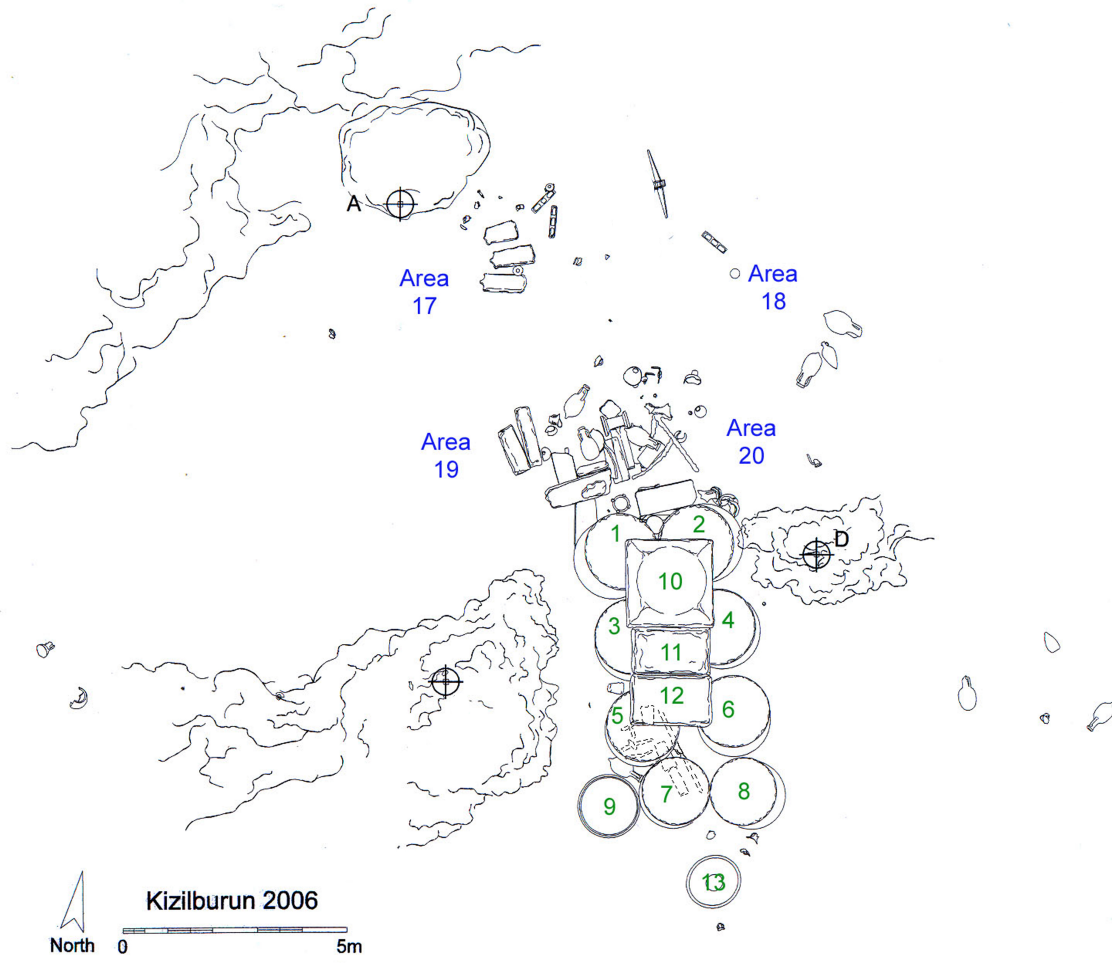


Figure 3. Kızılburun column wreck site map. ©INA image by Sheila Matthews.

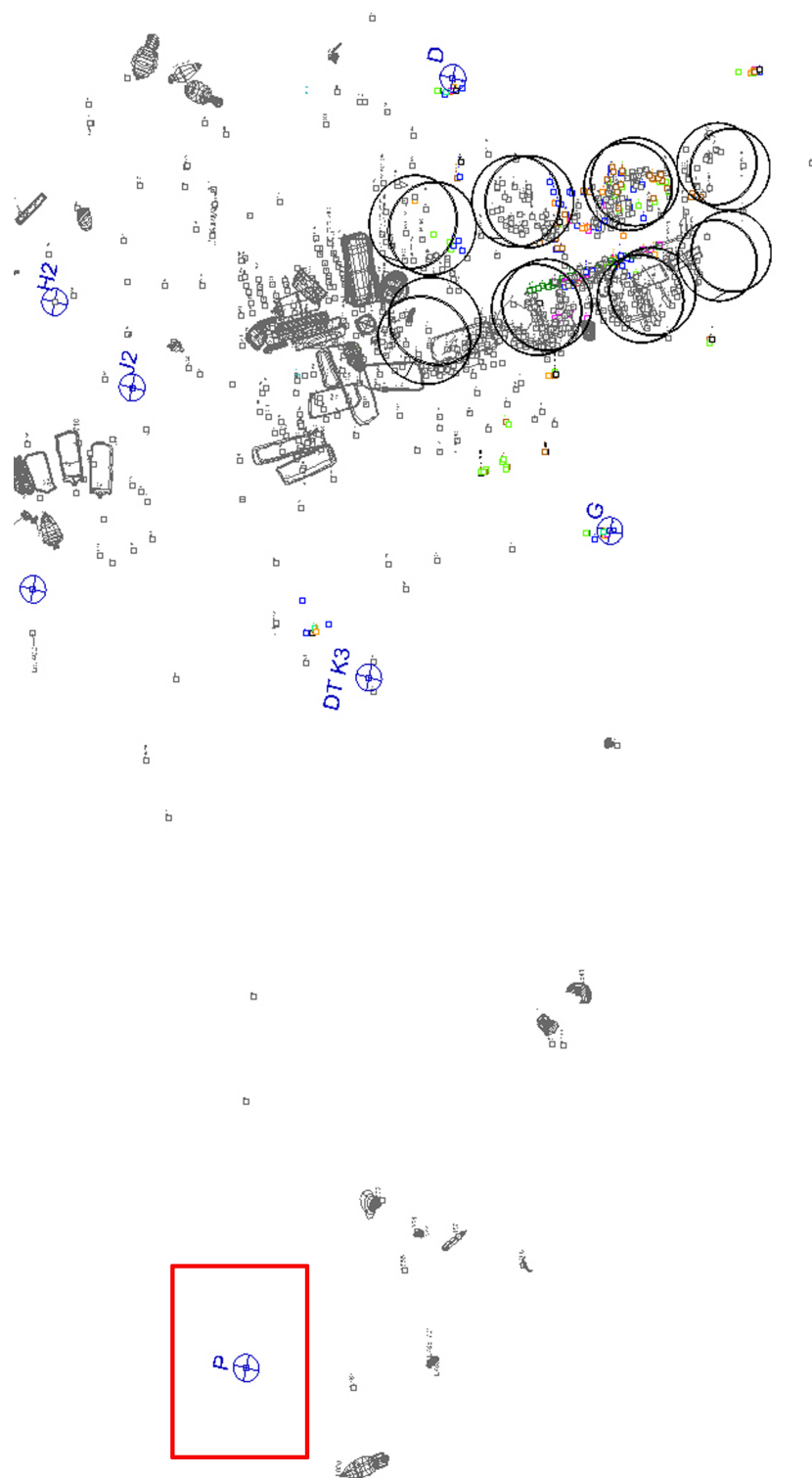


Figure 4. Kızılburun column wreck site map, with Datum P bordered in red.  
©INA image by Sheila Matthews.

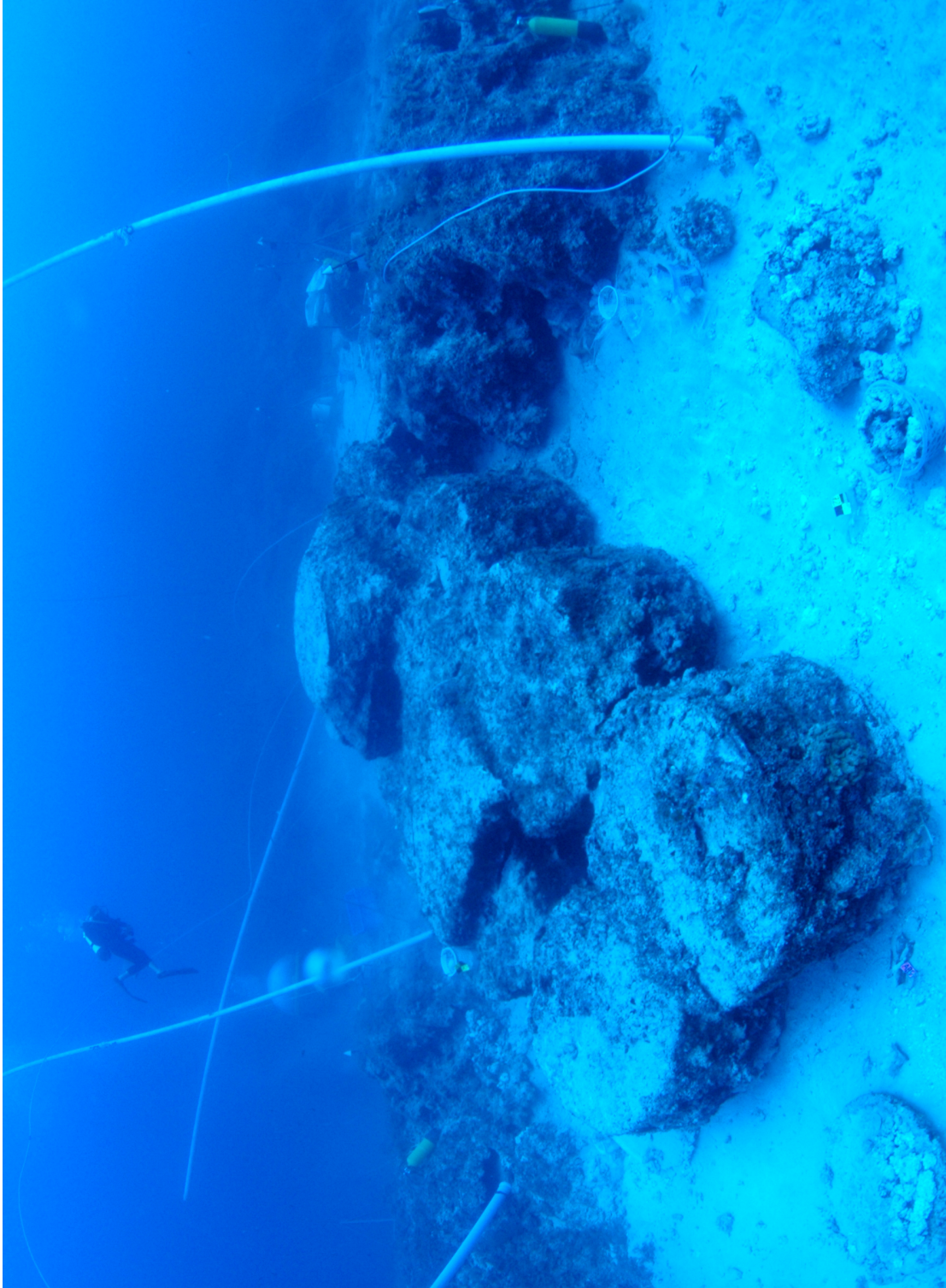


Figure 5. Kızılburun column wreck site in 2006, facing north-northwest.  
©INA photo by Don Frey.



1. AM 1



2. AM 2

Figure 6. Amphorae AM 1-2. 1:2 scale.



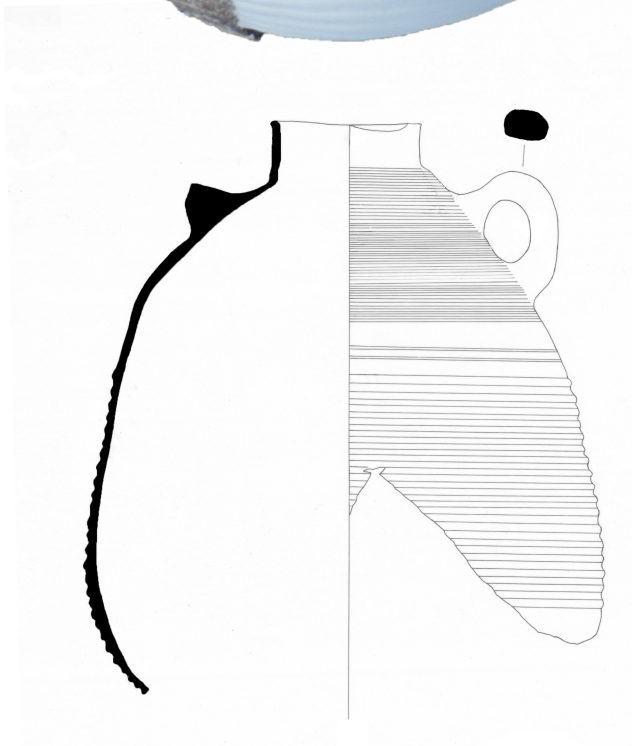
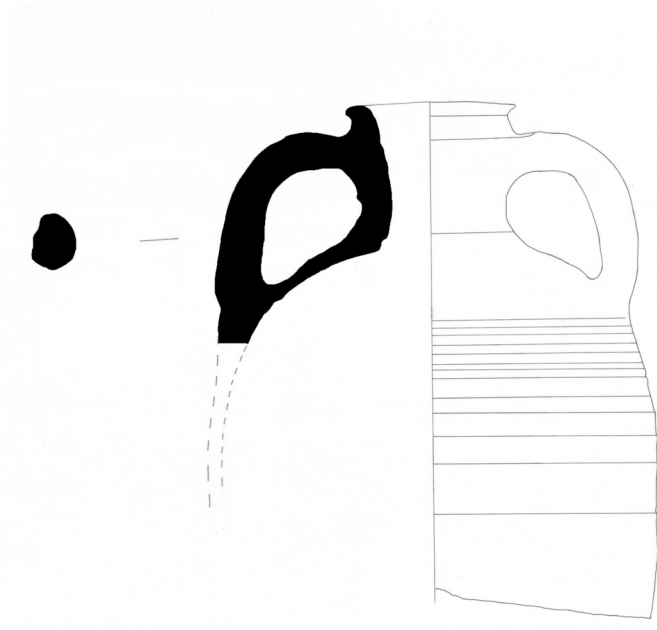


Figure 7. Amphora AM 3. 1:5 scale.



Figure 8. Amphora AM 4. 1:5 scale.



-W-  
18

Figure 9. Amphora AM 5. 1:5 scale.



Figure 10. Amphora AM 6. 1:5 scale.



Figure 11. Amphora AM 7. 1:5 scale.



Figure 12. Amphora AM 8. 1:5 scale.



1. AM 9

2. AM 10

Figure 13. Amphorae AM 9-10. 1:5 scale.

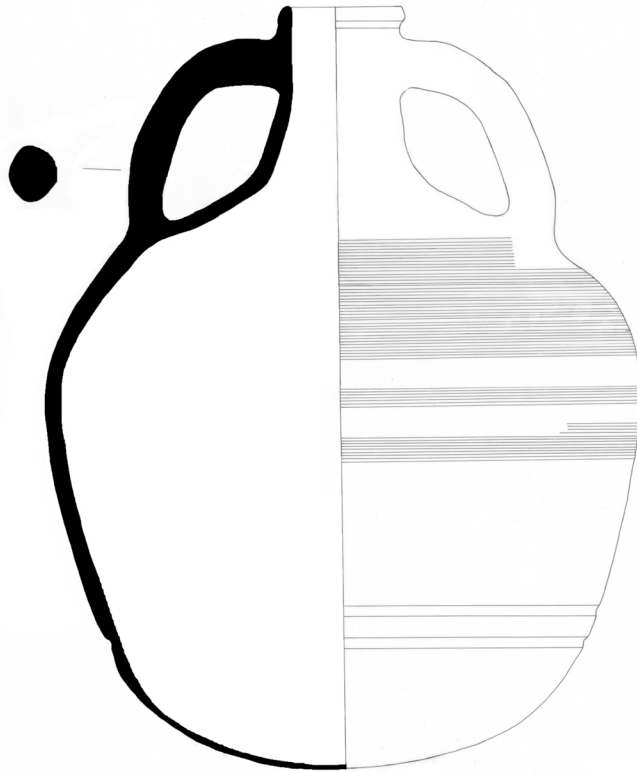


Figure 14. Amphora AM 11. 1:5 scale.





Figure 15. Amphora AM 12. 1:5 scale.



1. AM 13



2. AM 14

Figure 16. Amphorae AM 13-14. 1:2 scale.

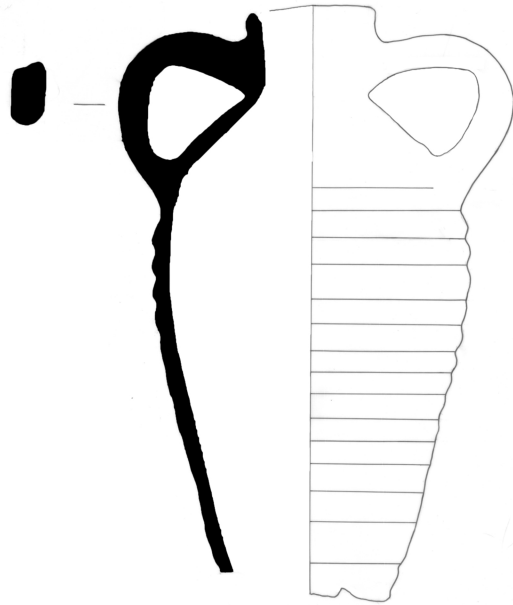


Figure 17. Amphoriskos AM 15. 1:3 scale.



Figure 18. Two-handled amphoriskos. Harvard Art Museums/Arthur M. Sackler Museum, Gift of Louise. M. and George E. Bates. Object number 1992.256.184. Image © President and Fellows of Harvard College, reproduced for educational purposes.



1. CW 1



2. CW 2

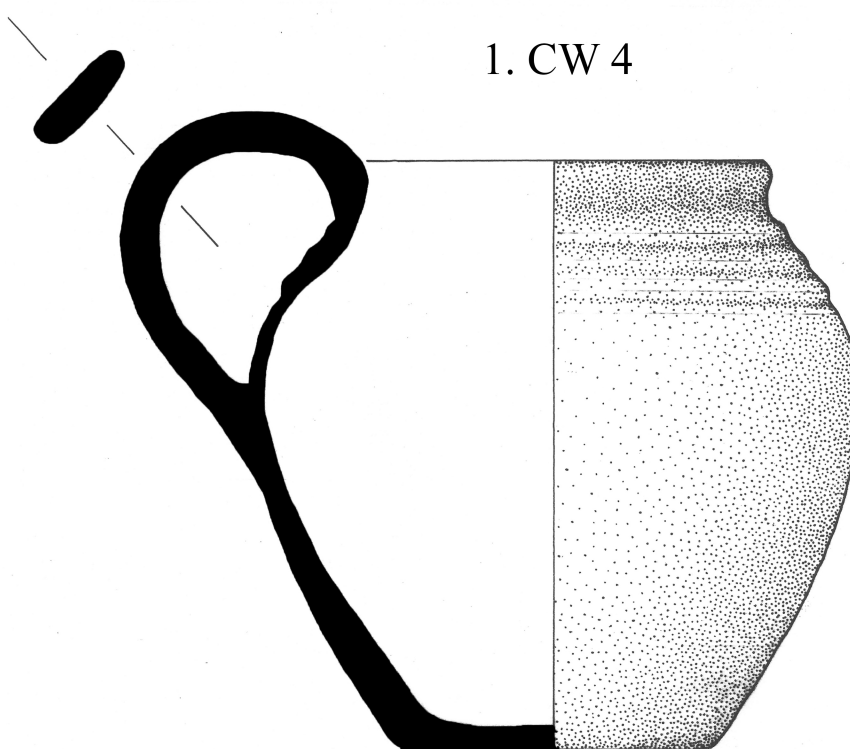


3. CW 3

Figure 19. Coarseware CW 1-3. 1:4 scale.



1. CW 4



2. CW 5

Figure 20. Coarseware CW 4-5. Scale 1:2. ©INA drawings by Özgün Alpdoğan, ink by Secil Kayacik.



Figure 21. Fineware FW 1. Scale 1:2. ©INA drawings by Özgün Alpdoğan, ink by Secil Kayacik.



1. FW 2



2. FW 3



3. FW 4

Figure 22. Fineware FW 2-4. 1:4 scale.





Figure 23. Knidian reliefware neck-amphoriskos **FW 1** in 2006.  
©INA photo by Don Frey.

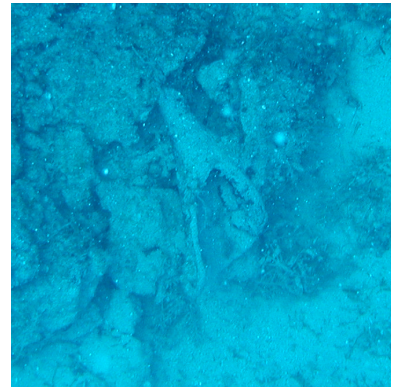
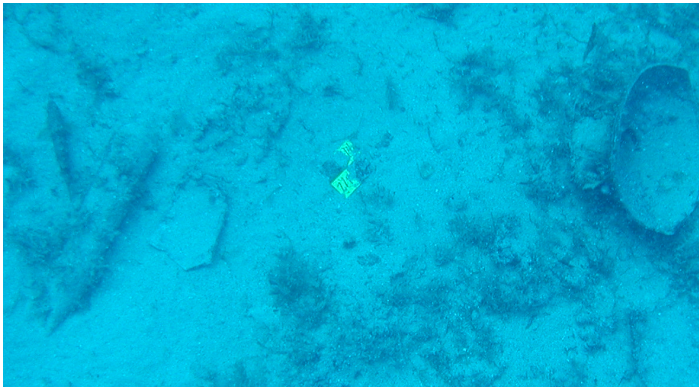


Figure 24. Spatheion **AM 12**, LR 3 amphora **AM 10**, and other artifacts from Area P in situ, with more detailed photos below. Spatheion is at the top left, and the cone shape of the LR 3 base is in the middle, to the right. Photo taken August 2, 2006. ©INA photos by Deborah N. Carlson.

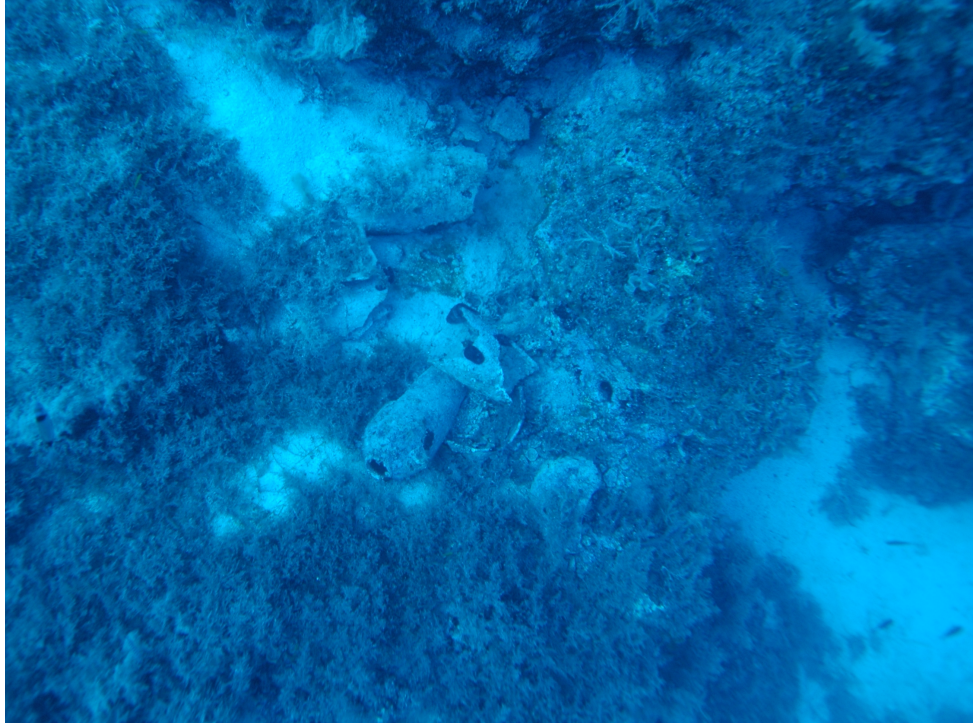


Figure 25. LR 4 amphorae in situ on the southern slope of Kızılburun, the find spot of **AM 1**, in 2011. ©INA photo by Deborah N. Carlson.

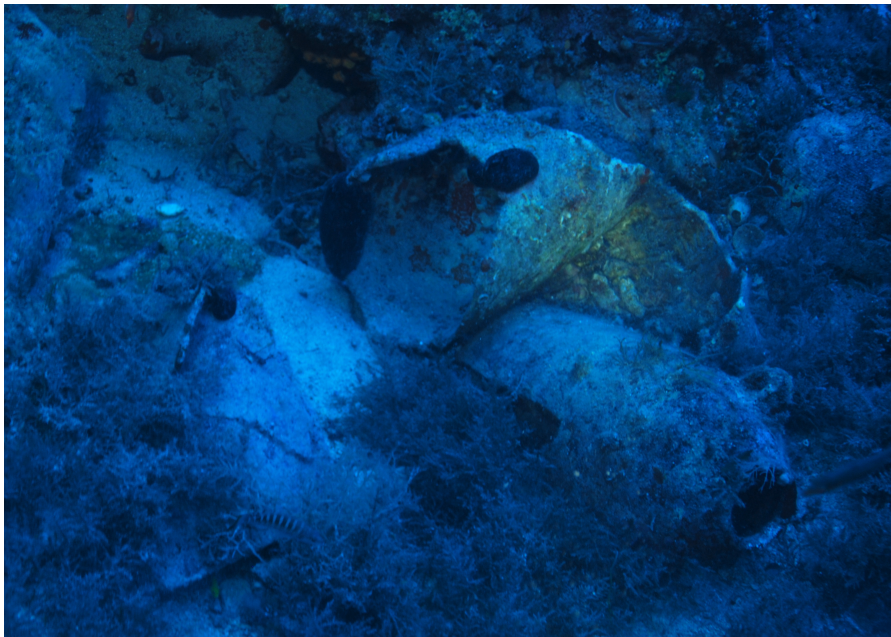


Figure 26. LR 4 amphorae in situ, 2011. ©INA photo by Harun Özdaş.