

Harbours of Byzantium

The Archaeology of Coastal Infrastructures

Edited by

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Cover: Southwestern harbour of Byzantine Kassandreia in Chalkidiki, Greece (A. Ginalis)

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Editor's Preface

Christianity, Roman tradition and ideology, as well as Greek cultural heritage, have been labelled as the pillars of the Byzantine Empire. In fact, the real crux and enabler of power in an empire that combined the Occident with the Orient was its control over the seas. As such, seafaring constituted the formula of success for dominance of the Mediterranean, playing a key role in communication, military activities, and, especially, economic exchange. But how does one get from land to water? The linking gates are coastal installations, i.e. ports, harbours, and other infrastructures. These function as economic hubs, cultural and social meeting points, as well as gateways for communication and connection.

Even though the study of harbour sites and port networks of the Byzantine Empire constitutes a relatively new research field, it has nevertheless received significant attention over the last few years, as we can see from the instigation of various projects and the staging of conferences. However, attention is rarely paid to analyses of physical harbour remains and their impact on the general development of Late Antique and Medieval architecture, economy, or trade networks.

As such, in 2018, an international conference on the *Harbours of Byzantium* was organised at the Institute for Advanced Study of the Hanse-Wissenschaftskolleg in Delmenhorst, Germany. This event was intended to focus particularly on the archaeology of Byzantine coastal sites, including both harbour infrastructures *per se*, as well as associated facilities and affected landscapes. Leading scholars in the field from twelve different countries presented new material and data with which to understand the development of harbour architecture and coastal activities from Late Antiquity to the Middle Ages. The papers set out to cover sites from all provinces of the Byzantine Empire, stretching from Italy in the West to the Levantine coast in the East, and the Black Sea in the North to Egypt in the South. This allowed a general overview for comparative analyses and discussions on various aspects of Byzantine harbour networks and maritime connectivity.

Accordingly, the current volume provides a series of scientific papers deriving from presentations given at the conference. Beyond general approaches to the study of Byzantine harbour archaeology, the contributions offer a representative picture of harbour activities across the historical and geographical boundaries of the Byzantine Empire. Although it is impossible to reflect a comprehensive picture of the entire sweep of coastal landscapes, this work hopefully provides a basis for future comparative research in Byzantine harbour studies – on a local, regional, and supra-regional level.

The conference programme is included in the Appendices. The differences between the conference programme and the final version of this volume are explained by the fact that some scholars who submitted abstracts were ultimately unable to attend, and some who did attend and gave their papers did not submit them for publication. Fortunately, other colleagues agreed to contribute to this volume and I am most grateful to them for so doing.

I would like to express my deepest gratitude to all participants in the Delmenhorst Conference for presenting papers that provided unique insights, not just into ongoing excavations and investigations related to harbour installations, but also into hitherto understudied aspects of coastal infrastructures. It has been a considerable challenge to assemble this volume, and I am therefore particularly indebted to all authors who contributed and enriched this publication. Bearing in mind the time-consuming work of editing and unifying the papers, etc., as well as the difficulties brought on by the COVID pandemic, I have done my best to ensure as prompt a publication as possible.

Thanks must go here to Dr Susanne Fuchs and her team from the Institute for Advanced Study of the Hanse-Wissenschaftskolleg for their support in organising the conference in Delmenhorst. I am also sincerely grateful to David Davison and Mike Schurer from Archaeopress for agreeing to publish this volume and for guiding this work through to publication, their technical help, and the quick production of the printed version.

Alkiviadis Ginalis

9. A Late Antique and Byzantine Harbour in Constantinople: The Theodosian Harbour at Yenikapı. History, Archaeology, and Architecture

Ayşe Ercan-Kydonakis

Harbour archaeology of Byzantine Constantinople started for the first time in 2004 with the Theodosian harbour excavations undertaken by the Istanbul Archaeological Museum in the Yenikapı district, as well as the Marmaray-Metro construction project (Fig. 9.1). Taking more than a decade to be accomplished, the archaeological excavations covered 58,000 m², which is a limited section of the harbour area (Fig. 9.2). Once concluded, this challenging and controversial urban archaeology project not only brought to light a great deal of material evidence about the architecture and archaeology of the largest harbour of Byzantine Constantinople, but also of the history and topography of the Yenikapı district from its prehistoric to Ottoman periods. Above all, the discovery of the largest collection of medieval shipwrecks (37 in number, dating from the 5th to the 11th centuries AD) triggered a plethora of scholarly debates on shipbuilding technology, bringing new dynamics to the maritime archaeology of the Medieval Mediterranean.¹

Despite the tremendous scholarly interest in the archaeological finds from Yenikapı, only a limited number of these studies addressed questions relating to the Theodosian harbour's architecture and its broader significance for a better understanding of Byzantine harbour engineering (Ginalis and Ercan-Kydonakis 2021; Külzer 2016: 35-51; Ginalis 2014). Furthermore, the unique physical remains of the Theodosian harbour were soon forgotten once the busiest transportation hub in Istanbul opened at the site of the silted harbour. Today, among the thousands of commuters passing through Yenikapı metro station, only a very few are aware of the neighbourhoods' history and its significance for the Mediterranean world.

Addressing this, and based on a critical synthesis of historical and archaeological evidence, this contribution revisits Yenikapı's archaeological and architectural remains, with the aim of triggering further scholarly debates on the settlement's history, as well as the architecture of this Byzantine harbour.²

Moreover, through the lens of the Theodosian harbour, which mirrors shifting dynamics in the economic, social, and urban life of the Byzantine capital, this study aims to contribute to the understanding of certain Byzantine engineering abilities, which arguably exceeded the skills required for the construction of the great churches.

Anchoring at Byzantine Constantinople

Constantinople was, in all senses, the largest consumer city in the Medieval Mediterranean world. Sustained by a solid web of harbour infrastructures, it was carefully organised based on the needs of seafarers. As confirmed by recent archaeological surveys, the coast of the Sea of Marmara was guarded by two main custom points on the Bosphorus, and the Dardanelles abounded with harbours and mooring facilities of various scale and function.³ This maritime network facilitated safer seafaring by ensuring all infrastructural needs of vessels sailing to and from Constantinople.

The Byzantine capital possessed four main harbours, and countless so-called 'scalae', as anchorage facilities. The estuary of two ancient rivers – the Cydros and Barbyzes – manifests itself as the deep, navigable strait known as the Golden Horn, believed to be one of the first port facilities of Byzantium (Magdalino 1998: 4). Stretching c. 5.5 km in length, this bay was naturally protected from the notorious south wind, which still threatens the maritime traffic of Istanbul. According to the *Periplus of Dionysius of Byzantium*, the harbours of Neorion and Proosphorion were the principal mooring facilities within the Golden Horn during the 2nd century AD, and have remained significant for the economic history of Constantinople ever since.⁴

submitted at Koç University in 2010, as well as a paper co-authored with Alkiviadis Ginalis (see Ginalis and Ercan-Kydonakis 2021).

³ For the most comprehensive publication on Byzantine sites dispersed in eastern Thrace, see Külzer 2008. Additionally, in recent years the eastern suburbs of Constantinople have been surveyed by local archaeologists, e.g. Öniz 2014: 179-184; Aydıngün and Göldoğan 2011: 183-186; Sayar 2002: 51-58. For an historical and archaeological consideration of the harbours of Constantinople and its hinterland, see Daim and Kislinger 2021 (particularly the contribution by Ginalis and Ercan-Kydonakis).

⁴ Güngerich 1958: XLIV; possibly exceeding 20, the various piers and wharves in Constantinople were connected to the gates on the sea

¹ The shipwrecks at Yenikapı refuted previous scholarly consensus by reshaping the understanding of shipbuilding technology. For further details, see Ingram and Jones 2011: 8-17; Pulak *et al.* 2015.

² This chapter derives from the author's unpublished MA dissertation



Figure 9.1: Yenikapi excavation aerial view (IAM Archives).

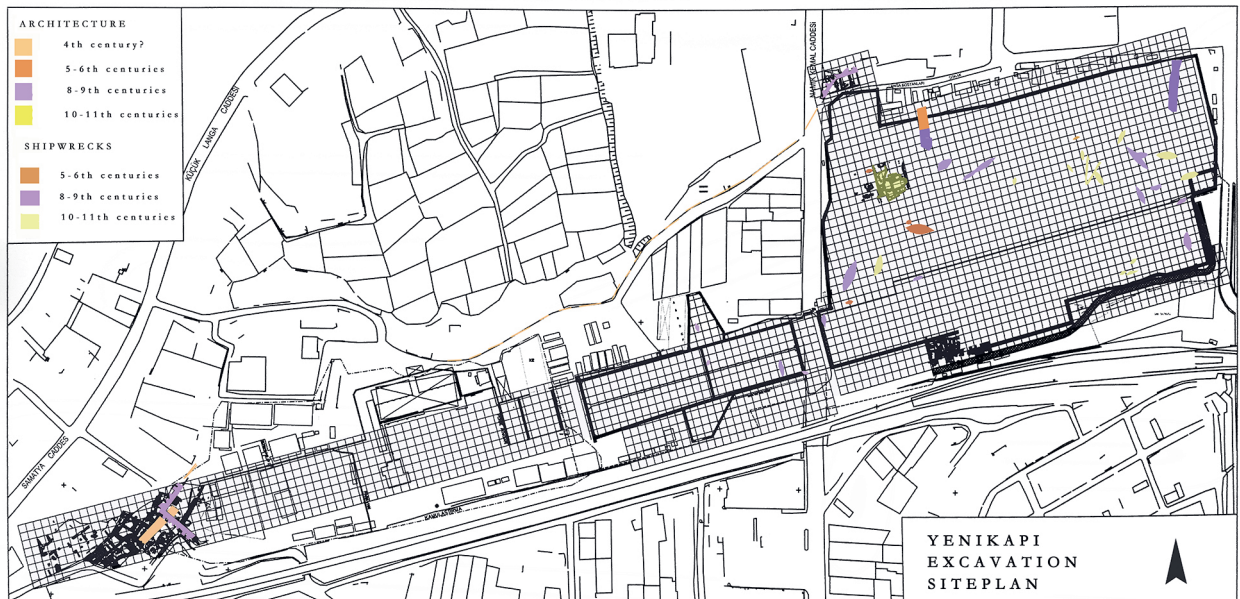


Figure 9.2: Yenikapi excavation: site plan (A. Ercan after Kızıltan *et al.* 2014).

In the 6th century AD, with the imperial decree that channelled the wholesale food market into the vicinity of the Julian Harbour, the capital's financial hub shifted temporarily from the Golden Horn to the shores of the Sea of Marmara.⁵

Soon after the foundation of Constantinople by Constantine I, the city's population grew unexpectedly and vastly from 20,000 to 300,000, triggering new infrastructure requirements (Mango 2004: 20-21; Jacoby 1975a: 81-109). As the city extended eastwards, new *Fora* were constructed; joining the *Mese* and the Golden

walls, serving different building complexes (Van Millingen 2005: 194-247; Magoulias 1975: XXXIV.8; Dirimtekin 1956).

⁵ The decision was taken either under the reign of Justinian or Justin

II. The latter seems more plausible considering his restoration of the harbour (Magdalino 2007a: 10; Cameron and Herrin 1984: 153).

Gate, these were aimed at meeting the capital's growing needs. In accordance with the new urban developments, major improvements to anchorage facilities became essential to cope with increasing mercantile activities. Accordingly, two natural bays on the southern coast of the Sea of Marmara were chosen for the construction of the largest harbours of Constantinople: the Julian and Theodosian, respectively.

Emperor Julian commissioned a harbour after his short stay in Constantinople in AD 361/2, initiating the subsequent urban transformations in its vicinity, turning it into desirable real estate for new large and aristocratic residences, predominantly associated with the female personalities of the Theodosian dynasty (Zosimus, *New History*. II.35; Magdalino 2000: 209–214). In the 5th century AD, the Julian Harbour was still actively being used, now referred to as the 'New Harbour' within the *Notitia Urbis Constantinopolitanae* (Matthews 2012: 81–115). Later, another female member of the imperial household, Sophia, the wife of Justin II, became the second patron of this harbour; it was to take her name, as the Sophia Harbour, and it was extended westwards, into the neighbourhood known as '*ta Eleutheriou*' (Magdalino 2000: 216; Müller-Wiener 1977: 62; Cameron 1967: 12; Janin 1964: 223).⁶

From the Theodosian harbour to the Vlanga Gardens: Yenikapı's history reconsidered

The above-mentioned quarter, *ta Eleutheriou*, developed to meet the shore area where the River Lycus, today's Bayrampaşa Deresi, debouched into the Sea of Marmara at Yenikapı. Stretching c. 1 km in length, the large bay at the mouth of the Lycus has been characterised by its constantly changing shoreline, as is revealed by the geological research at Yenikapı.⁷ As a matter of fact, while the shore has been a place of settlement since Neolithic times, the archaeological evidence implies that it was in continuous and extensive use as a harbour from the Classical to Late Antique periods, when the shore was artificially filled under the reign of Constantine I, who was credited with profound changes in the urban landscape of the new capital of the Late Roman empire (Zosimus, *New History*. II.35; Mango 2004: 18).

Constantine's interest in the Yenikapı shore is supported by the *Patria of Constantinople*. According to

⁶ A number of these aristocratic houses are listed in our primary sources – the most famous residences being those of Pulcheria, Arcadia, Placidia, and Eudocia (*Patria*, II 62, III.37).

⁷ During the geological formation of the straits that connected the Sea of Marmara with the Aegean and the Black Sea, the Neolithic coastal settlement at Yenikapı (6.30 m below today's sea level, and 1/2 m below the Late Antique seabed) was completely covered by seawater. For further information on the stratigraphy of the harbour at Yenikapı, see Çelik 2007: 218–219; Algan *et al.* 2007: 175, Figs 50–53; Kızıltan 2010: 9–11; Yalçın *et al.* 2015: 31–47.

the 10th-century account, the Theodosian Harbour was originally constructed by Constantine the Great as 'the harbour of Eleutherius, when he founded the city' (*Patria* III.91). The same account records that the harbour was honoured by the erection of a marble statue of Eleutherius, one of the Roman patricians, who was enticed, or rather forced to move to Constantinople and was 'placed in charge of the construction work' at the harbour. Moreover, his statue, with a 'kapoulion over his shoulders and a fan [palm?], both of stone', made an explicit visual reference to the harbour's primary function, i.e. the storage and distribution centre for the *Annona militaris*, the wharfage capacity of which was already 80,000 people as early as AD 332 (*Patria* III.63, 91; Magdalino 2000: 212).⁸ Nevertheless, contrary to the historical explanation presented in the Byzantine sources, there is no prosopographic evidence for an imperial official called Eleutherius in Constantinople in the 4th century AD (Martindale, 2006).

As far as the early construction projects on the shore at Yenikapı are concerned, the *Codex Theodosianus*, the legal codes officially compiled under Theodosius II, deserves particular attention. One of the articles issued by Theodosius I in AD 384 urges, without any privileges, that all residents of Constantinople contribute to the 'restoration of the Port' and the Aqueduct of Valens, which was only 1 km from the Theodosian Harbour (*Codex Theodosianus* XV.1.23). In connection with the information we have on the filling of the harbour with the construction debris from the Forum of Theodosius, the renovation by Theodosius I of an existing harbour facility on the shore of *ta Eleutheriou* is even more plausible (*Parastaseis Syntomoi Chronikai*. 7, Preger (ed.): 67). With this consideration, after the harbour's renovation, its name must have been changed from Eleutherius to Theodosius, especially bearing in mind the imperial decree of AD 394 that forbade naming restored monuments after their aristocratic patrons (*Codex Theodosianus* XV.1.3; Downey 1938: 13).

Further topographical evidence leaves no doubt that the neighbourhood surrounding the shore at Yenikapı was subject to major development based on new urban needs. This area of the capital was reshaped by restoring existing structures and adding new architectural landmarks. Soon after its foundation, large fleets transporting grain, loaded in Alexandria, were rerouted from Rome to the new capital Constantinople. According to Teall, an eastern fleet was created in AD 334 to meet the grain needs of Constantinople. To encourage the transfer of grain to the new capital, sailors and merchants involved in grain transportation were granted generous tax exemptions at the customs points leading to Constantinople (*Codex Theodosianus*

⁸ For comparative examples for Late Antique harbours in the Mediterranean, see Oleson and Hohlfelder 2011.

XIII. 5.7; Bratianu 1930: 86; Teall 1967: 26; Müller-Wiener 1994: 9; Mundell-Mango 2000: 190; Dagron 2002: 90; Mango 2005: 121). Hundreds of vessels were involved in the transportation of grain that was stored in monumental warehouses, particularly the *Horreum Alexandriana*. In addition to the renovation of the water supply to Constantinople, Theodosius I enlarged the *Horrea Theodosiana* and *Horrea Alexandriana*. These two warehouses, located in Region IX, neighbouring ‘the harbour of Theodosius’, extended also towards Region XII (Seeck 1876: 237-239).⁹ In the late 4th century AD, the increasing demand for food supply triggered the need for improved infrastructure in terms of the transfer, storage, distribution, and sale of staples. Similarly, together with the ‘Forum of Theodosius’, many other construction projects were initiated. Countless volumes of architectural material from the modern excavations at Yenikapı, such as Proconnesian marble column capitals and assemblages of stamped brick tiles, which fell on the seabed and could never have been retrieved, imply that the harbour was also one of the main transfer points for these massive construction projects of the late 4th and 5th centuries, which were largely focused on the southern maritime suburbs (Bardill 2004: 308) (Fig. 9.3).

Archaeological evidence concurs with this historical fact by confirming that the harbour at Yenikapı witnessed continuous construction campaigns, especially from the 4th century AD onwards (Asal and Kızıltan 2014: 377-397). At the western end of the harbour, the fieldwork revealed a complex group of structures characterised by superimposing walls and quays constructed in the period between the 4th and 13th centuries AD (Fig. 9.4). Based on the archaeological context and radiocarbon dating, one particular wall fragment (51-54 m long; 4.2-4.4 m wide), which aligns north-south, was dated by the excavators to the early 4th century AD (Fig. 9.5). With a rather speculative identification by the archaeologists from the Istanbul Archaeological Museum, this wall fragment (of ashlar masonry without mortar joints) was considered to belong to an extension of ‘the Constantinian sea walls’ (Gökçay 2007: 166- 180).¹⁰ Closer analysis of its masonry implies that this wall fragment might indeed date to a later period, certainly after the reign of Theodosius I, for which evidence on a more monumental architectural



Figure 9.3: Stamped brick tiles on the seabed (A. Ercan-Kydonakis).

feature exists.¹¹ In this regard, the construction of a harbour by the patrician Eleutherios might indeed be a post-historical narrative, leading the archaeologists to an erroneous identification.

From the 6th century AD onwards, historical sources are notoriously inadequate on the history of the Theodosian harbour. In addition to the political upheavals, a series of devastating earthquakes in the years AD 554, 555, and 557 shook the capital, causing considerable damage to the city’s landmarks, particularly those on the southern coast. Furthermore, bubonic plague hit Constantinople in 542, followed by another in 558. There was also a famine, likely the result of a change in climate (Downey 1955: 598; Guidoboni 1994: 336-337; Dagron 2002: 396; Haldon *et al.* 2014: 113-161). These natural disasters

⁹ For the most recent discussion on the *Notitia*, see Matthews 2012: 81-115.

¹⁰ Very little is known of Constantine’s fortification system however. Some scholars believe it lacked a maritime component, while the land walls are recorded in the post-Byzantine period (Mango 2004: 24-25; Ötügen 1974). Following the earthquake of AD 860, the collapsed remains of Constantine’s land wall were substantially demolished during the reign of Sultan Bayezid II in 1509. The interpretation of the archaeologists is based on the discovery of a coin struck by Constantine I in Thessaloniki, after AD 325, which was found in the same archaeological strata as several pottery sherds dated to the same period. In the opinion of the present author, the evidence for drawing such a precise conclusion must be viewed as speculative.

¹¹ At a slightly later date, the primary sources start referring to a new palace constructed by empress Irene of Athens in *ta Eleutheriou*, in which the empress receives the envoys of Pope Leo III. This palace had certainly a direct connection to the Sea of Marmara for receiving visitors. According to Janin and Mango, the palace was situated in today’s area of Aksaray (*Theophanes the Confessor, The Chronicle*: 641, 648, 656; Mango 2004: xlix nn. 25; Magdalino 2000: 216; Janin, 1964: 13, 130-131).



Figure 9.4: View of the harbour's western end (IAM Archives).

were further intensified by the growing Avar and Persian threats, which soon led temporarily to the loss of Byzantine political dominion over the Balkans, the Mediterranean, and later Egypt, an important centre for the capital's grain supply and trading activities (Teall 1959: 120).

In many senses, these events anticipated a certain rupture in urban continuity, exemplified by the disappearance of references to the Theodosian harbour, like several monuments in Constantinople that vanished from historical sources. Interestingly, two later accounts, the 7th-century AD *Miracles of Artemius* (16.107) and the 9th-century AD *Chronographia of Theophanes the Confessor* (Chron. 493) refer to a harbour in the same vicinity. Accordingly, during the Arab attacks on Constantinople in AD 671/2, the so-called 'Proklesian harbour of Caesarius' allegedly functioned as the main military harbour where 'large biremes bearing the Greek fire were stationed'.¹² Further details clarify its connection with the Theodosian harbour, as it was located close to the granary known as *Horreum Lamias* (Berger 1993: 468-469).¹³ Moreover, in consideration of the scarcity of textual evidence about any new construction of a harbour and a *horreum* nearby, the harbour of Caesarius could possibly be the same one as the harbour of Theodosius, with the *Horreum Lamias* pertaining to the 5th-century *Horrea Alexandriana*. Therefore, this assumption also implies the association



Figure 9.5: View of the so-called 'Constantinian sea wall' (IAM Archives).

between Theodosius and Caesarius, both deriving from the emperor's name and his imperial title.

Archaeological evidence also points to an uninterrupted use of the harbour in the period after the 6th century AD. The western section of the harbour presents further material evidence on construction activity after the 4th century AD, i.e. a wall fragment dated to the 6th century and a barrel-vaulted tunnel constructed entirely from brick. The extensive use of this tunnel, which once abutted the fortification wall, is proved by the discovery of a plethora of oil lamps, implying a possible connection to the defence system on its eastern side. This fortification system, running north-south, is sited on the so-called 'Constantinian wall' before turning north-east to circumambulate the harbour (Fig. 9.6). Another fragment of the

¹² Berger argues that the harbours of Theodosius and Caesarius were the same, whereas Magdalino differentiates the two, placing the harbour of Caesarius at the eastern end of Theodosian's (Berger 1993: 468-469; Magdalino 1996: 23). Recently, on another topic, Kislinger (2016: 10) considered the presence of the *horreum* as clear evidence for the functioning of the southwest of the harbour from the 7th century AD onwards, which is also discussed by Külzer (2016: 40).

¹³ For an analysis of this warehouse, see Ginalis and Ercan-Kydonakis 2021: 34-35.



Figure 9.6: View of the harbour's fortification wall (IAM Archives).

same fortification can be seen further north-east, constituting possibly an inner circuit wall system (Gökçay 2007: 170) (Fig. 9.7). Despite its identification by the archaeologists as the 'Theodosian sea walls', on the basis of its position in the general harbour plan, and its particular masonry that recalls the masonry of the 9th-century sea walls commissioned by Theophilos (AD 829-842), we may argue for a later dating (Whitby and Whitby 2007: 72). With respect to the large-scale restoration of the southern sea walls in the 9th century AD, this wall might possibly date into the same period, when the harbour walls had to be rebuilt, together with the entire system of the sea walls.

Despite the scarcity of historical accounts, the archaeological evidence for the harbour's use in the periods between the 4th and 11th centuries AD is abundant. The shipwrecks, predominantly dated to the 9th and 10th centuries, imply that the harbour continued to accommodate large vessels at least until the 11th century AD (Pulak 2013: 22-34; Kocabaş 2013: 35-46). In view of the cargoes and vessel types, apart from a small group of galleys, the majority was identified as merchant vessels used for long- and short-



Figure 9.7: Fragments of the circuit wall (A. Ercan-Kydonakis).

distance trade. Additional evidence comes from the lead seals of Byzantine officials that securely confirm that mercantile activities in the harbour continued after the 6th century and until the 11th century AD.¹⁴

¹⁴ The *kommerkiaroi* lead seals that belonged to officers from the



Figure 9.8: View of different archaeological layers (A. Ercan-Kydonakis).

In the opinion of the present author, in consideration of its long life and the continuous construction activity, it is very likely that the harbour must have been either dredged or partly renovated several times at least, as suggested by the consecutive repairs of the wooden piers from the 5th to the early 9th century AD (Kuniholm 2015: 47-91; 2012: 3402-3414). Furthermore, the geological analysis in the harbour basin suggests that the layer representing the seabed of the 7th and 8th centuries AD is considerably homogenous, characterised by thin sand with very few inclusions of rubble and pottery sherds (Fig. 9.8). Contrasting to this homogenous texture, the two archaeological strata representing the period between the 6th/7th and the 9th-11th centuries are represented by a high concentration of pottery sherds, mud, sand, and rubble.

Dendrochronological analysis indeed points to further evidence for construction activity throughout the Middle Byzantine period (Fig. 9.9). Two outstanding

apothekoi of Rhodes and Pamphylia, or to Stephanos the *kommerkiarios* of Abydos, are among the finds pointing to mercantile activities (Bulgurlu 2016: 403-407).

examples of Byzantine harbour engineering, i.e. the two massive jetties discovered at the eastern end of the harbour excavations, have been largely overlooked by scholars previously. One of these jetties, positioned perpendicularly to the shore and preserved remarkably well (with its wooden formwork), was erroneously identified by the excavators as the lighthouse of the Theodosian harbour (Gökçay 2007) (Fig. 9.10). These stone jetties represent two of the very few examples of Byzantine harbour constructions.

Apart from the textual evidence about the dredging of harbours, our knowledge concerning Byzantine harbour construction is limited to the descriptions by Procopius (Dewing and Downey 1940: 94-95 (I.XI.18-19)). Nevertheless, this paucity should not lead us to the erroneous conclusion that the Byzantines did not construct harbours, or, alternately, that they lost their predecessors' expertise and knowledge of underwater engineering. On this point, the construction analysis and chronology of these jetties discovered at Yenikapı is vital for a better understanding of Byzantine harbour architecture.

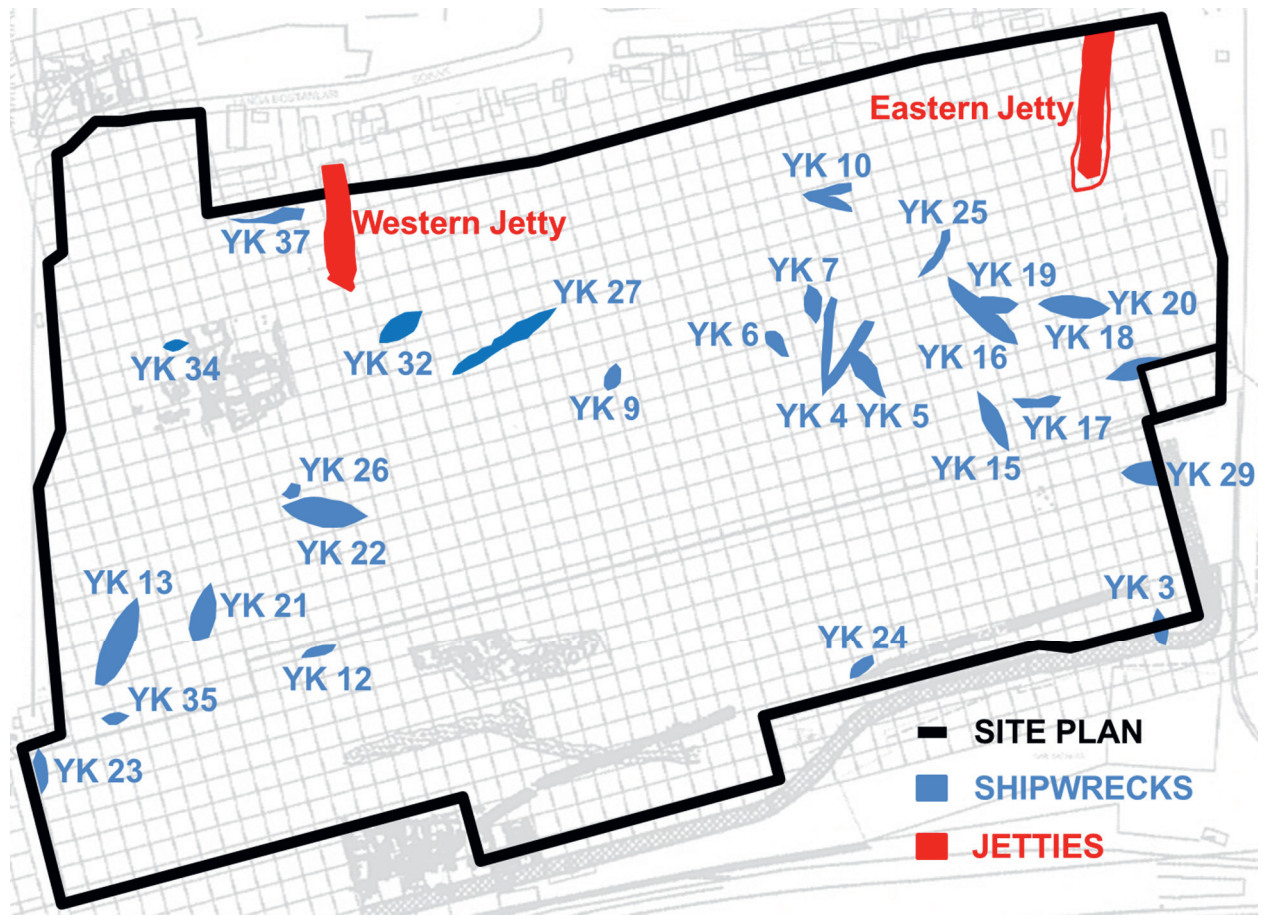


Figure 9.9: Location of the jetties in relation to the shipwrecks in the eastern harbour basin (A. Ginalis after Kızıltan *et al.* 2014, Ginalis and Ercan-Kydonakis 2021: 55, Fig. 20).

The Yenikapı jetty consisted of four rectangular units, with a fifth shaped as a pentagon, constructed on the seabed, perpendicular to the shore (Fig. 9.11). For its construction, as discovered during the excavations, rectangular wooden formworks were placed on the seabed prior to the construction (Fig. 9.12). These were prepared either in the sea, or first on land and then lowered into the water. They were subsequently filled with a compact composition of mortar, mixed with rubble and ceramic sherds, poured in together with other aggregate to form a mortar-binding material similar to the hydraulic concrete or *opus caementicium* typically used in the Roman Empire.¹⁵ From north to south, the elevations of these five units of wooden chests, following that of the seabed, are: -1.57 m, -1.42 m, -1.15 m, -1.21 m, and -1.15 m. Once these foundation layers were levelled and stabilised in direct contact with the seawater, large ashlar blocks were laid above the substructure, i.e. placed on the borders of the



Figure 9.10: View of the Yenikapı jetty from the east (A. Ercan-Kydonakis).

rectangular units to hold the aggregate. The Yenikapı jetty shows that in some places metal clamps were used to lock these stone or marble blocks together, providing a more stable structure for the brick quay. Considering the size of the harbour, these large jetties must have had mooring posts, as well as possibly cranes for the loading and unloading of goods from the vessels. Unfortunately, none of these are preserved at Yenikapı.

¹⁵ *Pozzolana*, as referred to by Vitruvius (*De Architectura* V.12.2-3) is the most well-known aggregate for the preparation of Roman hydraulic/maritime concrete. For further details on Roman maritime concrete, see Brandon *et al.* 2014. For a more detailed analysis of this structure, see Ginalis and Ercan-Kydonakis 2021.



Figure 9.11: The pentagonal-shaped southern end of the Yenikapı jetty (A. Ercan-Kydonakis).



Figure 9.13: Detail of a Spolia frieze block (A. Ercan-Kydonakis).



Figure 9.12: Detail of the wooden formwork (A. Ercan-Kydonakis).



Figure 9.14: A basket capital with monogram (IAM Archives).

although there are some earlier examples found within the architectural complex on the eastern part of the excavation site.

The first archaeological evidence we have to help date the eastern jetty are the three *spolia* frieze blocks decorated with a band of acanthus leaves flanked by bands of egg-and-dart and Lesbian cymatium (Fig. 9.13). On the basis of their style, the *terminus post quem* for the construction of the eastern jetty is the mid 5th century AD. Yet, based on dendrochronological analysis, this jetty is securely dated to the early 8th century AD (Kuniholm 2015: 47-91; Kuniholm *et al.* 2012: 3402-3414). Concerning the western jetty, which is much less well preserved, the archaeological evidence is notably scarce. One 6th-century basket capital with a monogram, discovered below the level of the jetty, might well stand as a *terminus post quem* for the construction of the western jetty, yet the lack of archaeological record for this capital and its stratigraphy hinders a more accurate analysis (Fig. 9.14).¹⁶

¹⁶ For a more detailed analysis and suggestion of dating of this

Additional evidence from both dendroarchaeological and radiocarbon analyses from the eastern jetty strengthens a construction date postdating the renovation of the Theodosian harbour. According to Kuniholm, the tree samples taken from the wooden formwork of the eastern pier at Yenikapı match the samples taken from the tie beams of the south and north arcades of Hagia Eirene. The same scholar also suggests that the wood used at the Hagia Eirene and Yenikapı originate from the same forest. Furthermore, the radiocarbon analysis places the samples from Hagia Eirene to AD 796±19, referring to the restoration of Hagia Eirene by Constantine V (Kuniholm 2015: 62. Kuniholm *et al.* 2012: 3402-3414).

In view of Constantine V's extensive urban rehabilitation projects, there seems to be a special focus on the southwestern coast of Constantinople, particularly after the transfer of the cattle market to the Forum of Theodosius (Magdalino 2007a: 3-4, 10; Gregory 2005: 194-195). As opposed to the notoriety

structure, see Ginalis and Ercan-Kydonakis 2021.

of this same emperor in post-iconoclastic sources, the evidence of economic prosperity and increase in trade capacity are two evident facts that have only recently been associated with him. Reminiscent of Theodosius I's infrastructural improvements in Constantinople, we need also to recall that Constantine V restored the city's water supply system and its distribution facilities in AD 766, as well as initiating a restoration project of the Land Walls. These major construction works could possibly have consisted of ports as well, making Constantine V one of the potential candidates for the patronage of the harbour's renovation at Yenikapı (Kaplan 2016: 55-65; Magdalino 2007a: 3-4).

Another major construction activity in the neighbourhood of the Theodosian harbour in the 8th century AD is the palace construction commissioned by the empress Eirene of Athens, where the envoys sent by the Pope and the representatives of the *tagmata* were received (*Theophanes the Confessor, The Chronicle*: 641, 648, 656. Magdalino 2000: 216; Janin 1964: 130-131). This palace, as noted above, was located in the district known as *ta Eleutheriou*, at the eastern end of the harbour of Yenikapı. Most of the imperial palaces had direct access to the shore, which leaves us with the question of whether part of the Theodosian harbour functioned as the landing stage for the empress' palace.¹⁷ Furthermore, the same empress is credited for the restoration of the *Horreum Alexandriana*, which came to be known as *Horreum Lamias* (Haldon 1986: 206). Taking these architectural patronages into account, both these imperial figures might be associated with the renovations in the harbour.

After the 11th century AD, the archaeological evidence confirms that the harbour was only in use for small boats or those with shallow drafts. Byzantine historians no longer speak of the harbours of Eleutherius, Theodosius, or Caesarius, but rather of the Vlanga neighbourhood, which was associated with the private house of Andronikos I Comnenus (AD 1183-1185) (Magoulias 1984: 74 (IV.130); Van Millingen 2005: 299; Janin 1964: 304). Indeed, both the historical and archaeological evidence imply that once it became largely silted up, the Theodosian harbour, with its new name of Vlanga, gradually became a new residential area for medieval Constantinople.¹⁸ A small chapel (c. 11.5 m long x 9.5 m wide) was constructed in the former harbour, on the sediments of the River Lycus (Marinis 2014: 208). While it is difficult to determine when and to what extent the siltation process took place, the chapel, based on the archaeological layers, can be dated to the 11th-13th century AD, with the burial finds dating to

the 11th century (Gökçay 2007: 166-180); surviving substructures demonstrate that the monument was originally constructed as a single-nave chapel. Over the decades, it was enlarged with the addition of two side aisles and a narrow narthex (Fig. 9.15). At a later date, some rectangular units were added to the south façade, where the archaeological excavations yielded a number of *in-situ* terracotta storage jars, implying its use as a storage facility.

At this point, a largely omitted piece of textual evidence calls for a more detailed analysis of this small chapel at Yenikapı. In the second half of the 13th century AD, in a letter that Maximos Planoudes addresses to the *exisotes* Autoreianos, a fiscal officer in the Byzantine government, the remains of a small church in Vlanga are mentioned briefly. According to this letter, Planoudes is interceding with Autoreianos to settle a property dispute in favour of the Church of St John the Forerunner, which is 'one of those recently built in Vlanga', seeking to reclaim the abandoned ruins of a small chapel also located in Vlanga. The grounds for this request are simply argued by Planoudes based on the shortage of burial space for the Christian community, arising after the resettlement of the Jewish community to Vlanga. Yet, according to Planoudes, the property status of this chapel also seems to ease the situation in favour of the newly constructed Church of St John, because the ruined chapel was first sold to a neighbour, who began to make new additions to it. This same 'neighbour', however, subsequently travelled to Venice and never returned to Constantinople (Treu 1960: 50-52). Ultimately, he decided to look for another buyer for the remains of the chapel, but, it seems, without success.

Auterianos' reply to Maximos Planoudes, presumably with a decision on the abandoned ruins, has not survived. Nevertheless, the archaeological excavations at Yenikapı did reveal the substructures of an abandoned church. Furthermore, this small chapel was enlarged with additional units and converted into a burial complex that included 22 tombs, predominantly buried on the western side, with a significant cluster of burials in the naos (Gökçay 2007: 174). In the light of these finds, the identification of the Yenikapı remains as Planoudes' ruined church certainly seems plausible. Hence, this identification could lead us to the conclusion that the ruins were indeed granted to the Church of the Prodromos and the ruined chapel of Planoudes could have been converted into a cemetery. Moreover, taking into consideration that the patriarchate proscribes sales of religious property to the lay community in AD 1325, this action would have been before this date, i.e. in the first decades of the 14th century AD, setting a *terminus post quem* for the burials as well (Thomas 1987: 3).

¹⁷ Magdalino (2016: 190) argues for the patronage of Eirene based on dendrochronological analysis.

¹⁸ In the reign of Michael VIII Palaiologos it was decided to settle the Jewish community, and construct a synagogue, in the silted harbour area (Pachymérès V.10; Kidonopoulos 2006: 107).



Figure 9.15: The Yenikapı church (IAM archives).

Particularly from the 12th century AD onwards, the coexistence of the Jewish minority and Christian community at Vlanga is largely known from the historical and archaeological evidence.¹⁹ To the immediate northeast of the eastern jetty, the architectural remains of a settlement are documented, testifying to the repurposing of this very area following the harbour's silting up (Tekin 2009). At the opposite end of the harbour, the fieldwork revealed the superimposed remains of an 11th-century quadripartite hypogeum, above which were built some structures identified as workshops (Fig. 4).²⁰ The architecture of the workshops, characterised by waterproof mortar covering the interior of the units, suggests a type of activity that

required plenty of water, which would certainly fit in with widely known practice of leather tanning attributed to the Jewish community in Constantinople.

Placing tanneries in maritime neighbourhoods was a common practice – copious amounts of water were needed to process the hides in large tanks, like the ones found at Yenikapı. During the Ottoman period in Thessaloniki, the Jewish community also managed the tanneries, located next to the harbour situated by the city walls (Balta 1997: 39). Despite all the complaints made by Vlanga's Christian residents, the Jews remained there for centuries, until their eventual resettlement in Balat – another maritime neighbourhood on the shores of the Golden Horn. In addition to our 14th-century Byzantine sources, Ottoman manuscripts imply that after the Jews had been resettled in Balat, their old neighbourhood was used for growing vegetables, giving rise to a new name for the old harbour, the Vlanga Gardens, still used until recently by local residents.²¹

¹⁹ Maximos Planoudes laments that 13th-century Vlanga is crowded with Jewish immigrants. While he tries to justify his claim, he presents valuable information about the social changes that were taking place in the silted harbour area. According to him, following the resettlement of the Jewish minority, who worked the leather tanneries on the marshy terrain around Vlanga's former harbour, the Christians began to object at 'the unbearable smell' resulting from the tanning process. The 12th-century traveller Benjamin of Tudela writes pointedly that the smell of wet leather was unbearable for the inhabitants of Constantinople (Treu 1960: 50-52; Adler 1907: 14, 130; Akyalçın 2002: 5; Majeska 1984: 268; Jacoby 1975b: 218).

²⁰ For a similar example, see the four-chambered hypogeum discovered south of Tower 46, on the Theodosian Land Walls, between Silivrikapı and Mevlevihane (Tunay 2001: 221).

²¹ Monasteries owning land in Vlanga include Lips, the Convent of Anargyroi, and a hospice founded by Theodora Kantakouzene Komnene (Talbot 2016: 185-197).

Conclusions

Over ten years of extensive fieldwork, the Yenikapı excavations have yielded many unanticipated results. While many of these, particularly the Neolithic remains and Byzantine shipwrecks, have been published extensively, a large number of other archaeological finds have not received close scholarly attention. In this respect, this study proposes a re-evaluation of the harbour's extensive history, thus contextualising its architectural remains by contributing to the understanding of Byzantine harbour engineering.

The material retrieved from the archaeological excavations makes clear that the Yenikapı bay area had already been settled in prehistoric times. Over the centuries, predominantly throughout the 4th and 5th centuries AD, much of the Yenikapı shoreline was submerged due to marine transgression, which was subsequently reclaimed following various building programs, i.e. the construction of seawalls and docks, where vessels could anchor in safety.

Studies prior to the archaeological excavations interpreted the lack of textual evidence concerning the period after the 6th century AD as the gradual abandonment of the harbour, engendered by the loss of Egypt. Nevertheless, the Yenikapı excavations present abundant archaeological evidence for the active functioning of the harbour, pointing to alternative economic solutions or different functions attributed to the harbour, which continued to survive as long as the Byzantine Empire endured. As opposed to the abandonment theory, mercantile activity continued, with periodic architectural renovations to the harbour, i.e. the eastern jetty, commissioned possibly under the patronage of Constantine V or empress Eirene of Athens in the 8th century AD.

While the discovery of the jetties has only prompted scholarly interest very recently, they are exceptional examples of Middle Byzantine maritime architecture (Ginalis and Ercan-Kydonakis 2021). Like the written accounts of Vitruvius and Procopius, these jetties tell a unique story of how Byzantine builders continued to construct underwater structures, by preserving their ancestors' knowledge of underwater engineering. However, further analysis is urgently needed.

In addition to the examples of Byzantine maritime architecture, the above-mentioned Yenikapı chapel, which was also previously unknown to us, needs further analysis. Considering the historical information, it seems highly likely that the Yenikapı church can be identified as the church Maximos Planoudes referred to in his letter written in the 13th century AD. Based on this and the archaeological evidence from Yenikapı, we can securely reconstruct the missing links of textual

evidence by concluding that this church was abandoned in the 13th century AD, and subsequently converted into a cemetery attached to another church in the same quarter dedicated to St John.

Finally, the rich archaeological evidence uncovered at Yenikapı offers a number of issues that need to be further explored, particularly with respect to the Late Byzantine and Early Ottoman periods of the silted harbour area. These include the question of sea level changes, data on which would provide a better understanding of the siltation process of the harbour area, as well as enabling us to construct a more accurate picture of the Late Byzantine settlement in the Vlanga quarter. Clearly, much more research needs to be done relating to the harbour excavated at Yenikapı.

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