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The Harbour of Theodosius in Yenikapı, İstanbul: A Harbour Area Through the Ages

In 2004, the implementation of the so-called *Marmaray* project started in İstanbul, after more than 20 years of intensive planning work by the Turkish Ministry of Transport (Ulaştırma, Denizcilik ve Haberleşme Bakanlığı) and the municipal administration (İstanbul Büyükşehir Belediyesi). The project was intended to expand the İstanbul railway system by establishing a new railway line, 76 km long, with 40 new stations, running close to the coast of the Propontis and partly below the Bosphorus. The new line was planned to connect the European and the Asian parts of the city in order to reduce the significant transport problems between the continents[1]. However, the construction work had hardly begun, especially in the urban districts of Üsküdar on the Asian side and Sirkeci and Yenikapı on the Thracian side of İstanbul, when extensive archaeological structures were discovered[2]. Their examination was essential; the Archaeological Museum İstanbul (İstanbul Arkeoloji Müzeleri) started the excavations as early as 2004. The site at Yenikapı, which we will focus on in this chapter, was initially excavated under the direction of Director İsmail Karamut. In the second period, from 2009 until completion of fieldwork in 2013, his successor Director Zeynep Kızıltan was responsible for the excavations[3] (**fig. 1**).

The scientific analysis of the excavated area of 58 000 m², the largest excavation in the İstanbul urban area, has yielded impressive results. Already in the uppermost layers, about 3 m above the current sea level, building structures were revealed that could be assigned to Ottoman workshops and craft enterprises. At a depth of more than 6 m below the sea level, traces of Neolithic settlements and graves came to the light, including footprints and utensils dating back to 8 500 years ago: they belong to the earliest human remains in eastern Thrace[4]. In the intervening layers, at a depth between 1 and 6 m below the current sea level, the archaeologists discovered architectural elements from Late Antiquity and the Middle Ages, including building structures and foundations, quays and moorings, countless commodities and everyday objects, and several thousand animal skeletons. Particularly noteworthy are the 37 shipwrecks from the period between the

1 Kızıltan, Marmaray Projesi 18-21. – Kızıltan, Stories 4 f. – Özmen, Marmaray 22-27. – Başaran, Iron Ways 1-9. – Buket et al., The Marmaray Project 1 f. – Bicak, Museo Archeologico 41-44. The name of the project »Marmaray« is composed of the words *Marmara* and *ray*, Turkish for »track«, or »rail«. The transcontinental traffic has hitherto been via ferries or the Bosphorus bridges. In 1973, the 1 560 m long *Boğaz Köprüsü* was opened, in 1988 the 1 510 m long *Fatih Sultan Mehmet Köprüsü*, 5 km further north. Finally, in August 2016, the 1 875 m long *Yavuz Sultan Selim Köprüsü* in the mouth area of the Bosphorus in the Black Sea was inaugurated after a three-year construction period.

2 For an introduction to the excavations in Üsküdar, see: Kızıltan / Pekin, Marmaray 33-95. – On Sirkeci: ibid. 97-123, on Yenikapı: ibid. 165-299 and *passim*. – Karamut, Excavations 10-17. – Kızıltan, Marmaray Metro Projeleri 1-16.

3 Interesting information concerning the excavation process and the upcoming scientific evaluation of the finds are provided by interviews with Ufuk Kocabaş (»Work completed on historic sunken Yenikapı ships in İstanbul«, *Hürriyet Daily News* of 26 August 2013) and with Zeynep Kızıltan (»Marmaray and metro archaeological findings may take Istanbul's history back 6500 years«, *Hürriyet Daily News* of 2 December 2013). – The Marmaray Tunnel below the Bosphorus was opened at the end of October 2013; cf. the Railway Gazette of 29 October 2013: »Marmaray tunnel opens to link Europe with Asia«. The opening of the entire 76 km long route took place on 12 March 2019, cf. *Bahn Manager Magazine* of 24 April 2019. – Concerning the accurate position of the different Harbours of Constantinople and its hinterland, see Ginalis et al., Harbours 58 f.

4 http://news.bbc.co.uk/2/hi/europe/7820924.stm (27 October 2014). – Gökçay, Yenikapı kazılarında 168 f. – Algan et al., Short Note 459. – Algan et al., Holocene Coastal Change 43 f. – Perinçek, Geoarcheology 70. 71-73. 72 (fig. »Earth layers«). 83. – Yılmaz, Yenikapı kazı bulguları. – Polat, Neolithic Period 75-93. – Günsenin, Harbours and Shipbuilding 419. – The oldest evidence of human life in the region was discovered in Yarımburgaz, 9 km north of Küçük Çekmece, 2 km north of Altınşehir; the remains belong to the Palaeolithic period, cf. Stiner et al., Cave Bears. – Tourloukis, Pleistocene Archaeological Record 40.

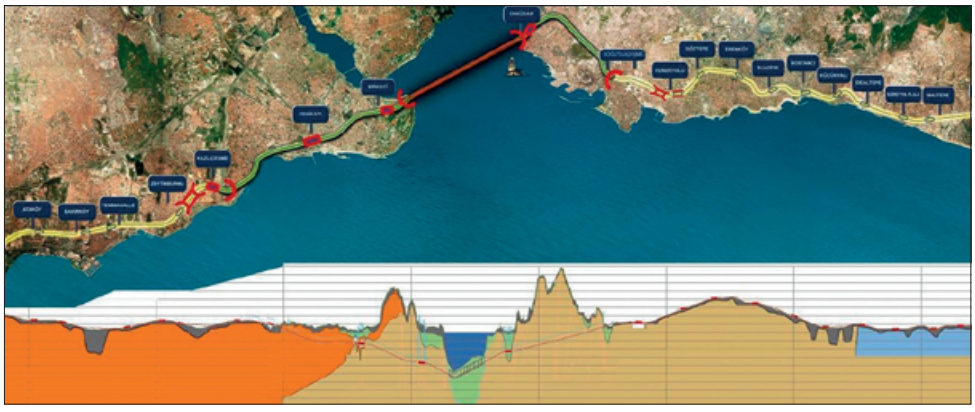

Fig. 1 Marmaray project, plan and section views. – (From Buket et al., The Marmaray Project 1 fig. 1).

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Fig. 2 The Yenikapı excavation site. – (From Başaran, Iron Ways 7 fig. 7).

fifth and the late eleventh centuries, which definitely locate the *Portus Theodosiacus* (Harbour of Theodosius), a harbour whose precise position was long discussed in academic literature[5]. The abundance of findings made the name of the Yenikapı district a synonym for a major archaeological project, and the harbour, which was only mentioned in academic literature before, reached the consciousness of wider circles to become one of the most famous harbours of the Byzantine Empire[6]. Consequently, scientific publications have been published in the meantime on the Harbour of Theodosius and the many findings made at the site. In addition to exhibition catalogues and essays with an archaeological, historical and architectural focus, there are publications on geological, anthropological, palaeobotanical and zoological issues[7]. Most of these studies, regardless of their specific focus of interest, include some historical information about the harbour. However, these passages are usually selective and do not always reflect the current state of research. Even essays written by academic specialists on the »Harbours in Constantinople« contain multiple contradictions, ambiguities, errors and misunderstandings[8] (**fig. 2**).

Concerning the site of Yenikapı, one should mention a publication by the young Turkish scholar Ayşe Ercan: in her master's thesis that was submitted in 2010 at the Koç University in İstanbul, she presented the history of the site up to the year 2009[9]. The essay contains an analysis of the archaeological excavation results and an interpretation of the relevant written sources[10]. Furthermore, it deals with the scholarly literature on the topography of Constantinople and the Harbour of Theodosius, understandably in a selective manner.

Her chapter on the research history of the harbour starts with the important book *Byzantine Constantinople* by Alexander van Millingen. Published in 1899, it is still worth reading. Based on individual archaeological research and using a scholarly tradition from the sixteenth century, van Millingen located the Harbour of Theodosius in the district of Langa Bostanı and equated the harbour with the earlier Harbour of Eleutherios[11]. Various academic studies on the topography of Constantinople followed these ideas; among others, Ayşe Ercan referred to the well-known publications by Raymond Janin, Feridun Dirimtekin and Rodolphe Guilland[12]. Concerning the research of Wolfgang Müller-Wiener, however, just a small selection of his thoughts and considerations is presented[13]. By contrast, she referred to the important studies on urban development by Cyril Mango, Marlia Mundell Mango and Paul Magdalino[14]; not to forget A. Berger, who made valuable contributions to the topography of the Byzantine capital, such as his analysis and translation of the *Patria Konstantinupoleos* or the detailed study on the district of Langa Bostanı[15].

5 Pulak, Yenikapı Bizans batıkları 202. – Ingram/Jones, Yenikapı 8. – Kızıltan, Marmaray Metro Projeleri 2. – Kocabaş, Byzantine Shipwrecks 51. – Akkemik/Kocabaş, Galleys 32. – Wade, Maritime cults 272. – Külzer, Häfen und Landeplätze 237 f. – The Greek term for the harbour is ὁ Θεοδοσιακὸς λιμήν; cf. Janin, Constantinople 520.

6 Senckenberg Society for Natural Science, press release 24 May 2013: außergewöhnliche Fundstätte«. – Spiegel Spezial 6 (2008) 58: »eine der größten Ausgrabungen der Türkei […] Funde faszinieren die Historiker«. – Die Welt, 8 December 2008: »Der Schatz der Türken unter der U-Bahn […] einmalige Funde […]« etc.

7 For example, Bicak, Museo Archeologico. – Bony et al., High-energy Deposit. – Ingram/Jones, Yenikapı. – Kızıltan, Stories. – Kocabaş, Old Ships. – Kocabaş, Camaltı Burnu I Shipwreck. – Kocabaş, Marmaray – Metro Kurtama. – Kocabaş, Byzantine Shipwrecks. – Kocabaş, Latest Link. – Liphschitz/Pulak, Types of Wood. – Onar et al., Horse Skeletons 1. – Onar et al., Overview. – Onar et al., Animal Skeletal Remains. – Onar et al., Dogs Yenikapı. – Onar et al., Horse Skeletons 2. – Özsait-Kocabaş, Yenikapı 12 Shipwreck. – Özsait-Kocabaş, Yenikapı. – Pulak/Ingram/Jones, Byzantine Shipwrecks. – Yılmaz, Yenikapı kazı bulguları. – Akkemik/Kocabaş, Galleys.

8 Even the excellent manual of Restle, Istanbul 54 is very brief concerning the harbours of Constantinople, which is probably an attempt to avoid any mistakes in view of the complicated research situation.

9 Ercan, Yenikapı.

10 Unfortunately, mostly be using translations, without quoting the original sources.

11 Ercan, Yenikapı 7 f. – Van Millingen, Walls 36. 264. 268 f. 296-300. 307 f. The accurate locating of the Harbour of Theodosius in Langa Bostanı, as well as the idea of a correspondence with the Harbour of Eleutherios, leads back to the year 1561 to Petrus Gyllius and his work De topographia IV 8, 213.

12 Ercan, Yenikapı 8. – Janin, Ports 73-79. – Janin, Constantinople 225-228. – Dirimtekin, Fetihten. – Guilland, Ports 206-225. – Guilland, Études de topographie II 93-95.

13 Ercan, Yenikapı 8 refers exclusively to the Turkish translation Müller-Wiener, İstanbul'un Tarihsel Topografyası. A quote from the original publication Müller-Wiener, Bildlexikon 60 f. and, even more, from Müller-Wiener, Häfen 8 f. 108 with its numerous corrections would have been more valuable, see for example n. 50 below.

14 Ercan, Yenikapı 8 f. – Mango, Shoreline. – Mango, Développement. – Mundell Mango, Commercial Map 189-207. A reference to the revised English version of Magdalino, Constantinople would have been better than the reference to the older and shorter French version Magdalino, Études. – A quote of Magdalino, Maritime Neighborhoods is missing.

15 Ercan, Yenikapı 101 f. – Berger, Untersuchungen. – Berger, Langa Bostanı 467-477 and pl. 51. Some of Berger's considerations and suggestions are incorrect; see the detailed analysis of Effenberger, Illustrations 31-33, a valuable text that was not considered by Ercan. – In 2015, Berger published a study entitled »Konstantinopel und seine Häfen« (Berger, Häfen). Unfortunately, this paper did not refer to Effenberger's considerations, nor to the new results of the archaeological excavations. The state of research remains unchanged as against 1993, when the Langa Bostanı article was published.

We will leave Ercan's overview here; her chapter provides a representative overview of the relevant academic literature on the history of the Harbour of Theodosius and its hinterland before the Yenikapı excavations began. The numerous new insights gained through intensive archaeological research justify a new treatise on this special harbour.

The excavations at Yenikapı revealed a different coastal profile for the İstanbul peninsula during the Neolithic period: the coastline varied completely compared to the situation in Classical Antiquity or the modern age. Analyses of the soil layers indicate a permanent changing sea level and constant alterations of the coastline. At the beginning of the so-called Fikirtepe culture in the second half of the seventh millennium BC, the sea level was about 15-20 m below today's level[16]. In the sixth millennium BC, it had risen considerably, as the Neolithic settlement traces indicate, which lay below the current sea level for more than 6 m. The later harbour area, however, was on the terrain. The sea-level continued to rise and, already in the second millennium BC, an inlet had formed in the area of Yenikapı[17].

In the harbour area, as well as in several other parts of today's İstanbul, there are traces of Iron Age settlements. Thracians also settled in the region: their settlement was, according to ancient tradition, called Lygos[18]. Hellenization of the peninsula began in the seventh century BC, as settlers from Megara, Argos and Corinth arrived, led, according to legend, by the hero Byzas. This first Greek settlement, named Byzantium after the hero, replaced the Thracian settlement. It was on the headland at the entrance to the Golden Horn, the area of modern Topkapı Saray (Sarayburnu); however, its exact position and dimension remain unknown[19]. The harbour facilities of this early settlement were located in the area of the Golden Horn, which favoured landings due to the geomorphological condition and its sheltered places. For centuries, until late Antiquity, the favoured anchorages of the settlement were located here[20]. Dionysius of Byzantium gave an excellent description of the suitable harbour places in the second century AD; the excavations at Sirkeci impressively testify to the utilization and early trading activities in the area of the harbours of Prosphorion and Neorion[21].

The excavations at Yenikapı revealed that the above-mentioned inlet on the coast of the Sea of Marmara was regularly used, despite its comparatively remote position. Trading activities were documented here almost from the beginning of Greek colonization. The only significant river in the hinterland of Constantinople was the Lycus (Bayrampaşa deresi), about 5.6 km long; it flows into the inlet. In the 1950s, the river was built over and today it is no longer visible[22]. In the area of the small bay, Corinthian globular flasks (*aryballoi*) were found dating back to the early sixth century BC, as well as different wine jugs (*oinochoai*) from the archaic period. Similarly, vessels, plates, bowls, drinking cups (*kantharoi*) and amphorae from the Classical period were found (the latter produced in Thasos, Chios or Samos); however, the archaeological findings were significantly lower than in the harbour areas on the Golden Horn. It is possible that the inlet, where access is easy only during favourable weather and wind conditions, served as a refuge harbour on the Propontis shore for those merchant ships that, for whatever reason, could not enter the main harbours[23]. Special facilities did not exist at that time; according to a common practice, the ships were simply pulled onto the beach. The trading activities on the bay continued in Roman times: the excavations in Yenikapı revealed amphorae and marble sculptures[24].

Ancient Byzantium, concentrated on the Sarayburnu, saw several phases of urban expansion, in the period of the Emperors Septimius Severus (193-211), Constantine the Great (324-337) and Theodosius II (408-450). Its urban area grew from less than 2 km² to approximately 14 km², and its population increased from about 20 000 in the early fourth century to at least 200 000 in the fifth century[25]. The enormous increase in population, which had already started in the time of Emperor Constantine, required an improvement of logistics and urban supply; equally, an expansion of the existing harbour system was necessary.

16 Algan et al., Holocene Coastal Change 42. 44. – Gökçay, Yenikapı kazılarında 168 f. – Özdoğan, Eastern Thrace 663-665.

17 The coastline has changed several times over the centuries, sometimes differing by up to 400 m from today's line. From the 11th c. onwards, however, the situation was comparable to that of our period: Algan et al., Short Note 461. – Algan et al., Holocene Coastal Change 31-44, esp. 43 figs 9a-e. – Asal, Theodosius Limanı 180. – See also Stanley/Blanpied, Water Exchange. – Çağatay et al., Sea of Marmara. – Spiegel Spezial 6, 2008, 60. – Ercan, Yenikapı 24. 106. – Perinçek, Geoarcheology 75. 83. 88-90.

18 Plinius, Nat. hist. IV 11, 46. – Firatlı, First Settlement 21-25. – Külzer, Ostthrakien 462. – Algan et al., Holocene Coastal Change 42. 44. – Gökçay, Architectural Finds 168.

19 See Herodotus 4, 144. – On the history, see Merle, Geschichte. – Nevskaja, Byzanz. – Loukopoulou, Thrace propontique 41-66 etc. – Müller, Bildkommentar 800-802. – Boardman, Greeks 241 f. 246. – Asal, Commerce 180-182. – Külzer, Ostthrakien 68-76. 461 f. – Günsenin, Harbours and Shipbuilding 412.

20 Müller-Wiener, Bildlexikon 16-19. – Magdalino, Maritime Neighborhoods 211. – Magdalino, Harbors 13 f. – Külzer, Ostthrakien 448-450. – Ercan, Yenikapı 10-14.

21 Dionysii Byzantii Anaplus 13-31 (Güngerich). – Oberhummer, Keras 257-262. – Hartinger, Periplusliteratur 143-155. – Mango, Développement 14 f. – Ercan, Yenikapı 14-22. – Günsenin, »City« Harbours 100-103. – Asal, Yenikapı Excavations 7. – Magdalino, Harbors 13 f. For the two harbours mentioned, cf. also Kislinger, Neorion, in this volume.

22 The course of the Lycus has changed many times over the centuries, and consequently the length of the river varied: cf. Algan et al., Holocene Coastal Change 42 f. fig. 9 (a)-(e). The data given refers to the modern period and should be used for a rough orientation only. – See Mango, Développement 19. – Mango, Shoreline 20. – Külzer, Ostthrakien 498.

23 Asal, Yenikapı Excavations 7. – Öncü, Greek-Roman Period 94-103. – Pulak/Ingram/Jones, Byzantine Shipwrecks 1-2. – On the disturbance of maritime traffic on the Propontis coast due to the south wind Notos, see also Ercan, Yenikapı 23.

24 Asal, Yenikapı Excavations 7. – Öncü, Greek-Roman Period 103. – Algan et al., Holocene Coastal Change 43. – Kızıltan, Marmaray Metro Projeleri 9.

25 Jacoby, Population 106 f. – Müller-Wiener, Bildlexikon 16-20. – Koder, Lebensraum 115-118. – Mango, Développement 13-50. – Asal, Yenikapı Excavations 8. – Around 540, the population of Constantinople has reached its highest level, about 500 000 people were living there, cf. the introduction of Kislinger, Better and Worse Sites, 12-13 in this volume.

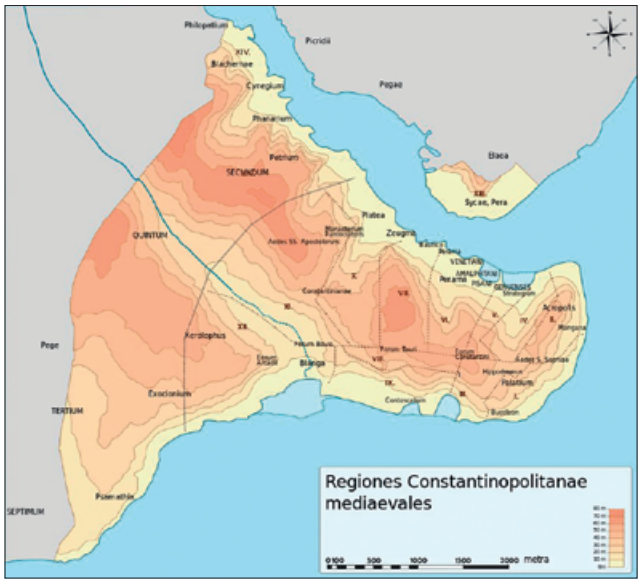

Fig. 3 The urban districts of Constantinople. – (Byzantine Constantinople regiones © 2012 by Andrew Dalby is licensed under CC BY 3.0).

Construction of a harbour on the coast of the Propontis began under Emperor Julian (361-363), who stayed in the city for some months in 361[26]. Built in the area of today's Kumkapı district, the place was initially named *Limen tu Iulianu* (λιμὴν τοῦ Ἰουλιανοῦ) after its patron; however, the Emperor himself did not live long enough to see its completion, which occurred during the reign of later rulers[27]. In the *Notitia Urbis Constantinopolitanae*, probably written around 425, it is called *portus novus* and assigned to the third city region (*regio tertia*)[28]. The harbour was dredged at the beginning of the sixth century and, after a conspicuous renovation in the third quarter of the sixth century, named after Sophia, the wife of Emperor Justin II (565-578): *Limen tes Sophias* (λιμὴν τῆς Σοφίας). Probably from the thirteenth century onward, it was also referred to as *Kontoskalion* (Κοντοσκάλιον) or *Kontoskelion* (Κοντοσκέλιον). Repeatedly dredged during the Palaeologian period (after 1261, 1427), the harbour was still in use in the fifteenth century[29]. Towards the end of the sixteenth century, a large part of the swamp area was filled, but the western harbour basin functioned until the middle of the eighteenth century[30] (**fig. 3**).

The Harbour of Julian is often identified in the academic literature as the oldest artificial harbour in the region of the Constantinopolitan Propontis coast; however, it is more correct to describe it as the first identifiable harbour in this special geographical area[31]. The *Patria Konstantinupoleos* mention a *Limen tu Eleutheriu* (λιμὴν τοῦ Ἐλευθερίου), which would have been constructed during the reign of Constantine the Great. This harbour, however, was nondurable: already during the construction of the Forum Tauri in 380, in the reign of Emperor Theodosius I (379-395), it was abandoned and filled with rubbish and earth[32]. Despite this explicit statement in a Byzantine source, in 1561, Petrus Gyllius equated both harbours and located it in the district of Langa Bostanı[33]. His theory was accepted in the scholarly community, thanks to the support of Alexander van Millingen, and is incorrectly repeated up to the present; historical remarks on the Harbour of Eleutherios continue to mention facts that, in reality, relate to the Harbour of Theodosius[34].

In fact, the Harbour of Eleutherios should be located elsewhere, not least because of the position of the Forum Tauri and the logical consideration that the excavated earth should be transported by the shortest possible route. Therefore, the harbour was located east of Yenikapı, possibly in a small inlet south of the later Myrelaion Church, near the church of ta Amantiu[35]. There was probably an interlinkage between the harbour and the Palace of Eleutheriu (παλάτιον τὰ Ἐλευθερίου), also mentioned in the *Patria Konstantinupoleos*, which was rebuilt on older fundaments during the reign of Empress Eirene (797-802). Unfortunately, there is no further information about Eleutherios, not even an approximate temporal classification of his lifetime, in the surviving sources[36].

The Harbour of Theodosius is first mentioned around the year 425 in the *Notitia Urbis Constantinopolitanae*, where it is placed in the twelfth region (*regio duodecima*)[37]. It was

26 Zosimus, Historia Nova III 11. – Janin, Constantinople 231. – Berger, Häfen 83. – Dark, Eastern Harbours 160-163. – See also Heher, Harbour of Julian, in this volume.

27 Ercan, Yenikapı 27 »[…] on the southern shore at today's Kadırga«. – The idea of a completion of the entire harbour already in 362, as mentioned by Günsenin, Harbours and Shipbuilding 416, is not plausible; the construction period would be much too short. – See also Heher, Harbour of Julian, in this volume.

28 Notitia urbis Constantinopolitanae 232 (Seeck). – On the chronology: Speck, Notitia 144-150. – Berger, Langa Bostanı 468. – Drakoulis, Functional Organization 153. A former generation of scholars misdated the text to the period between 447 and 450. – For further historical information, see Magdalino, Renaissances 57-64.

29 Guilland, Ports I 181-204. – Berger, Untersuchungen 425 f. 483 f. – Müller-Wiener, Häfen 8 f. – Effenberger, Illustrationen 29-31. – Liphschitz/Pulak, Types of Wood 164. – Ercan, Yenikapı 24-34. – Magdalino, Harbors 14. – The idea of Kontoskelion and Kontoskalion being two separate places, as reported in Janin, Constantinople 228 f. 230 f. and in Mango, Développement 38, is nowadays out of date.

30 Müller-Wiener, Häfen 26-28 – Liphschitz/Pulak, Types of Wood 165. – Ercan, Yenikapı 34 mentioned the year 1748, referring to Müller-Wiener, İstanbul'un Tarihsel Topografyası 63.

31 Ercan, Yenikapı 27. – Magdalino, Harbors 14.

32 Patria Konstantinupoleos II 63. 184 f. (Preger). – Berger, Untersuchungen 581 f. – See also the introductory chapter by Kislinger, Better and Worse Sites, in this volume.

33 Petrus Gyllius, De topographia IV 8, 213.

34 Vgl. van Millingen, Walls 36. 264. 268 f. 296-300. 307 f. – Janin, Constantinople 225-227. – Müller-Wiener, Bildlexikon 60 f. – Majeska, Russian Travelers 268 f. – Ercan, Yenikapı 34-37 and elsewhere. – Differently: Guilland, Ports II 206-210. – Berger, Untersuchungen 575 f. 581 f. – Berger, Langa Bostanı 469. – Müller-Wiener, Häfen 9. – Magdalino, Harbors 15. – Günsenin, »City« Harbours 103 is indecisive. – Günsenin, Harbours and Shipbuilding 417.

35 Berger, Untersuchungen 197 Gesamtplan (no. 181 Ta Amantiu nos 182 f. Myrelaion) 582. – An incorrect identification by Janin, Constantinople plan I »Byzance/Constantinople. Carte archéologique et topographique«.

36 Patria Konstantinupoleos III 173 (269 Preger). – Guilland, Ports II 208. – Janin, Constantinople 34. 131. 348. – Berger, Untersuchungen 581 f. 588-590. – Magdalino, Harbors 15. – Magdalino, Renaissances 76 f.

37 Notitia urbis Constantinopolitanae 239 (Seeck).

built some time before, probably around the year 390 under the reign of the eponymous Emperor Theodosius I[38]. The harbour was constructed to relieve the already existing landing stages for ships bringing supplies to the capital[39]. In addition to various everyday objects, one must mainly think of grain that came from the fertile soils of Egypt to feed the local population, similar to the situation of western Rome. The grain fleets are documented for Constantinople already in the fourth century: the first supply ships landed here soon after the inauguration of the imperial capital, since Emperor Constantine had ordered the distribution of free bread in 332[40].

There are different views on the average size of these transport vessels: for the supply of imperial Rome, ships with a tonnage between 100 and 500 t are attested[41]. The loading capacity of the supply vessels of Constantinople was estimated at a maximum of 340 t (50 000 *modii*), but the average capacity was estimated at only 68 t (10 000 *modii*)[42], an assessment which should certainly be revised upwards[43]. In any case, the ships needed a sufficient berth for their size and, at certain periods of time, their large numbers. It was therefore obvious to build a harbour for them.

In this harbour, granaries were needed, in which the cargo could be stored after offloading. These warehouses are already testified in the early fifth century: the *horrea Alexandrina* and the *horreum Theodosianum* in the twelfth city region (*regio nona*) neighbouring the ninth city region are found in the *Notita Urbis Constantinopolitanae.* Thereby, the source indicates the origin of the grain from Egypt and confirms the harbour in its function as a trans-shipment centre[44]. The local storage houses may have been comparable in size to other granaries. Length measurements between 65 and 70 m, with an average width of 27 m, are known from Roman Asia Minor, for example; and there were larger facilities at later periods[45].

Originally, there may have been no separating walls between the harbour basin and the granaries. Only in 439, after the completion of the great land walls[46] under the city prefect Cyrus, did Emperor Theodosius II order the construction of a sea wall to protect the previously largely unprotected coast of the Propontis from enemy invasions and raiding parties. The exact course of this first fortification is unknown. It is possible that it cut across the harbour area, separating the harbour basin from the hinterland, but the wall may also have included the mole upstream of the harbour and preserved the landing area as a whole[47]. A heavy earthquake damaged the wall in 447; an inscription mentions the damage and the repair. Natural catastrophes also damaged the walls in the following centuries and made permanent repairs necessary[48].

The construction of an enormous granary with measurements of approximately 87 m × 28 m on the island of Tenedos during the reign of Emperor Justinian I (527-565) had an indirect impact on the Harbour of Theodosius. The adverse northeastern winds and unfavourable currents made it sometimes difficult for the cargo ships that transported grain from Egypt, to enter the Dardanelles. In many cases, the ships had to wait for an incalculably long period before a passage was possible, while putrefaction could lead to a loss of goods and earnings. After the building of the granary, however, the cargo could be unloaded on the Aegean island and the huge ships were able to return immediately to the Oriental coast, saving time and costs. The cargo was then reloaded onto smaller ships that could more easily manoeuvre through the Dardanelles; they transported the goods to the capital[49]. To make it clear: the cargo size of ships entering Constantinople was reduced and a larger number of ships was needed to transport the same amount of goods. However, this could be organized easily. It would be a mistake to associate the existence of the granary in Tenedos with a loss of importance of the Theodosian Harbour[50].

In the middle of the sixth century, more precisely in the acts of the fifth Ecumenical Council in Constantinople in 553, a »harbour of Kaisarios« is mentioned for the first time, when ambassadors of Pope Vigilius (537-555) visited a house near the *Portum Caesarii*[51]. A long scholarly discussion whether this place was identical to the Harbour of Theodosius or not,

38 Mango, Urban Centre 121. – Ingram/Jones, Yenikapı 9. – Pulak et al., Shipwrecks of Yenikapı 23. – Pulak/Ingram/Jones, Yenikapı 102. – Günsenin, Harbours and Shipbuilding 423 f.

39 There are structures and a breakwater, possibly belonging to the 4th c., which were later built over by the Theodosian Walls, see Gökçay, Architectural Sinds 170-173. – Magdalino, Harbors 14.

40 Teall, Grain Supply 91-98 etc. – Demandt, Spätantike 396 f. – Müller, Getreide 2-11. – Durliat, L'approvisionnement 19-33. – Kislinger, Pane. – McCormick, Origins 92-98. 108 f. 111. – Avramea, Land and Sea Communications 83 f. – Kızıltan, Marmaray Metro Projeleri. – Kislinger, Verkehrsrouten 154.

41 Galsterer, Versorgung 27. – Müller, Getreide 9.

42 Mango, Développement 38.

43 Müller, Getreide 10 and A. 37. – Mango, Développement 38. The quays required would have had a length of nearly 4 km!

44 Notitia urbis Constantinopolitanae 237 (Seeck). – Magdalino, Maritime Neighborhoods 211. – Mundell Mango, Commercial Map 193. – Pulak/Ingram/Jones, Yenikapı 102. – Wade, Maritime Cults 273. – Günsenin, Harbours and Shipbuilding 417.

45 Cf. Müller, Getreide 6 f. – Kislinger, Pane 284 concerning the well-known storehouses of Patara and Andriake. – Müller-Wiener, Häfen 9 and A. 26 concerning storehouses in Aspendos, Ostia and Rome. On the granaries in the Western parts of the Roman Empire, see Rickman, Granaries. The famous granary of Tenedos will be covered below. Many granaries are only known from literary evidence and their exact dimensions remain unknown, such as a storehouse in Kallipolis in eastern Thrace that is documented in the 6th c. (Procopius, De aedificiis IV 11; Külzer, Ostthrakien 215. 426 etc.).

46 The most important academic study on this subject is Asutay-Effenberger, Landmauer.

47 Chronicon Paschale I 583 (Dindorf). – Müller-Wiener, Häfen 9. – Dagron, Naissance 268-272. – Berger, Untersuchungen 232 f. 478. – Gökçay, Architectural Finds 170 f. – Magdalino, Harbors 14.

48 Müller-Wiener, Bildlexikon 312 f. – Guidoboni, Earthquakes 292-295. – Ambraseys, Earthquakes 165-168. – Ercan, Yenikapı 12 f. 26.

49 Procopius, De aedificiis V 1, 7-16. – Müller, Getreide 5-11 (also concerning the statement of Procopius, the storehouse could »take the cargo of a whole fleet«). – Kislinger, Pane 283-284 – Koder et al., Aigaion Pelagos 69 f. 99. 287-291. – Avramea, Land and Sea Communications 84. – The smaller ships were easier to attack than the larger ones. Slavic raids on supply ships even on the open sea are documented in the third quarter of the 7th c.: Kislinger, Reisen 347 and n. 32.

50 This was the opinion of Müller-Wiener, Häfen 9: »[…] probably it was only used by the fishermen living on the south coast«. – Equally Ercan, Yenikapı 37 »[…] lost the largest part of its raison d'être etc«.

51 Mansi, Collectio IX 200A. – Cf. van Millingen, Walls 301-315. – Guilland, Ports II 210. – Janin, Constantinople 227 f.

ended with a positive result, while the attempt to equate it with the Heptaskalon located on the Golden Horn, is obsolete and no longer justifiable[52]. The name Kaisarios may come from a toponym in the neighbourhood of the harbour: a quarter of that name is attested in the description of a devastating fire on 12 October 561/562[53]. The reason for the change of name remains unknown[54]. The name was repeatedly mentioned in the seventh century: in October 610, Emperor Phocas, who had come to power eight years earlier by a *coup d'état*, used the circus factions of the Blues and the Greens in his defensive campaign against Heraclius, who was approaching from the West. While the Blues took up position in the Hormisdas quarter (τὰ ἐπὶ Ὁρμίσδου), the Greens defended the Harbour of Kaisarios (τὸν λιμένα τὸν Καισαρίου) and the Harbour of Sophia (τὸν λιμένα […] τὸν Σοφίας)[55]. This was a military operation, which, as everyone knows, was unsuccessful and could not prevent Heraclius from accession to power. Two generations later in 671/672, Emperor Constantine IV (668-685) stationed several dromons equipped with flamethrowers in the harbour, in reaction to the advance of the Arab fleet towards Constantinople[56]. The place name used in the source is unusual: Theophanes wrote of ships in the »Proclianesian harbour of Kaisarios« (ἐν τῷ Προκλιανησίῳ τῶν Καισαρίου λιμένι), a phrase that is probably derived from the proper name Proklianesios, a name that is impossible to connect with any historical person. In this context, Kaisarios may again be understood as the name of a quarter[57].

The sea walls suffered during armed conflicts, but much more from natural disasters such as storm surges or earthquakes. For example, earthquakes followed by tsunamis are documented for the years 554, 557, 740 and 989[58]. At the turn of the seventh to the eight centuries, the «neglected« wall underwent a fundamental renovation. According to the *Patria Konstantinopoleos,* this renewal took place in the reign of Emperor Tiberius III Apsimar (698-705)[59]. Theophanes, on the other hand, attributed it to the reign of Emperor Anastasius II (713-715), in a context with the simultaneous renovation of the land walls, the armament of the towers with catapults and other ordnance, and the development of the Byzantine fleet[60]. This renewed and towered wall probably ran north of the basin of the Harbour of Theodosius, thereby disconnecting the whole area from its hinterland and the granaries that were still in use[61].

Massive ice sheets damaged the seawall in the winter of 763[62]. Sieges, such as the one by the usurper Thomas (821-823), also caused damage; therefore, major restoration work was carried out in the reign of the Emperors Michael II (820-829) and Theophilus (829-842)[63]. At that time, various noble families owned residences near the harbour, probably beyond the seawall. At a slightly later date, they are mentioned in a saint's *Vita* from the first half of the tenth century[64]. Nearby was also an otherwise unknown nunnery Mouzalon (Μουζάλων)[65].

At that time, the Harbour of Theodosius was still frequented by numerous ships, as the archaeological remains manifested impressively. The river Lycus that flowed into the harbour basin contributed to a silting up; however, this happened slowly from west to east, and it was not before the twelfth century that the operation possibilities of the harbour were sensitively disrupted[66].

Even before his accession to the throne, Andronicus I Comnenus (1183-1185) owned a house in the area, which was probably named after a former owner »the one of Blangas«; this building gave its name to the whole quarter for the next centuries to come[67]. As emperor, Andronicus I initiated repairs of the city's fortifications, which were partially in a bad

52 Müller-Wiener, Häfen 9 and A. 25 corrects his older idea (Müller-Wiener, Bildlexikon 61 f.) about an identity of Heptaskalon and Kaisarios. Berger, Untersuchungen 575 is right. – Berger, Langa Bostanı 468 f. – Berger, Häfen 82. – Mango, Développement 38. – Magdalino, Harbors 13 f. – For Heptaskalon, see also Preiser-Kapeller, Heptaskalon, in this volume.

53 Theophanes, Chronographia I 235 (de Boor): γέγονεν ἐμπυρισμὸς μέγας ἐν τοῖς Καισαρίου κτλ. For an English translation, see Mango/Scott, Theophanes 347 f.

54 Ercan, Yenikapı 38-40. – Magdalino, Harbors 14.

55 Ioannes Antiochenos, Fragmenta 321. 20 f. (552 Roberto). – Chronicon Paschale I 700 (Dindorf). – Guilland, Ports II 211 (with reference to the geographical order of the harbours, starting from the west). – Janin, Constantinople 227. – Ercan, Yenikapı 40 f. – See also Magdalino, Renaissances 64-70.

56 Theophanes, Chronographia I 353 (de Boor); English translation: Mango/Scott, Theophanes 493. – Müller-Wiener, Bildlexikon 62. – Pryor/Jeffreys, Dromon 607. – Ercan, Yenikapı 40.

57 Some speculations in Guilland, Ports II 212. – In contrast Mango/Scott, Theophanes 493: »a person called Proclianus remains unexplained«. – Berger, Ports 86, n. 34 accepted this statement; however, he interpreted the term »Kaisarios« as a personal name. – Among others, Magdalino, Review 257 is also unable to solve the enigma of this phrase.

58 Between the 4th and the 14th c., there is geological evidence for 22 tsunamis in the Sea of Marmara; 28 tsunamis are mentioned in literary sources, with a remarkable concentration in the Early Byzantine period. Already 13 respectively 18 tsunamis are documented between 325 and 557; cf. Altinok et al., Tsunamis 528. 530. – In general, Yalcıner et al., Tsunami. – Hébert et al., Tsunami Hazard. – Perinçek, Geoarcheology 69. 75-77. 89 f. – The literary sources are listed and translated in Guidoboni, Earthquakes 336 f. 340-345. 364 f. 404 f. – Equally in Ambraseys, Earthquakes 206 f. 208-211. 227-229. 256-257.

59 Patria Konstantinupoleos II 109 (208 f. Preger); here is also a statement that the wall was in a poor condition. – Berger, Untersuchungen 675 f. 691.

60 Theophanes, Chronographia I 384 (de Boor); English translation: Mango/Scott, Theophanes 534 f.

61 Müller-Wiener, Häfen 9. – Magdalino, Maritime Neighborhoods 213. – Mundell Mango, Commercial Map 192 f. 201 f. – Ingram/Jones, Yenikapı 10.

62 Theophanes, Chronographia I 434 f. (de Boor); English translation: Mango/Scott, Theophanes 600-602. – Teleles, Phainomena I 342-350.

63 Patria Konstantinupoleos II 109 (208 f. Preger). – Müller-Wiener, Bildlexikon 313. – Berger, Untersuchungen 675 f. – Concerning the civil war between Michael II and Thomas, see Stouraites, Bürgerkrieg 163-165; Lemerle, Thomas le Slave.

64 Vita Basilii Minoris 292 f., ch. 11, 332 f., ch. 36 […] πάλιν ἐν τοῖς παλατίοις τῶν Ἐλευθερίου […] οἴκός ἐστι παμμέγιστος, ὃν εἶναι φασί τινες Ῥωμανοῦ τοῦ βασιλέως. – Mango, Life of St Andrew 303 f. and n. 36. – Magdalino, Maritime Neighborhoods 214. – Mango, Développement 59.

65 Vita Basilii Minoris 322 f. chap. 29, 323 n. 89.

66 Asal, Commerce 184-187. – Ingram/Jones, Yenikapı 10. 13. – Kocabaş, Old Ships 32. – Kocabaş, Byzantine Shipwrecks 51. – Kocabaş/Özsait-Kocabaş, Milestone 37 f. – Günsenin, Harbours and Shipbuilding 420. – YK 11 is the only ship discovered in the west of the harbour that belongs to the 7th c.. – For historical and economic background information, see also Jacoby, Maritime Trade 627-648.

67 Niketas Choniates, Historia 130,75 f. (van Dieten): […] Ἀνδρόνικος εἰς τὸν οἰκεῖον οἶκον παρελθών, ὃς τοῦ Βλάγγα ἐπικέκληται […]. – van Millingen, Walls 299. – Berger, Langa Bostanı 469 and n. 8. – Janin, Constantinople 325 mentioned a theory about a connection with the word τὰ αὔλακα, »moats«. – Ercan, Yenikapı 80 is unfortunately incorrect.

condition: and these measures probably included the walls in the harbour area[68]. Similar activities were undertaken during the reigns of the emperors Michael III (842-867), Leon VI (886-912), Nicephorus II Phocas (963-969), and Basil II (976-1025). However, it is not always possible to establish a clear link to the area of the later Yenikapı district[69].

The destruction caused by the great fire of 1203 affected, among other regions, the area of the Harbour of Sophia and the quarter of *ta Eleutheriou*[70]. The extent to which the area of the Harbour of Theodosius further in the west was affected remains uncertain.

Soon after the end of Latin rule over Constantinople in 1261, the area of the Harbour of Theodosius was again mentioned in the surviving sources as the Vlanga Quarter. To ward off potential attacks by the troops of Charles of Anjou, Emperor Michael VIII Palaeologus (1259-1282) intended to build a second strong wall within the sea wall around the year 1270[71]. Likewise, the »Kontoskalion Harbour near Vlanga« was fortified during this time[72].

Three years earlier, in 1267, the Emperor had decided to settle Jewish craftsmen in the area of Constantinople. Jewish quarters had existed in the capital as early as the fifth century, but they were located on the Golden Horn and in Pera. Concerning the period of Latin rule, there are no reliable statements in the written sources[73]. In 1293, however, the Arabian historian al-Ğazari mentioned the existence of a Jewish quarter whose gates would be closed every evening. In the 26 years since 1267, the Jews had been assigned their own separate quarter[74]. Some of these Jews worked as tanners, a smell-intensive industry, which was usually only undertaken in urban outskirts where there were fewer inhabitants. The mentioned area, however, was inhabited, not only by Jews, but also by Christians: in a letter addressed to Emperor Andronicus II (1282-1328), Patriarch Athanasius I (1289-1293, 1303-1310) protested passionately but in the end unsuccessfully against the presence of Jews in a Christian neighbourhood[75]. In a letter dated 1296, Maximus Planudes (c. 1260-1330) gave an account of conflicts between the two religious groups in the neighbourhood of the Church of St John Prodromos and an abandoned monastery nearby, and lamented the existence of the resident tanners, whom he wanted transferred to another place[76]. This request was unfulfilled, as Venetian documents from the years 1319 and 1320 mention Jewish tanners still on the shores of the Propontis[77].

Stephen of Novgorod, a Russian pilgrim who visited Constantinople around the year 1350, referred in his travelogue to numerous Jews who settled beside the city fortifications on the shores of the sea. Therefore, the city gates that opened towards the sea were called the »portes juives«, the »Jewish Gates«[78]. This note was correctly related to the Vlanga district, with its three local city gates, that is located on Stephen's way from the Harbour of Kontoskalion to the Studios Monastery[79].

At least three texts from the Late Byzantine period mention skeletal remains in the vicinity of the walls, with different explanations. The Russian pilgrim from Novgorod, who mentioned the phenomenon first, established a relationship with a legendary incident from the time of the siege of Constantinople by the Persians (and Avars) in 626[80]. In contrast, the Florentine Cristoforo Buondelmonti (c. 1380/1385-1431), who travelled to Constantinople in the years before 1420 and again in 1421/1422, saw the bones in question in »a field […] that was once a harbour called Vlanga«, by making a reference to the Crusades[81]. The Burgundian Bertrandon de la Broquière (c. 1400-1459), who visited the Byzantine capital at the end of 1432, beginning of 1433, mentioned as well an accumulation (»une montaignette«) of bones dating back to the period of the Crusades, near a harbour on the south coast of Constantinople. This landing place was small, but still in use; his statement that »only three or four galleys« could find a place for landing there is an important testimony for the continuing use of at least some parts of the Harbour of Theodosius in the late Palaeologan period[82].

The connection with the area of Yenikapı is obvious; however, the skeletal remains can hardly be linked to the events mentioned in the sources because the time spread is much too long. In addition, a link to the recapture of Constantinople in 1261 is impossible[83]: it is unlikely that a field full of human bones in front of the city walls was not cleaned up for nearly 150 years. A connection with the tanneries is more logical: the remains, assuming their actual existence, were obviously not human bones, but animal remains and waste products from local workshops[84].

Despite his literary reference to the Vlanga district, Cristoforo Buondelmonti made also a pictorial one: His *Liber insularum Archipelagi,* composed before 1420, which passed

68 Niketas Choniates, Historia 320,72-74 (van Dieten). – Ercan, Yenikapı 26.
69 Müller-Wiener, Bildlexikon 313f. – Berger, Häfen 83.
70 Niketas Choniates, Historia 554,38-555,54 (van Dieten). – Madden, Fires 73-84.
71 Nikephoros Gregoras, Relationes historicae V 2 (I 124 Failler). – Müller-Wiener, Bildlexikon 314. – Effenberger, Illustrationen 30.
72 Georgios Pachymeres, Relationes historicae V 10 (II 469,24 Failler): τὸ πρὸς τῷ Βλάγκᾳ Κοντοσκέλιον ἀνοικοδομεῖν ἤλθεν κτλ. – Effenberger, Illustrationen 30. – Concerning trade in the area of Constantinople in that period, see also Jacoby, Commercial Exchange 187-194. – Magdalino/Necipoğlu, Trade. – Necipoğlu, Byzantine Economy 444-448.
73 Jacoby, Quartiers juifs 168-189.
74 Cf. Jacoby, Quartiers juifs 189f. – Müller-Wiener, Bildlexikon 61. – Ercan, Yenikapı 37.
75 Jacoby, Quartiers juifs 190f.
76 Jacoby, Quartiers juifs 191. – Ercan, Yenikapı 80f.
77 Jacoby, Quartiers juifs 191.
78 Khitrowo, Itinéraires russes 121. – Majeska, Russian Travelers 38. – The visit was probably made in 1349: Ševčenko, Notes 168-172. – Majeska, Russian Travelers 17. – On the city gates, see Berger, Langa Bostanı 468 fig. 1; 469 fig. 2 etc.
79 Majeska, Russian Travelers 17. 268f. – Ercan, Yenikapı 84.
80 Majeska, Russian Travelers 268-271. – Berger, Langa Bostanı 469f.
81 Gerola, Vedute 271f. – Majeska, Russian Travelers 269f. – Effenberger, Illustrationen 14. 16. 31-33.
82 Bertrandon de la Broquière, Voyage 152f. – Majeska, Russian Travelers 269f. – Berger, Langa Bostanı 472. – Effenberger, Illustrationen 31. – Pulak/Ingram/Jones, Byzantine Shipwrecks 3. – Mundell Mango, Commercial Map 198f. is incorrect. – Bony et al., High-energy Deposit 121.
83 Bertrandon de la Broquière, Voyage 152f. – Majeska, Russian Travelers 271.
84 The idea that the bones were indicators for the presence of a former local cemetery, as Magdalino, Harbors 14 suggests, seems implausible.

down in several manuscripts, includes a city map of Constantinople, which is the oldest surviving representation of the city[85]. More than 70 manuscripts are known today and several include the map of the Byzantine capital, with differing quality and accuracy[86]. Notwithstanding all the schematisations and simplifications, the area around the Harbour of Theodosius, usually labelled as *vlanga*, *portus volanga* or similar, can be clearly identified[87]. In front of the sea wall, there are considerable alluvial deposits. This alluvium is traversed by a stream leaving the wall in a slight meander, the Lycus, being responsible for the deposits. To the west, a mole leads far out into the Propontis. During the restoration measures of the sea walls, Emperor John VIII Palaeologus (1425-1448) had this mole provided with two large towers at each end. These fortifications are depicted in the important Düsseldorf manuscript of the *Liber insularum archipelagi* written after 1484, while they are missing in various corresponding illustrations in other manuscripts of this text[88].

According to a Venetian eyewitness, the alluvial land formed by the Lycus was used by ships of the Ottoman fleet for landing on 29 May 1453. Starting from this point, some Ottomans invaded the city and plundered the neighbouring Jewish quarter[89]. Apparently, as a result of the devastation, Sultan Mehmed II (1451-1481) decided in the same year to remove the Jews from the Vlanga district and to relocate them to Balat at the Golden Horn[90] (**fig. 4**).

The Düsseldorf Codex of the *Liber insularum archipelagi* does not only show the mole towers of the Harbour of Theodosius, erected in the late Palaeologan period, but also a wide-walled area in the hinterland of the harbour, designated with the caption *locus aquosus* as marshland, this in an evident contrast to other city representations attributed to Buondelmonti[91]. The region is represented on the cityscape of Giovanni Andrea Vavassore that was created around 1530 by using a (lost) original from the period between 1479 and 1490[92]. A. Berger and A. Effenberger investigated that estate, especially concerning the date and development of single parts of the wall[93]. Both scholars tried to solve these problems by a comparative analysis of early modern maps, using, in addition to the plan of Vavassore, drawings by Matrackçı Nasuh (1537), Piri Reis (originally 1521) and the one in the *Hünername* of Seyyid Lokman (1584/1585). In particular, due to the depiction of Constantinople in the Düsseldorf manuscript, the German researchers recognised that, before 1480, a wall with eleven towers enclosed the entire harbour district, modern Büyük Langa Bostanı and the Yalı area. However, another wall postulated by A. Berger that divided the area of Büyük Langa Bostanı is dubious; at any rate, there are no archaeological traces of that wall. The idea may have originated from an erroneous interpretation of the illustrations of the arched sea wall on the different maps[94] (**fig. 5**).

The Venetian Giovanni Maria Angiolello (c. 1451/1452-1525) came to İstanbul as a prisoner of war; he was in the service of Mehmed II in the second half of the 1470s. In his report from around 1480, he consequently likened Blanga to an unguarded fortress[95]. Equally, the fortress character of the quarter appears in the depiction of Constantinople in the world chronicle of the Nuremberg scholar Hartmann Schedel (1440-1514), the *Liber chronicarum* of 1493 (**fig. 5**). In his map, there is no pier or a still existing harbour facility, just a sea wall, and in its centre the estuary of a river, the Lycus, flowing into the Propontis[96]. Immediately beyond the mouth of the river, there is another rampart to the landward side; a tree appearing behind a gate might suggest a garden. Of course, oversized schematics make accurate interpretation difficult. A second representation of Constantinople in the mentioned chronicle, in connection with statements concerning a weather disaster in the year 1490, is unrewarding in our context. Being more stylised it shows only a part of the city, and, next to the closed sea front, there is a depiction of neither a river mouth, the mentioned tower-reinforced mole, nor inner city gardens[97].

The mentioned gardens are presented in the well-known description of the Vlanga quarter that Petrus Gyllius published in his 1561 book *De topographia Constantinopoleos*. Prominently highlighted, the area of the former Harbour of Theodosius was described as widely covered up and located »in the gardens that is today called Blancha«[98]. These gardens were characterised as spacious and rambling. Vegetables were cultivated in that area and bigger trees consequently rare. Several ponds with permanent water, obviously remnants of the former harbour, assured the irrigation of the plants. A 12-foot-wide and 600-step-long mole was still in place. The mouth of the harbour opened to the east with a nearby tower surrounded on all sides by water; here shipping traffic was still possible. According to A. Effenberger, the whole description should be related to the area of Yeni Mahalle, which at that time was still a small harbour basin with a peculiar mole[99].

These last modest remains of the former harbour of Theodosius were filled with dug earth in 1759/1760, with soil that was brought from the building yard of Laleli Camii. Sultan

85 Effenberger, Illustrationen 17 f. – Berger, Langa Bostanı 470-472. – Berger, Häfen 84. – Ercan, Yenikapı 84-87.
86 Effenberger, Illustrationen 14 f. – See also Drakoulis, Buondelmonti 221 (Plan).
87 Gerola, Vedute 268 f. – Effenberger, Illustrationen 31.
88 Effenberger, Illustrationen 31. 67 f. 91 figs 1-2; 103. – Drakoulis, Buondelmonti 221. – Mango, Shoreline 26. – Berger, Langa Bostanı 470-472 tab. 51 fig. 1. – Müller-Wiener, Bildlexikon 314.
89 Nicolò Barbaro 56. – Jacoby, Quartiers juifs 194 f. – Berger, Langa Bostanı 472. – Ercan, Yenikapı 88.
90 Jacoby, Quartiers juifs 195 f. 218. – Ercan, Yenikapı 84.
91 Effenberger, Illustrationen 31. 103-104.
92 Effenberger, Illustrationen 19. 92 fig. 5.
93 Berger, Langa Bostanı 470-477. – Effenberger, Illustrationen 31-33.
94 Effenberger, Illustrationen 32-33. 92-95 figs 5-12; 103-104.
95 Effenberger, Illustrationen 20. 33 and n. 399. – Giovan Angiolello, Viaggio 25 (Bazzolo).
96 Ercan, Yenikapı 88. 148 fig. II.13.
97 Effenberger, Illustrationen 19 and n. 108; 91 fig. 3.
98 Petrus Gyllius, De topographia IV 8, 212 f. – Berger, Langa Bostanı 476.
99 Effenberger, Illustrationen 32.

Fig. 4 View of Constantinople, Pera and the upper Bosphorus by Cristoforo Buondelmonti, *Liber insularum archipelagi*. Düsseldorf, Universitäts- und Landesbibliothek, MS. G 13, fol. 54r, c. 1485-1490 (the manuscript is on loan from the City of Düsseldorf to the Universitäts- und Landesbibliothek of Düsseldorf).

Fig. 5 View of Constantinople. – (Hartmann Schedel, Liber chronicarum [Nürnberg 1493] fols CXXIX^{v}, CXXX^{r}).

Mustafa III (1757-1773) created a new district in the area called Yeni Mahalle, which was frequently inhabited by Armenians[100]. The cityscape of Konstantinos Kaldes, a painter and theologian, from 1851 and now preserved in the Benaki Museum in Athens, shows only high density areas in the region of Yenikapı; the former harbour area left no trace[101].

In the 1870s, a railway embankment was built through the Langa Bostanı district and several new roads and streets also divided the whole area[102]. The construction of a quayside around 1960 and later embankments changed the character of the landscape completely by moving the area of the old Harbour of Theodosius further inland. With the increasing establishment of factories and workshops, the gardens diminished almost completely and the entire landscape altered. Only a very limited area in the so-called Küçük Langa Bostanı retained its former rural character until a few years ago[103].

The Excavation Site of Yenikapı: Some Remarks on the Archaeological Findings

Thanks to the realisation of the *Marmaray* Project and the start of the excavations in Yenikapı in 2004, the Harbour of Theodosius came back to life. The analysis of the archaeological data will continue for several years, with numerous remarkable insights concerning Byzantine daily life, enriching our knowledge[104]. For example, in one of the oldest ships, there was a small wooden box measuring 15.3 cm × 8.8 cm × 7.2 cm, containing several superimposed wax tablets and fixtures for retaining balance weights. Obviously, the unique object was used for accounting and controlling the cargo; today's newspapers even compared the object to a modern tablet computer[105] (**fig. 6**)!

Within the spacious excavation site, a large number of impressive and sometimes massive architectural remains were discovered, stretching from the fourth to the thirteenth centuries. For example, there was a rambling masonry dock in the bay of Yenikapı already in the fourth century AD, which was regularly used for loading and unloading ships. More

100 Müller-Wiener, Bildlexikon 61. – Berger, Langa Bostanı 467. – Günsenin, Harbours and Shipbuilding 418. – For the Laleli Camii, see Restle, Istanbul 193 f.

101 Benaki-Museum, inv. no. 30411.

102 Berger, Langa Bostanı 468. 471 fig. 4. – Günsenin, »City« Harbours 104. – Paribeni, Torri di Vlanga Bostani 239 presents a pen drawing of the area from 1884.

103 Berger, Langa Bostanı 467 f. – Günsenin, Harbours and Shipbuilding 418. – See the picture by Kocabaş/Ozsait-Kocabaş, Milestone 37.

104 The numerous small finds include, among others, game boards and figures, combs, keys, scales and weights, fibulae, jewellery, ceramics, and lead plaques inscribed with apotropaic formulae, see Baran Çelik, Daily Life 216-229. – Kızıltan/Pekin, İstanbul 253-305. – Wade, Perceptions 61. 69. – Baran Çelik, Biçimli Fibulaları 431-444. – Baran Çelik/Son, İstanbul Kazı Buluntuları 38-45. – Öncü/Çölmekçi, Yenikapı Kazıları 15-28. – Tsivikis, Epigraphy 121-125. – For a detailed report of the excavations at Yenikapı, see also Ginalis/Ercan-Kydonakis, Reflections on the Archaeology, in this volume.

105 The box was found in the ship YK 35 from the 5th c.; cf. Polat, YK 35, 188 fig. 205. – See *News Discovery* of 19 May 2014: »›Byzantine iPad‹ found in Ancient Shipwreck«. – *Green Prophet* of 20 May 2014: »The ›original iPad‹ – 1200 years before Apple«, with an erroneous dating to the Middle Byzantine period. Time misjudgements like this often occur in newspapers and popular media.

than 25 m in length, it was constructed with huge rectangular stones, including some *spolia*, among them a marble stele from the fourth century BC[106]. The Theodosian Wall partly overbuilt these older structures; in some parts, the new construction was put on wooden beams that covered the original architecture[107]. To build the new wall, people used material from the older constructions, including stones from the fourth century dams. The walls in the harbour area were mostly abundant; routine maintenance and repairs took place on a regular basis throughout the centuries, although these measures are not always easy to date[108].

In the area of the Theodosian Harbour, the archaeologists discovered roads, paths and lanes, wells and walls, fortifications and towers, even a holy spring, a *hagiasma* connected to a church is documented[109]. However, the function of different components and structures has not been clarified so far. The existence of a granary in the harbour area has been suggested; the size of the relevant foundations is about 12.3 m × 8.4 m, the interior was plastered with mortar. Unfortunately, modern building activities destroyed several parts of this unique building[110]. Further to the north, are the foundations of two larger rectangular buildings made from limestone, bricks and mortar. Their function remains unclear, but according to their building technique, they belong to the sixth century AD[111]. Close to the west, there is a vaulted hypogeum. When it was first built in the twelfth century, it possessed four chambers; during the excavation, human bones and skull fragments were discovered in its north-western chamber[112]. In its immediate neighborhood, between different stone masses, were several human graves; a nearby vaulted waterway dates to the twelfth century as well[113]. A large masonry pier in the eastern part of the harbour area belongs, according to its building technique and timber samples, to the late eighth century. Eventually, the structure was generated in context with building activities and restoration measurements in the close vicinity of the harbour, arranged by the Emperor Constantine VI and his mother Eirene[114]. In the southwestern part of the excavation area, there are four rectangular but partially demolished workshops, the smallest one measuring 2.8 m × 3.75 m, the largest one 6.5 m × 3.2 m. Their walls and floors are covered with lime; water pipes are set above the walls, they were necessary for the production of the goods manufactured here[115].

Fig. 6 Wooden box from YK 35, 5th c. – (From Polat, YK 35, 188 fig. 205a).

In the northwestern area of the excavation site, a three-aisled church was discovered, which is normally attributed to the twelfth or thirteenth centuries[116], but also to the late tenth or early eleventh centuries[117]. The church was made from masonry and bricks; in its final condition, it has a length of 9.5 m and a width of 11.45 m. It was originally constructed as a single nave church, both side aisles were added at a later period. Its location is particularly interesting: the church was constructed inside the harbour basin in an area that was silted up at a comparatively early date[118]. Adjoining the south side of the church is an »L«-shaped storage area with four rooms; they were made of stone in their lower parts, while the upper parts were probably wooden. Inside the church and around it, the archaeologists discovered numerous graves with human skeletons – 23 in all[119].

Posts of wooden jetties can be found all over the site, often in seemingly random structures. The phenomenon is obviously a reaction of the progressive siltation of the harbour basin. The timbers date from between the fourth and the fourteenth centuries, with the oldest wood in the west of the basin and the youngest in the extreme southeast – this illustrates once more the progressive siltation of the harbour from west to east[120].

The real sensation of the excavation is the discovery of 37 ships in the harbour area – the largest collection of Byzantine ships ever found at an excavation site[121]. After an in-depth analysis of the archaeological data, it will be possible to enrich

105 Gökçay, Architectural Finds 170. – Gökçay, Yenikapı kazılarında 170. – Kızıltan, Stories 5 f. – A brief overview of the architectural findings of Yenikapı in Kocabaş, Yenikapı Shipwrecks 7 f. – Magdalino, Harbors 14. – Magdalino, Review 257. – Magdalino, Renaissances 60 n. 33 complains about the lack of detailed information; however, he should be aware of the fact that excavation reports with a special interest in harbour architecture are not accessible for a wider audience so far (August 2020).
106 Gökçay, Architectural Finds 170 f. and fig. 4. – Magdalino, Harbors 14: »they overlie the remains of earlier structures«.
107 Gökçay, Architectural Finds 171-173.
108 Gökçay, Architectural Finds 173. 177 f.
109 Gökçay, Architectural Finds 173.
110 Gökçay, Architectural Finds 173 f.
111 Gökçay, Architectural Finds 174.
112 Gökçay, Yenikapı kazılarında 174.
113 Magdalino, Harbors 14.
114 Gökçay, Architectural Finds 174.
115 Gökçay, Architectural Finds 176. – Magdalino, Harbors 14.
116 Toksöy, Faith 232. – Toksöy, İnanç 232.
117 Gökçay, Architectural Finds 175. – Magdalino, Harbors 14.
118 Gökçay, Architectural Finds 175 f.
119 Gökçay, Architectural Finds 177. – Magdalino, Harbors 14. – Günsenin, Harbours and Shipbuilding 420.
121 Liphschitz/Pulak, Types of Wood 164. – Ingram/Jones, Yenikapı 8. 10. – Kocabaş, Latest Link 13. – Pulak et al., Shipwrecks of Yenikapı 23. – Pulak/Ingram/Jones, Byzantine Shipwrecks 1. 4. – Pulak/Ingram/Jones, Galleys 8-25. – Kocabaş, Studies 26-41.

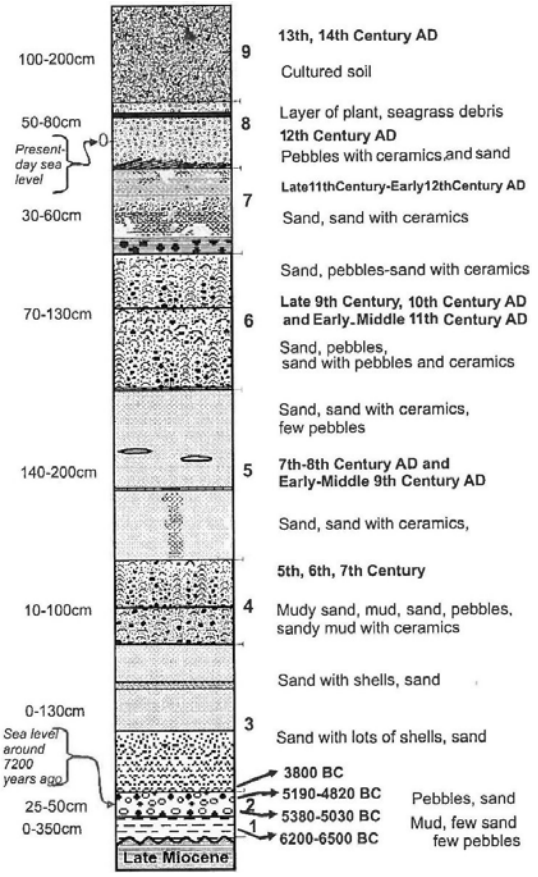

Fig. 7 Generalised stratigraphy of the Yenikapı excavation. – (From Perinçek, Geoarcheology 72 fig. 2).

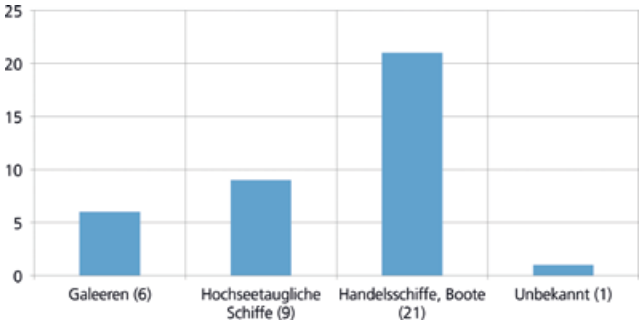

Fig. 8 Shipwrecks according to ship type. – (A. Külzer 2016).

the statements of the written sources on the history of the harbour.

The first ship was discovered in 2005[122], the last one a few months before the finishing of the excavations in May 2013[123]. This last one, ship YK 37, was obviously a simple merchant ship that sank in the eastern section of the harbour near the quay walls[124]. As far as we know, there are no publications concerning its age determination up to now. Two ships were discovered in its immediate vicinity: YK 32 dates to the seventh to ninth centuries and YK 34 to the fifth century; therefore, they offer no evidence for the dating of YK 37.

The remaining 36 ships can be divided into three categories: there are six naval longships or galleys (YK 2, 4, 13, 16, 25, 36); nine ocean-going merchant ships (YK 3, 15, 17, 18, 20, 21, 22, 27, 29); and 21 smaller merchant ships or fishing boats[125]. The dating of the ships depends on the excavation layers they belong to, the analysis of the applied shipbuilding technique, in some cases also on the more precise radiocarbon or ^{14}C investigations[126]. The results of the scientific analyses will slightly modify the current state of research (**fig. 7**).

The oldest ships YK 34 and YK 35 date back to the fifth century; both were merchant ships, the former sank without cargo, while the second ship was loaded with various items, such as lamps, kitchen utensils, a 45-cm model ship, the wooden box mentioned above, and more than 120 amphorae[127]. The bones found in some of the vessels indicate the transport of dry fish[128]. Slightly younger are YK 10, YK 22, and YK 26, which date back to the fifth or sixth centuries[129]. The 8.5 m long and 4 m wide YK 11 is dated to the seventh century[130]. The oldest galley found at Yenikapı is YK 16, dated to 720-742 and measuring 22.5 m long and 2.40 m wide 113. YK 29, which was suitable for travelling on the open sea due to its construction, belongs to the same century[132]. The well-preserved ship YK 23 dates back to the late eight or early ninth centuries[133]. Age determination is

122 Pulak et al., Shipwrecks of Yenikapı 23 f.

123 http://sgsymposium.ku.edu.tr/yenikapi (24 November 2014). Several academic papers written later than May 2013 still refer to the incorrect number of 36 ships discovered in Yenikapı.

124 Kocabaş, Yenikapı Shipwrecks 10 presents an accurate plan, which shows the find spots of all the 37 ships discovered in the excavation site. – See also Özsait-Kocabaş, Yenikapı 12, 358 fig. 1.

125 Kocabaş, Byzantine Shipwrecks 52 characterized the eight ships YK 3, 15, 17, 21, 22, 27, 29 and 31 as ocean-going; Kocabaş, Latest Link 9 the nine ships YK 3, 8, 15, 17, 18, 19, 20, 21 and 22. Our statement is based upon size, type and design of the ships.

126 Kocabaş, Old Ships 33-35. – Özsait-Kocabaş/Kocabaş, Features of Yenikapı Shipwrecks 97-185. – For detailed information concerning the nine excavation layers (2a-c, 4a-b, 6a-b), some of them with further subdivisions, between the 7th millennium BC and the 13th-14th c. AD, see Perinçek, Geoarcheology 70 f. 72 etc. – See also Algan et al., Short Note 459-461. – Algan et al., Holocene Coastal Change esp. 31-44.

127 Kocabaş/Özsait-Kocabaş, Milestone 40. – Akkemik/Kocabaş, Trade Ships 5. – Akkemik, Woods 119-124.

128 Polat, YK 35. – Kocabaş/Özsait-Kocabaş, Milestone 40 f. – Asal, Yenikapı Excavations 8. – Akkemik/Kocabaş, Trade Ships 5. – Akkemik, Woods 125-136.

129 Kocabaş, Old Ships 33. – Kocabaş, Latest Link 9. – Kocabaş/Özsait-Kocabaş, Milestone 40. – Akkemik/Kocabaş, Trade Ships 5.

130 Ingram/Jones, Yenikapı 13 f. – Pulak et al., Shipwrecks of Yenikapı 27-30. – Pulak/Ingram/Jones, Byzantine Shipwrecks 9-12. – Pulak/Ingram/Jones, Yenikapı 106 »… built in the first half of the seventh century«. – Pulak/Ingram/Jones, Galleys 14. – Ingram, Yenikapı 11, 103-139. – Dimension data according to Kocabaş, Old Ships 214; the data refer to the state after excavation, without any restauration.

131 Özsait-Kocabaş/Kocabaş, Features of Yenikapı Shipwrecks 176-182. – Kocabaş, Byzantine Shipwrecks 52. – Kocabaş, Latest Link 7-9. – Kocabaş/Özsait-Kocabaş, Milestone 44. – Akkemik/Kocabaş, Trade Ships 5. – Akkemik, Woods 57-64. – Essential for the type of galley: Pryor/Jeffreys, Dromon 163-173 etc.

132 Kocabaş, Byzantine Shipwrecks 53. – Kocabaş/Özsait-Kocabaş, Milestone 45. – Akkemik/Kocabaş, Trade Ships 5.

133 Ingram/Jones, Yenikapı 14. – Pulak et al., Shipwrecks of Yenikapı 27. 30. – Pulak/Ingram/Jones, Byzantine Shipwrecks 12-15. – Pulak/Ingram/Jones, Galleys 16. – Pulak/Ingram/Jones, Yenikapı 106 f.

Fig. 9 Shipwreck YK 12. – (From Özsait-Kocabaş/Kocabaş, Features of Yenikapı Shipwrecks 115 fig. 11).

unfortunately inaccurate for the ships YK 28, YK 30 and YK 32, which belong to the period between the seventh and the ninth centuries, due to their discovery in excavation layer 5[134]. The more than 11 m long YK 15, preserved only in small remnants, was also discovered in this earth layer[135] (**fig. 8**).

Due to radiocarbon analyses, some ships could be classified more precisely. YK 17, a seaworthy ship, even today more than 8 m (originally over 18 m) long, also from excavation layer 5, can be assigned to the period between 652 and 870[136]. YK 3, which was at the time of excavation still more than 9 m long, dates from the period between 668 and 840[137]. In the hull of this ship, the excavators discovered various building materials such as bricks, cement residues and broken marble pieces. Some scholars understood the records

134 Perinçek, Geoarcheology 72. 77 f. 86. – Akkemik/Kocabaş, Trade Ships 5.

135 Kocabaş, Byzantine Shipwrecks 53 supposed an original length of more than 17 m. Özsait-Kocabaş/Kocabaş, Features of Yenikapı Shipwrecks 164-167. – Kocabaş, Byzantine Shipwrecks 53. – Kocabaş, Latest Link 9. – Akkemik/Kocabaş, Trade Ships 5.

136 Özsait-Kocabaş/Kocabaş, Features of Yenikapı Shipwrecks 168-175. – Kocabaş, Old Ships 33 f. – Kocabaş, Byzantine Shipwrecks 53. – Kocabaş, Latest Link 9. – Kocabaş/Özsait-Kocabaş, Milestone 44 f. – Türkmenoğlu, Yenikapı 17, 121-125.

137 Kocabaş, Byzantine Shipwrecks 52 f. supposed an original length of 20 m and a width of 6 m. – Kocabaş/Özsait-Kocabaş, Milestone 43.

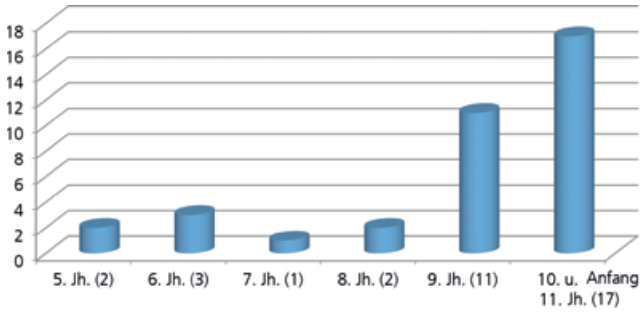

Fig. 10 Shiprecks in chronological distribution. – (A. Külzer 2016).

as cargo; they thought about material handling from the Proconnesus Island in the Sea of Marmara to Constantinople. On the other hand, there is also the possibility that the ship was sunk with the help of rubble from the harbour[138]. YK 27, 12 m long and 2.30 m wide, is assigned to the period between 672 and 869[139]. YK 12, which was only 7 m long and 2.30 m wide at the time of its discovery, but estimated to have been originally 9.6 m long and 2.6 m wide, was built at the same time, using materials from the period between 672 and 870[140]. At the time of its foundering, the single-masted merchant ship was loaded with amphorae filled with wine from Mount Ganos (Işıklar dağı). Besides weights, needles and tokens, noteworthy items onboard are a coal-burning stove, as well as pitchers, beakers and a few smaller amphorae that may have been used by the crew or the captain. A basket of cherry stones provides a remarkable clue to the season of its sinking, obviously in late spring or early summer[141] (**fig. 9**).

At nearly 9 m long and 2.30 m wide, the ocean-going YK 20 belongs to the period between 687 and 975[142]. The 15 m long galley YK 13 was built with wood belonging to the period between 690 and 890[143]. The today 12 m long, originally probably 14 m long YK 14 was initially dated to the late ninth or early tenth centuries; however, due to radiocarbon and dendrochronological dating it originated from the ninth century, maybe even from the beginning of this century. The ship must have sunk soon after its launch, since the wreck has neither worm damage nor traces of repairs[144]. The galley YK 2, which sank in the tenth century, probably due to a heavy storm, was also in mint condition[145]. The galley YK 4, which was 18 m long and surpassed the aforementioned ship by over 3 m, was probably a victim of this disaster, too. In contrast to YK 13, YK 4 was already old at the time of its foundering, various stress marks indicate a construction in the middle of the tenth century or even earlier[146] (**fig. 10**).

The two remaining galleys, YK 25 and YK 36, likewise belong to the tenth century[147], as well as the originally about 10 m long and 3.5 m wide merchant ship YK 1. This well-preserved boat was loaded just before sinking, a rarely documented fact. Its cargo included potter's wheels and combs, an iron anchor and numerous amphorae filled with Ganos wine. Obviously, the ship was used in coastal trade[148]. The roundship YK 5 is from the same period. It was at least 12 m long and, at the time of foundering, still in mint condition[149]. The smaller ships YK 6, YK 7, YK 8, YK 9, YK 18, YK 24 and YK 33 belong to this period as well[150]. The ships YK 19, 21 and YK 31 are roughly dated to the period between the ninth and eleventh centuries[151]. They belong to the sediment layer 6, a 70 to 130 cm thick layer that is generally dated from the tenth to the middle of the eleventh centuries. Interestingly, a layer of sand enriched with numerous ceramic fragments divides it. These are the effects of a tsunami that arose after the heavy earthquakes of 989 or 1010[152]. There is a further tsunami layer, between 30 and 40 cm thick, in the sediment layer 4; this one is connected to the seismic event of the year 557[153]. The natural catastrophes of the sixth, tenth and early eleventh centuries mentioned in literary sources[154] are confirmed by the archaeological excavation results; they are

138 Özsait-Kocabaş/Kocabaş, Features of Yenikapı Shipwrecks 156. – Kocabaş, Byzantine Shipwrecks 52 (decaying data 865-987). – Kocabaş, Latest Link 9. – Asal, Yenikapı Excavations 9. – Çetiner, Yenikapı 3. 61. – Demirkök et al., YK 3.

139 Kocabaş, Byzantine Shipwrecks 53. – Kocabaş/Özsait-Kocabaş, Milestone 45.

140 Kocabaş, Byzantine Shipwrecks 54. – Kocabaş/Özsait-Kocabaş, Milestone 43 f. – Denker et al., YK 12. – Akkemik, Woods 43-48. – Özsait-Kocabaş, Yenikapı 12, 357-390.

141 Akkemik, Timbers 201-211. – Özsait-Kocabaş/Kocabaş, Features of Yenikapı Shipwrecks 112-124. – Kocabaş, Old Ships 29. – Kocabaş, Latest Link 10-12. – Özsait-Kocabaş, Voyage. – Akkemik/Kocabaş, Trade Ships 5. – Özsait-Kocabaş, Yenikapı 12, 357. – On the amphorae, see Armstrong/Günsenin, Pottery Production 179-201. – Günsenin, Ganos 193-201. – Günsenin, Vin de Ganos 281-287. – Günsenin, Portus Theodosiacus 399-402. – On Mount Ganos, see Külzer, Ganos-Gebirge 41-52. 91-97. – On board and food, see Kislinger, Reisen 381. – Kislinger, Alltag 171-175.

142 Kocabaş, Latest Link 9. – Kocabaş/Özsait-Kocabaş, Milestone 44. – Akkemik/Kocabaş, Trade Ships 5.

143 Kocabaş, Byzantine Shipwrecks 52. – Kocabaş/Özsait-Kocabaş, Milestone 44. – Akkemik/Kocabaş, Trade Ships 5. – Akkemik, Woods 49-54.

144 Liphschitz/Pulak, Types of Wood 168. – Ingram/Jones, Yenikapı 14. – Pulak et al., Shipwrecks of Yenikapı 27. 30. – Pulak/Ingram/Jones, Galleys 16-18. – Pulak/Ingram/Jones, Yenikapı 107 f. – The recent dating according to Jones, Hull construction YK 14 253 f.

145 Liphschitz/Pulak, Types of Wood 168. – Ingram/Jones, Yenikapı 14. – Pulak et al., Shipwrecks of Yenikapı 26 f. 31. – Pulak/Ingram/Jones, Byzantine Shipwrecks 24-26. – Pulak/Ingram/Jones, Galleys 11-14. – Pulak/Ingram/Jones, Yenikapı 103. 111.

146 Liphschitz/Pulak, Types of Wood 169. – Ingram/Jones, Yenikapı 14. – Pulak et al., Shipwrecks of Yenikapı 26 f. 31. – Pulak/Ingram/Jones, Byzantine Shipwrecks 26-30. – Pulak/Ingram/Jones, Galleys 11-14. – Pulak/Ingram/Jones, Yenikapı 111 f.

147 Kocabaş, Latest Link 7. – Pulak et al., Shipwrecks of Yenikapı 23. – Akkemik/Kocabaş, Trade Ships 5.

148 Liphschitz/Pulak, Types of Wood 166 f. – Ingram/Jones, Yenikapı 14. – Denker et al., YK 1. – Pulak et al., Shipwrecks of Yenikapı 27. 31. – Pulak/Ingram/Jones, Byzantine Shipwrecks 21-24. – Pulak/Ingram/Jones, Galleys 20. – Pulak/Ingram/Jones, Yenikapı 106. 110.

149 Liphschitz/Pulak, Types of Wood 167. – Ingram/Jones, Yenikapı 14. – Pulak et al., Shipwrecks of Yenikapı 27. 31. – Pulak/Ingram/Jones, Byzantine Shipwrecks 17-19. – Pulak/Ingram/Jones, Yenikapı 108 f.

150 Özsait-Kocabaş/Kocabaş, Features of Yenikapı Shipwrecks 103-111 (YK 6). 125-131 (YK 9). 132-139 (YK 7). 140-147 (YK 18). 148-151 (YK 8). – Kocabaş, Byzantine Shipwrecks 52 f. – Kocabaş, Latest Link 9 f. – Kocabaş/Özsait-Kocabaş, Milestone 43 f. – Pulak/Ingram/Jones, Byzantine Shipwrecks 19-21 (YK 24). – Pulak/Ingram/Jones, Yenikapı 109 f. (YK 24).

151 Kocabaş, Latest Link 9. – Akkemik/Kocabaş, Trade Ships 5.

152 Kocabaş, Old Ships 34. – Perinçek, Geoarcheology 78-80.

153 Kocabaş, Old Ships 33-35. – Perinçek, Geoarcheology 75-77. 84-87. 90. – Bony et al., High-energy Deposit 128 f. remain sceptical about the accurate date of 557.

154 See the register of written sources in Guidoboni, Earthquakes 336 f. 340-345. 404 f. – Pulak/Comastri, Earthquakes 20 f. – Ambraseys, Earthquakes 206 f. 208-211. 256 f. 259.

Fig. 11 Tsunami layer at the excavation site. – (From Kocabaş, Old Ships 35 fig. 11).

responsible for the preservation of the vast number of ships known today in the Harbour of Theodosius (**fig. 11**).

The distribution of the wrecks within the harbour area confirms the progressive silting up of the dock from west to east. In the western parts of the harbour basin, only a single ship was discovered: YK 11, a ship that belongs to the seventh century, being one of the oldest wreckages found in the whole landing area. The wrecks that were closest to this one lie at a distance of almost 200 m to the east: YK 31 and 33 date to the ninth to eleventh centuries, YK 14 dates to the (early?) ninth century, and YK 30 to the period between the seventh and tenth centuries[155]. YK 36 lies about 90 m south of this site. The remaining 31 ships were found in the eastern part of the harbour basin, whose use between the fifth and the early eleventh centuries is thereby proved.

The Animal Skeletons of Yenikapı

In addition to the unique number of 37 shipwrecks and the numerous remarkable art and everyday objects, multitudinous animal skeletons were found at the extensive excavation site of Yenikapı. By 30 September 2010, the excavators discovered more than 20 800 skeletons, which can be assigned to 54 species[156]. Animals were used for the transport of people and goods, sometimes for military purposes; among other reasons, they were needed as food sources or to supply leather, wool, milk and eggs. Some species could be used for personal protection or for hunting. Humans cultivated animals and different animal species followed the humans unaffiliated as synanthropic species. Therefore, their presence in the harbour area of a huge urban settlement is just consequential. The analysis of the skeletons provides significant information about the distribution of single animal species, about human food habits and the interaction of the contemporaneous people with animals in general. From a biological point of view, the determination of shoulder heights, head sizes, structures of dentition, weight can yield interesting details concerning the isochronal livestock, its visual nature and special living condition. A comparison with data from different historical periods may offer hints for some developments in domestication[157].

The largest group of skeletons in Yenikapı is that of horses, followed by cattle and sheep[158], and then, by a considerable margin, pigs, dogs, donkeys and goats[159]. Noteworthy are the large number of camel bones, the relatively small number of cat skeletons and the basic presence of tortoises, sea turtles, ostriches, elephants and bears; even skeletons of two primates and a gazelle were found in the harbour area[160]. Among the birds, the greatest number of skeletons come from chickens, geese and ducks. Among the fish and sea mammals, tuna, swordfish and predatory catfish (*Clarias*) are especially numerous[161], not to forget the dolphins, of which

155 Kocabaş, Yenikapı Shipwrecks 11 f. 18. 21. – Kocabaş/Özsait-Kocabaş, Milestone 38. – Pulak et al., Shipwrecks of Yenikapı 23. – Pulak/Ingram/Jones, Byzantine Shipwrecks 15-17. – Pulak/Ingram/Jones, Yenikapı 106. – Ingram, Yenikapı 11, 103-105. – Jones, Hull Construction Yk 14 253 f.

156 Onar et al., Overview 6. – Onar et al., Animal Skeletal Remains 83 tab. 2: at this time, 20 881 skeletons were documented. Further animal skeletons were discovered in the following months and years, but to my knowledge, they are not described in the scientific literature so far.

157 For example on dogs: Morgan, Deformations. – Clark, Dog. – Onar, Dogs Yoncatepe. – Onar/Belli, Shoulder Height. – Onar et al., Skull Typology. – Onar et al., Dogs Yenikapı. – On horses: Swabe, Animals. – Johnstone, Equids. – Levine et al., Horse Husbandry. – Onar et al., Horse Skeletons 1 and 2. – On sheep: Lallemand, Mouton. – Guintard/Lallemand, Sheep. – In general, see the erudite studies of Kroll, Tiere, and Kroll, Animals.

158 Onar et al., Animal Skeletal Remains 83 tab. 2: 6816 horses (plus another 178 other specimens that cannot be clearly classified as horse or mule, 503 mules and 26 animals that are not clearly identifiable as mules or as donkeys); 4209 cattle; 4018 sheep.

159 Onar et al., Animal Skeletal Remains 83 tab. 2: 925 pigs; 859 dogs; 794 donkeys; 738 goats. – Concerning dogs in Byzantium see also Rhoby, Hunde 807-820.

160 Onar et al., Animal Skeletal Remains 83 tab. 2: 246 camels; 78 cats; 9 tortoises; 37 sea turtles; 32 ostriches, 9 elephants and 9 bears. – Concerning cats in Byzantium, see also the erudite study of Kislinger, Cats 165-178.

161 Onar et al., Animal Skeletal Remains 85.

Fig. 12 Skeleton of a horse found in Yenikapı. – (From Kocabaş, Old Ships 28 fig. 6).

at least 90 skeletons have been verified[162]. Selected bones were analysed for age, by using the radiocarbon method, and the results cover the complete Byzantine period from the fourth to the fifteenth centuries[163] (**fig. 12**).

The evaluation of the horse bones, the largest collection so far discovered in the whole area of the former Byzantine Empire, led to interesting results. For example, there were more stallions than mares and no foals found; 95 % of the animals were younger than 10 years old at the time of death, most commonly being from 7-10 years[164]. The height of the withers of most horses was between 144 and 152 cm[165]. Numerous animals suffered from diseases and malformations, such as back deformities due to the carrying of excessive loads and unsuitable saddles, from bone fractures and bone growths in the muzzle area and jaw injuries due to improper bridles. Apparently, the Byzantines did not treat their horses well in everyday life, despite the testimony of scholarly treatises on equine medicine, the so-called *Hippiatrica*, which draw a rather incorrect picture of the attitude to horses at that time[166]. Only 20 of the more than 6800 horse skeletons are complete, the majority of the skeletons is preserved in fragments[167]. Cut marks from butcher's knives indicate that this was not caused by the effects of nature on the carcasses, but the result of deliberate dismemberment, which suggests that the animals were used for human consumption[168], as well as providing usable parts such as the hide or mane. Dead animals that were not used for consumption or different purposes were probably simply thrown into the western part of the harbour, which was already muddy and no longer used for shipping. This seems to be the major reason for the numerous skeletal finds on the site[169].

Among the more than 240 camels found in the harbour area, there is only one complete skeleton, belonging to an animal between 8 and 10 years old. In contrast to many others, this skeleton shows no knife marks on the bones; it was apparently left as a complete individual after death, while a great number of its conspecifics were cut up and cooked in the Byzantine kitchens[170]. The preserved skeletal parts and skulls of cattle, sheep and goats often show signs of slaughtering as well; the brain seems to have been regularly removed[171]. Both male and female animals were used to transport loads and larger objects, as the analysis of the bones manifests[172]. The examination of the dog bones shows a clear predominance of medium-sized animals, which could easily be accommodated in an urban environment; these animals were obviously not used as human food[173]. The predominance of bones from large fish species indicates that these ones were already filleted in the harbour and afterwards sold, while smaller species, such as the popular seabream or bonitos, were purchased whole[174].

Noteworthy is the large number of dolphin skeletons found in the area of the Harbour of Theodosius. Their skulls are intact, but in many cases, they show knife marks in the vertebral area[175]. Already in the second century AD, Oppian of Anazarbus criticised dolphin hunting and characterised the practice as »immoral« (ἀπότροπος). This type of hunting was a custom of the Thracians and some other »barbarian« people. Among the Greeks, only the residents of Byzantium practised it; however, the custom was castigated as »shameful« (ἀταρτηρός) and »sacrilegious« (ἀτάσθαλος). The new discoveries from Yenikapı demonstrate that dolphin hunting continued in Constantinople from Antiquity to the Middle Ages[176]. Dolphin meat was traded in the markets of the city. It is of course impossible to determine the price of the meat and the social class to which the buyers belonged, whether they were rather wealthy than poor people. There is no evidence in contemporaneous written sources.

The excavations of Yenikapı provide interesting information about the structure and architecture of the Harbour of Theodosius and its economic lifetime, as well as offering insight into certain aspects of daily life in Byzantium.

162 Onar et al., Overview 4. – Onar et al., Animal Skeletal Remains 83 tab. 2.
163 Onar et al., Horse Skeletons 1, 139. – Onar et al., Overview 6. – Onar et al., Dogs Yenikapı 56.
164 Onar et al., Horse Skeletons 1, 140. – Onar et al., Animal Skeletal Remains 83.
165 Onar et al., Horse Skeletons 2, 37 (»large medium«). 40.
166 Onar et al., Horse Skeletons 1, 140-143. 145. – Onar et al., Animal Skeletal Remains 83 f. On *Hippiatrica*, see Doyen-Higuet, Hippiatrica and McCabe, Encyclopaedia.
167 Onar et al., Horse Skeletons 1, 140. – Onar et al., Animal Skeletal Remains 82.
168 Onar et al., Horse Skeletons 1, 140. 145. – Onar et al., Overview 7.
169 Onar et al., Horse Skeletons 1, 145. – Onar et al., Overview 7.
170 Onar et al., Animal Skeleton Remains 84.
171 Onar et al., Overview 6 f. fig. 6. – Onar et al., Cattle 76.
172 Onar et al., Cattle 72. 76 f.
173 Onar et al., Skull Typology. – Onar et al., Dogs Yenikapı 55. 58: »light- and medium-sized mesocephalic dogs […] slightly larger than Terrier breeds«.
174 Onar et al., Overview 5.
175 Onar et al., Animal Skeletal Remains 84.
176 Oppian, Halieutica V 416-419. 519-588. – Vidali, Delphindarstellungen 49 f. – Matschke, Fischer von Konstantinopel 295. – Külzer, Ostthrakien 219.

They provide important information on the construction and equipment of ships and technical aids for their operation, on merchandise, food habits and other realities of life. An analysis of the recent data resulting from geological, archaeological, botanical and zoological research will offer a better knowledge of the realities of life in Byzantium and will allow a reinterpretation of former academic theories that were mostly based on literary sources.

Summary / Zusammenfassung

The Harbour of Theodosius in Yenikapı, İstanbul: A Harbour Area Through the Ages

The discovery of the famous Harbour of Theodosius in the Yenikapı district of İstanbul, more than fifteen years ago during work on the expansion of the metro system, was an archaeological sensation. In the largest excavation in Istanbul's history covering some 58 000 m², several building structures and architectural elements were uncovered, providing important information about the specific extent of the area. A total number of 37 shipwrecks from the fifth to the eleventh centuries provide a rich source for further research and numerous small finds provide insight into the daily life of the inhabitants of the Byzantine capital. The analysis of thousands of animal bones gives insight into eating habits, informing us about the realities of animal husbandry and animal use in medieval Constantinople. The earliest settlement traces in the harbour area datable to the Neolithic period. The inhabitants of ancient Byzantium used the bay for landing purposes. The Harbour, which is not identical with the Harbour of Eleutherios, was probably established around AD 390 under Emperor Theodosius I; it was mentioned in the literary sources for the first time around 425. Despite continuously silting-up, partly due to the sedimentary deposits of the river Lycus, some parts of the harbour were still in use in the late Palaeologan period. The last, modest remains of the harbour were completely filled in with earth around 1759/1760.

Der Theodosios-Hafen in Yenikapı, İstanbul: Ein Hafengelände im Wandel der Zeiten

Als vor mehr als fünfzehn Jahren im Verlauf von Arbeiten zum Ausbau des Metro-Systems im İstanbuler Stadtteil Yenikapı der berühmte Hafen des Theodosios gefunden wurde, kam dies einer archäologischen Sensation gleich. In der mit 58 000 m² größten Grabung in der Stadtgeschichte İstanbuls wurden viele Gebäudestrukturen und Architekturelemente freigelegt, die wichtige Kenntnisse über die konkrete Ausdehnung des Areals vermitteln. Insgesamt 37 Schiffwracks aus der Zeit zwischen dem 5. und dem 11. Jahrhundert stellen ein reiches Reservoir für künftige Forschungen dar, die zahlreichen Kleinfunde vermitteln Einblicke in den Alltag der hauptstädtischen Einwohner, die Analyse der Tausenden von Tierknochen erlaubt Kenntnisse über Nahrungsgewohnheiten wie über Realitäten der Tierhaltung und Tiernutzung im mittelalterlichen Konstantinopel. Die frühesten Siedlungsspuren im Hafenareal datieren in die Jungsteinzeit; die Bewohner des antiken Byzantion nutzten die Bucht ebenfalls zu Anlegezwecken. Der eigentliche Hafen, der entgegen immer wieder zu lesenden Behauptungen nicht(!) mit dem Eleutherios-Hafen gleichzusetzen ist, wurde möglicherweise um das Jahr 390 unter Kaiser Theodosios I. angelegt, um 425 ist er erstmals literarisch erwähnt. Ungeachtet fortschreitender Verlandung, teilweise bedingt durch die Ablagerungen des Lykos, waren einige Teile des Hafens noch in der späten Palaiologenzeit in Verwendung; erst um 1759/1760 wurden die letzten bescheidenen Reste des Hafens vollständig mit Erdmassen aufgefüllt.