

The Golden Horn: Constantinople's Superharbour (*Überhafen*) and its Chain

The Golden Horn (Greek Χρυσόκερας, *Chrysokeras*) has played a crucial role in the development of the settlements west and north-west of Seraglio Point, from the foundation of ancient Byzantium to Constantinople (from 330) and today's megacity of Istanbul. This estuary (known in Turkish as *Haliç*, »mouth«, but also *Altın Boynuz*) is formed of the confluence of two rivers, Barbyzes (Turkish *Kağıthane su*) and Cydaris (Turkish *Alibey su*), as they flow from the European side into the southern reach of the Bosphorus strait, creating the northern boundary of the spit of land on which Byzantium/Constantinople lay¹. The banks of the lower Golden Horn were ideal as landing sites for ships, and the city's first two ancient harbours, Proshporion and Neorion, were built in two bays at its south-eastern end².

From the thirteenth century, Constantinople faced competition for its harbours with the development of the Genoese Pera on the northern bank of the Chrysokeras or Golden Horn³. At the time, the historian Georgios Pachymeres bitterly noted that the Golden Horn must now be shared with the ships of the enemy⁴, meaning, above all, the Italian naval powers of Venice and Genoa⁵. His text reveals a network of individual harbours (see n. 2 and 3), *skalai*⁶ and landing stages⁷ that all successfully existed together and interacted with the city. Such a view of the Golden Horn as a single large natural harbour (fig. 1) can already be found in the sixth century with Procopius:

»Besides the city's other blessings the sea is set most beautiful all about it, forming curving bays, contracting into

narrow straits and spreading into a great open sea, and thus it makes the city exceptionally beautiful, and offers the quiet shelter of harbours to navigators, thereby abundantly providing the city with the necessities of life [...]. That third strait, which branches off from the first (scil. the Bosphorus) towards the right commencing at Sycae (i. e., Galata, Pera), as it is called, extends for a very long distance along the side of the city which faces the north, and terminates in the bay which forms its end. Thus the sea forms a garland around the city [...]. The bay is always calm, being so fashioned by nature that it is never rolled, just as if limits were set there for the turbulent waters and the billows were excluded from that area so as to do honour to the city. And in winter, even should violent winds chance to fall upon the open space of the sea and upon the strait, as soon as ships reach the entrance to the bay, they proceed for the rest of the way without a pilot and are anchored without precautions. For the circuit of the bay extends to a distance of more than forty stades, and furnishes anchorage throughout its whole extent«⁸.

The prosperity of the Golden Horn as the »superharbour« (German *Überhafen*) of Constantinople was also subject to limits, firstly of a technical nature. The narrowness of the Haliç in its upper reaches made bridge building possible⁹, but this consequently prevented the passage of larger vessels. The shallower water there was a further impediment¹⁰. The sediment washed out from the inland was also deposited in the harbour bays, which was counteracted by dredging¹¹. Never-

1 Külzer, Ostthrakien 64-65. 279-281 (Barbyzes). 448-450 (Keras). 484 (Kydaros), with the map »Sonderkarte Bosphoros/Goldenes Horn«. – Oberhummer, Chrysokeras and Oberhummer, Keras. – Dionysii Byzantini, Anaplus, ch. 5 (3 Güngerich).

2 See E. Kislinger, Neorion, in this volume.

3 Since this volume deals with the Byzantine harbours of Constantinople and its surroundings, it does not deal with Pera (part of Byzantine Galata, for which see Külzer, Ostthrakien 361-367), the name of which is conceptually derived from the Greek πέρα, meaning »over there«, »beyond«, scil. the Golden Horn, from the point of view of Constantinople (Külzer, Ostthrakien 576-577; Schneider/Nomidis, Galata 1-3). Reference is only made here to Balard, La Romanie génoise and Origone, Bisanzio e Genova 197-211 for its economic relevance and Runciman, Fall of Constantinople 86-87. 94. 98. 104-105. 162-163 for the role of this colony in the events of 1453. It is significant that, according to Nikephoros Gregoras, Historia XVII 1 (II 841-842 Schopen), Pera received 200 000 gold pieces a year from taxes on merchant shipping, while Constantinople hardly received 30 000. – Makris, Studien 180-181.

4 On the confrontations between the two, also in the waters off Constantinople see, for example, Ioannes Kantakouzenos, Historia IV 30 (III 218-223 Schopen); Nikephoros Gregoras, Historia XXVI 18-23 (III 84-90 Bekker); Kleinchroniken, Chronik 8/56 (I 87 Schreiner). – Balard, Bataille du Bosphore and in general Dotson, Venice, Genoa and Control of the Seas 119-135.

5 Georgios Pachymeres, Relationes Historicae V 10 (II 469 Failler). – Ahrweiler, Byzance et la mer 433-434.

6 See the contributions of J. Preiser-Kapeller and P. Schreiner, both in this volume.

7 See G. Simeonov, Kosmidion and N. Asutay-Effenberger, Kyneqion District, both in this volume. In 1446, the imperial government signed a treaty with Venice, which provided for the construction of a new mole on the southern bank of the Golden Horn. Byzantium was supposed to deliver 2000 stakes, with Venice bearing the other costs: Maltezou, Thesmos 190-192. – Makris, Studien 180. 182.

8 Procopius, De aedificiis I 5, 2, 9-13 (IV 27, 28-29 Haury/Wirth); English translation by Dewing, Buildings of Procopius 58-61. – Cf. later Geoffroy de Villehardouin, Conquete VI 159 (I 158 Faral). Still Laonikos Chalkokondyles VIII 5 (II 150 Darkó) calls the Golden Horn Βυζαντιου λιμένα, harbour of Byzantium (Kaldellis, Chalkokondyles II 175).

9 Effenberger, Brücken. – Hurbanič, St. Callinicus Bridge. – Hurbanič, Topography 134. – Hurbanič, Neglected Note 211-212. – Schreiner, Brautgedicht 98-99. – Simeonov, Kosmidion 214-219, in this volume.

10 Chronicon Paschale 720, 15-21 (Dindorf); Wilhelmus Tyrensis, Chronicon II 7 (171 Huygens). – Hurbanič, Conscious Stratagem 84. 88. – Simeonov, Kosmidion 220, in this volume.

11 Documented for the year 698: Theophanes, Chronographia 370 (I De Boor). Similar measures were also necessary in the Harbour of Julian/Kontoskalion, where strong south winds blew earth and sand into the harbour basin. For the cleaning work required in the 6th, 14th and 15th c. as a result, see Marcellinus comes ad annum 509 (97 Mommsen); Patria Konstantinopoleos III 37 (II 230 Preger); Panegyricus anonymus 289 (Lampros); Heher, Harbour of Julian 102, in this volume. – Müller-Wiener, Häfen 27; Makris, Studies 289-290. – Cf. n. 36.



Fig. 1 The Golden Horn, looking from upstream to downstream, i.e., from the north-west towards its confluence with the Bosphorus, in the background on the right the Sea of Marmara. – (Istanbul Helikopteraufnahme Halic © 2010 by Selda Yildiz and Erol Gülsen, licensed under CC BY SA 3.0).

theless, Neorion and Prospheion finally silted up¹², as also happened at the Harbour of Theodosios due to sedimentation from the River Lykos¹³. The many *skalai* along the Golden Horn provided an alternative by reaching out into deeper water¹⁴. In order to reach them from the Sea of Marmara, ships first had to contend with the strong southward current of the Bosphorus (often accompanied by a north wind) by going in a wide arc¹⁵ via Chalcedon¹⁶ from the north(east) into the Golden Horn.

The second major limiting factor regarding the prosperity of the Golden Horn as the »superharbour« of Constantinople was the demographic development which also indirectly diminished the value of the harbour landscape around the Golden Horn. The Byzantine capital experienced a persistent increase in population from the fourth century to the middle of the sixth century, until it had a little less than half a million inhabitants¹⁷. Through urban planning¹⁸, as in every

metropolis, an upper-class district developed south of the Mese and towards the Propontis. This district was close to the power triangle of the Imperial Palace, Hagia Sophia and the Hippodrome. On the opposite slope and the plain towards the Golden Horn, overpopulated quarters expanded¹⁹, with serious hygiene problems. This encouraged the spread of the so-called Justinian plague, which struck Constantinople in several waves from 542 to 748²⁰ and reduced its population to an estimated 60 000 to 80 000 people²¹, i.e., about an eighth to one sixth of its highest pre-plague level. The areas along the Golden Horn became deserted, degenerating into the backyard of the city, as it were, offering the opportunity to set up noisome business operations (such as tanneries) and those that posed a fire hazard (such as glass-blowing)²².

The harbours on the Golden Horn largely lost their trade and storage functions due to the sharply reduced demand²³, and

12 Kislínger, Neorion 135-136, in this volume.

13 Kúlzer, Harbour of Theodosios, in this volume. – Berger, Langa Bostanı. – Günsenin, »City« Harbours 104, with some wrong assertions.

14 Michael Attaleiates, Historia 199 (Perez-Martin). – Schreiner, Western Landing Stages, in this volume. – Müller-Wiener, Häfen 14. 22.

15 Berger, Häfen 77; note in particular the description of how the ships of the Crusaders approached the Golden Horn in 1203: Pryor/Wilson, Chain 373-375 with fig. 2 (map) on 375. – Kalmring/Lukas, Häfen 1-2 include good accessibility (with regard to water depth, fairway, current conditions – specifically for the southern Bosphorus, Pryor/Wilson, Chain 374. 376 – and the prevailing wind direction) primary requirements of a harbour. The Golden Horn was not ideal in this regard and the harbours on the Propontis had an advantage. Accessibility from the land, integration into the road network and the availability of building materials and supplies all spoke in favour of Constantinople as a harbour site. Cf. E. Kislínger, Better and Worse Sites, in this volume, esp. nn. 9. 22.

16 Belke, Bithynien und Hellespont 486-487. 492, generally 295-296. 298. – Belke, Gates, in this volume.

17 This estimate is slightly higher than Koder, Lebensraum 117-118 (about 400 000 inhabitants, certainly less than 500 000) and Schreiner, Constantinopoli

83 (375 000 inhabitants), but under Durliat, Ville antique 232-275, n. 210 with 600 000. – Criticism of the frequently encountered connection between bread distribution and population in Kislínger, Pane 279. 289-293.

18 Magdalino, Renaissances 58-59.

19 Kislínger, Better and Worse Sites 13-15, in this volume. – Bauer, Stadtverkehr in Konstantinopel 197-201 with fig. 9.

20 Stathakopoulos, Famine and Pestilence 110-154. 286-288. 304-306. 315-316. 319-320. 331-332. 342-344. 364-365. 369-372. 348-385. – Kislínger/Stathakopoulos, Pest und Perserkriege 89-93. – Meier, The »Justinianic Plague«. – Bergdolt, Der Schwarze Tod 14-20.

21 Mango, Développement 53-54 calculated only 40 000 inhabitants as the lowest point.

22 Kislínger, Better and Worse Sites 14, in this volume. – Dark, Houses 87-89. – Mundell-Mango, Commercial Map 202-203, n. 119. – Magdalino, Constantinople 99. – For pollution in antique harbours cf. Feuser, Hafenstädte 319-321.

23 Magdalino, Neighborhoods 211-213. – Kislínger, Lebensmittel 307. 314-315. – Berger, Häfen 83.

the navy (*basilikon ploimon*)²⁴ took over in the early seventh/eighth century. Shipyards existed far from curious and spying eyes in the Neorion, already in Late Antiquity on the other northern bank, probably near Pegai or Kanopos, in the area of today's Kasımpaşa²⁵. During the Comnenian period, and again for a short time in the Palaeologan period, another shipyard existed at the Kosmidion²⁶, where it was separate from and yet close to the city that it was primarily intended to defend.

However, the three shipyards on the urban bank of the Golden Horn mentioned by Pachymeres (see n. 25) seem to contradict the picture of isolation and secrecy just drawn. But with Pachymeres we are in the thirteenth century, when the Byzantine navy was no longer of relevance as a power factor, instead the »superharbour« at the Golden Horn was determined by mercantile interests, especially those of the Italian trade networks. This also included shipyard capacities for the production and repair of ships. It is not by chance that the shipyard near the Monastery of Christos Euergetes was in the area of the Venetian settlement (cf. Jacoby, Venetian Government), which expanded from 1204 onwards.

Earlier, from the tenth century onwards, the political and territorial recovery of the Byzantine Empire and the resulting economic recovery and population increase had also led to a reversal of the downward trend in the Golden Horn and its surroundings, without, however, much improving its negative image. Monasteries in this area were given available land²⁷,

and Muslim Arabs, then Amalfian and Venetian merchants, attracted by the profitable trade in Constantinople, were allowed to settle²⁸.

One of the leading experts on the urban and socio-economic development of Constantinople, Paul Magdalino, nevertheless interpreted this local development incorrectly. Venice was unable to claim an autonomous settlement on the Golden Horn in 1082²⁹, but was granted this by the Byzantine Emperor³⁰ (because of his military predicament against the Normans³¹), as was the case with the Pisans and Genoese afterwards³². The intention behind this was to keep the *exotikoi*³³, the foreigners, among themselves and on the sidelines at a distance from the Byzantine markets at the Mese and on the forums of the capital³⁴.

From centuries of mercantile experience, which also included the effective use of good harbours, the Republic of St Mark soon turned the intended disadvantage into an advantage. From then on, to cite just one example from the *Ptochoprodromika*, the Venetians were sought out because they could offer cheaper goods due to reduced taxes³⁵. In the wake of the upheaval of 1204³⁶, the commercial centre of the city shifted completely to the Golden Horn, where it remained under the Ottomans.

It was the late Byzantines who, to put it bluntly, became outsiders in the Golden Horn and its harbour facilities. As a result, they often had to resort to the remaining harbour

24 As early as 626 during the Avar siege of Constantinople, when the Slavs attacked in their monoxyla from the Golden Horn (Chronicon Paschale 724 [I Dindorf]), the Byzantine naval units must have had bases there (Hurbanič, St. Callinicus Bridge; Hurbanič, Neglected Note). During the first Arab siege of Constantinople in 667-669 (for the date see Jankowiak, First Arab Siege; Belke, Bithynien and Hellespont 142-144) the Byzantine fleet, however, gathered in the Harbour of Theodosius: Theophanes, Chronographia 353 (I De Boor). Regarding 695, see Heher, Harbour of Julian 98, in this volume. During the second Arab siege of the city in 717/18, the dromons were clearly based in the Golden Horn, which was secured by a chain across the exit: Theophanes, Chronographia 386. 395-399 (I De Boor), Nikephoros Patriarches, Breviarium, ch. 54 and 56 (122. 124 Mango). – Christides, Second Arab Siege; Külzer, Ostthrakien 101-102; Pryor/Jeffreys, Dromon 31-32; Olson, Last Arab Siege 428. 431; Eickhoff, Seekrieg und Seepolitik 31-34.

25 Concerning a landing stage at Pegai in the early 10th century see Symeon Magistros, Chronikon 136, 49 (328, 383-386 Wahlgreen); Vučetić, Repräsentative Aspekte von Häfen 142.

26 Müller-Wiener, Häfen 6. 12-13; Heher, Harbour of Julian 98, in this volume. – On Pegai, where there was a landing stage, and Kanopos, see Külzer, Ostthrakien 572-573 and 435; Müller-Wiener, Häfen 10-11. Already the *Notitia urbis Constantinopolitane* XIV 13 (240 Seeck) mentioned *navalia* in regio XIII (Sycal). English translation and commentary in Matthews, Notitia 95. 110; Ahrweiler, Byzance et la mer 430. 432; Cosentino, Naval Warfare 335. Alexios I. Komnenos visited an *exartysis* there by ship (Anna Komnene, Alexias XI 10, 2 [350 Reinsch/Kambylis]). The Ottoman arsenal Tersâne i Âmirie was located in this area. – Georgios Pachymeres, Relationes historicae V 10 (II 469, 15-22 Failler) leads on the urban bank in addition to the shipyard in the old Neorion port (19-22) (Ahrweiler, Byzance et la mer 430. 432), another at Christos -Euergetes monastery (for its location in today's Fener area, see Effenberger, Theodosia 126-127 and Preiser-Kapeller, Heptaskalon, in this volume), this was mainly used during the Latin period (469, 18-19); a third, τὸ ἐν Βλαχέρναις νέωριον (469, 15), is likely to have corresponded to that in the 14th c. with Kosmidion. Ahrweiler, Byzance et la mer 434-435. Nikephoros Gregoras, Historia XVII 2 (II 847-848 Schopen); Ioannes Kantakuzenos, Historia IV 11 (III 70 Schopen). Makris, Studies 163-164. In the Palaeologan period there was a decoupling between the shipyard and the harbour, as is often found in modern times. Simeonov, 220-221, in this volume; Külzer, Ostthrakien 471-473. – For harbours and shipbuilding in antiquity cf. Feuser, Hafenstädte 291-293.

27 Magdalino, Constantinople 92-93.

28 Reinert, Muslim Presence in Constantinople 125-150. – Falkenhausen, Commercio di Amalfi con Costantinopoli 19-38. – Magdalino, Constantinople 96-98. – Jacoby, Venetian Commercial Expansion 376-380. 387-388.

29 Magdalino, Maritime neighborhoods 220; Magdalino, Constantinople 88.

30 Pacta veneta 992-1198, 27-45. – Lilie, Handel und Politik 8-16. – Kislinger, Better and Worse Sites 16, in this volume. – Jacoby, Venetian Quarter 154-156. – Maltezou, Quartiere veneziano. – Other dates of the privilege, 1084 or even 1092, are refuted by Madden, Chrysobull of Alexius I Comnenus 27-40. Basically in agreement, but with palaeographic corrections Jacoby, Chrysobull of Alexius I Comnenus 199-204. – Frankopan, Byzantine Trade Privileges to Venice 136-160 again argued for 1092, without making any convincing new arguments. The author even contradicts himself (156-157) when he regards the Chrysobull of 1092 as a »re-confirmation of a grant which Alexios had given in the past«, thus admitting the existence of a previous privilege on his part. To assume that the Venetians in such a Chrysobull (from 1082) would have contented themselves with a few properties and titles for their extensive naval aid is not very realistic.

31 On the chronology of the fighting, see Kislinger, Vertauschte Notizen. – Frankopan, Turning Latin into Greek 80-99. – Theotokis, Norman Campaigns 137-184 (the latter without knowledge of the above-cited article by Kislinger).

32 Schreiner, Western Landing Stages, in this volume. – Lilie, Handel und Politik 69-76. 87-100. – Origone, Commerci genovesi a Costantinopoli. – Berger, Ufergegend 160-163.

33 Book of the Eparch/Eparchenbuch 156, s. v. – Magdalino, Outside World did not discuss Koder, Sigillion von 992, 40-44. – Kislinger, Reisen 364-366.

34 Eustathios Thessalonikes, Expugnatio 34 (Kyriakides) writes of the Latins who have their separate place on the coast of the Horn of Byzantium, according to old custom. In this sense, correctly Magdalino, Constantinople 99: »[...] they were just plain foreigners, and the Golden Horn was their rightful place: next door to the Muslims, and just down the road from the Jews«.

35 Ptochoprodromika IV vv. 120-121 (Eideneier).

36 Selected contributions: Angold, Fourth Crusade; Laiou-Thomadake, Urbs capta; Ortalli/Ravegnani/Schreiner, Quarta crociata. – Philipps, Fourth Crusade; Piatti, Fourth Crusade.

37 Georgios Pachymeres, Relationes historicae V 10 (II 469-471 Failler), but cf. XII 26 (IV 579-583 Failler); Patria Konstantinupoleos III 37 (II 230 Preger); Nikephoros Gregoras, Historia VIII 6 (I 317-318 Schopen); Ioannes Kantakuzenos, Historia IV 11 (III 72. 74 Schopen). – Makris, Studien 82-83. 176-179. 289-290; Müller-Wiener, Häfen 26-27; Magdalino, Constantinople 76. – Heher, Harbour of Julian 101-102, in this volume.



Fig. 2 Depiction of Constantinople. Two chains, each attached to one side, are shown. – (Hartmann Schedel, *Liber Chronicarum* [Nürnberg 1493], fol. CXXX, detail).

facilities on the Propontis, where what remained of the imperial fleet also took new quarters³⁷. From then on, the Golden Horn could only be sealed off against external forces in extreme cases. The competition was already within the gates.

The Chain Across the Golden Horn

In the year 717/718, when Arab forces besieged Constantinople for the last time and tried to take it, we learn for the first time about an (iron) barrier chain designed to prevent

enemy ships from entering the Golden Horn. It is mentioned in passing that Emperor Leon III (717-741) in October ordered that the chain (ἄλυσιν, *halysin*) at Galata to be opened at night³⁸; one does not get the impression that the chain was a novelty. A passage in the *Patria Konstantinoupoleos* offers an indirect confirmation. There we read that (Emperor) Tiberios (578-582), father-in-law of (Emperor) Maurikios (582-602), built the *kastellion* (fortress) at Galata (later on Pera) and confined (or protected) in this way (by the help of a chain?) the ships inside (scil. the Golden Horn)³⁹. In 718, ships armed with Greek fire that had already attacked from the area of the Acropolis⁴⁰ suggest that the other end of the chain was fixed there (see more detailed n. 40, 45 and 66).

Around a hundred years later, the rebellious Thomas »the Slav« succeeded in getting past the chain in the battle against Emperor Michael II⁴¹, when he attacked Constantinople from land and sea in 821⁴². His fleet, composed of units from the provincial themes⁴³, was probably not equipped with the ὑγρὸν πῦρ (*hygron pyr*, »Greek fire«)⁴⁴ and thus at a disadvantage to the main imperial fleet. Thus, it is all the more surprising that Thomas's fleet was able to penetrate the Golden Horn despite the chain. Of course, such a barrier, like a city wall, is only effective if it is guarded, which appears not have been the case or only inadequately. When the imperial fleet actively intervened in the spring of 822, Thomas's forces within the Golden Horn suffered a heavy defeat⁴⁵.

Fearing that the Rus' would attack Constantinople by sea, Emperor Nikephoros II Phokas had the chain attached in 969 as a preventative measure⁴⁶. Leon Diakonos⁴⁷ described the process, saying that Nikephoros »also secured to the tower that is usually called Kentenarion a very heavy chain made of iron, attached it to enormous logs, attached it to the Bosphoros (*sic*) and fastened it to a tower of the Kastellion on the other side«⁴⁸ (fig. 2). The specification of the usual endpoints of the chain shows that »Bosphoros« / Bosphorus is a *lapsus*

38 Theophanes, *Chronographia* 396, 18-19 (I De Boor). – Guillard, *Chaine* 88-89.

39 *Patria Konstantinoupoleos* 157 (II 265 Preger). – Berger, *Untersuchungen* 689-691. – Schreiner, *Johannes von Biclar* 835-836 (thanks for information on this to P. Schreiner, Munich).

40 Theophanes, *Chronographia* 396, 8-9 (I De Boor). – Guillard, *Chaine* 89.

41 On the conflict in general: Lemerle, *Thomas le Slave*; Köpstein, *Zur Erhebung des Thomas* 61-87 and Köpstein, *Thomas*.

42 Michaelis et Theophili epistola 477 (Werminghoff). – Ioannes Skylitzes, *Synopsis* 33 (Thurn). – Joseph Genesis, *Libri Regum* II 5 (27, 19-20 Lesmüller-Werner/Thurn) confirms the two end points of the chain: τὴν σιδηρὰν αἰχμὴν ἀπ' ἀκροπόλεως μέχρι τοῦ Πέραθεν φρουρίου (the iron chain from the Acropolis to the fortress of Pera). Guillard, *Chaine* 96-97. – On the Acropolis side, the Kentenarion tower was most likely used for anchoring, see Guillard, *Chaine* 90 with reference to *Patria Konstantinoupoleos* III 150 (II 164 Preger). Guillard, *op. cit.* incorrectly quotes ἀπὸ τοῦ πύργου τῆς Ἀκροπόλεως, *recte* ἀπὸ τοῦ τείχους τῆς Ἀκροπόλεως; on the ancient wall, see *Patria Konstantinoupoleos* I 52 (II 141 Preger). – Berger, *Untersuchungen* 676 especially 203-204; English source-translation in Berger, *Patria* 205 n. 150 and Berger, *Patria* 31 n. 52. – Unlike Berger, *Untersuchungen* 743, I am not of the opinion that the Kentenarion Tower is the same as the Eugenios Tower, but the former should correspond to a tower near the Gate of St Barbara (the Topkapı Gate in Ottoman times) at the Seraglio Point, as explained by Guillard, *Chaine* 102-103. 108-109. He correctly differentiated (106) the Eugenios Gate from the eastern Golden Gate (equated with the Porta Oraia (πόλη ὠραία), so called probably because of its beautiful design). Dukas, *Historia* XXXVIII 7 (335, 13-17 Grecu) stated that the Turkish fleet was outside the Golden Gate and wanted to prevent ships with supplies for the city from entering the harbour (i. e., the Golden

Horn), which specifies the location of the anchorage of the chain. Guillard, *op. cit.* 100-101; van Millingen, *Walls* 223; Magdalino, *Triumph of 1113*, 56. Guillard, *Chaine* 106. 109, is wrong when he denies equating the πόλη ὠραία with the Gate of St Barbara = βασιλικὴ πύλη, basilike pyle. – On the remains of the building there, cf. recently Peschlow, Kai von Konstantinopel and earlier Schneider, *Vorarbeiten* 90. – When Perama was the Constantinopolitan end point of the chain, so a short *synaxarion* (ed. Lampros, *Meletemata* 282-284 and recently Olster, *Last Arabic siege 427-430*, esp. 428) it would not have protected the entire Golden Horn.

43 Joseph Genesis, *Libri Regum* II 5 (26, 86-88 Lesmüller-Werner/Thurn).

44 Haldon, »Greek Fire« revisited. – Korres, *Hygron Pyr*.

45 Theophanes *Continuatus*, *Chronographia* II 15 (90 Featherstone/Signes-Codoñer); Ioannes Skylitzes, *Synopsis* 35, 12-18 (Thurn). – Simeonov, *Kosmidion* 215, in this volume.

46 Guillard, *Chaine* 90. On the earlier attacks, which mostly only served to plunder the environs: Ellis-Davidson, *Viking Road* 117-136; Vasilev, *Russian Attack*; Vasilev, *Second Russian Attack*; Schreiner, *Constantinopoli* 35; Külzer, *Ostthrakien* 112, n. 300, 114. – On the person of the emperor, see Personnaz, *Empereur Nicéphore*; PmbZ II no. 25535 (657-677).

47 Leon Diakonos, *Historia* V 2 (78-79 Hase). – About the author, see Hunger, *Hochsprachliche profane Literatur* I 367-371; Hunger's basic manual is ignored by Neville, *Byzantine Historical Writing* 124-127.

48 Talbot, *Leo the Deacon* 129-130. – Berger, *Untersuchungen* 689-691, English source translation in Berger, *Patria* 207, no. 157. – Schneider/Nomidis, *Galata* 1. – For the location of the Kentenarion Tower, see Guillard, *Chaine* 98. 100. 107 and above n. 40.

calami. Whether the chain was also used in the final attack by the Rus' in 1042 is conceivable, but not proven. The smaller ships, if not boats, of the attackers were again no match for the Byzantine fleet, even though it was already in decline⁴⁹.

During the Fourth Crusade, the current of the Bosphorus flowing from the north (see in general above n. 15) again proved to be an important factor when the Crusaders attacked by ship in 1203⁵⁰, just as it had in 1042. The experience of Venetian seafarers, which had grown over centuries when entering the Golden Horn, enabled the crews to land on the shore of Pera⁵¹. On 6-7 July 1203, the Crusaders stormed the fort with the tower where the chain was fixed and were able to free it⁵². After it fell, the Byzantine ships and barges that had kept watch on the chain withdrew⁵³. It was not ramming that broke the chain, as has been repeatedly claimed⁵⁴. The port side current would have been much too strong⁵⁵ to achieve the necessary speed and power for this. Instead, the chain either sank under its own weight, despite the pontoon supports, or drifted away because it was then only fixed on one side (probably on the Kentenarion Tower)⁵⁶. Now the way into the Golden Horn was clear for the Crusaders' ships: facing them were only about twenty ships of the imperial fleet rotting at anchor⁵⁷, which were unable to offer any serious resistance. The fall of the city and the empire was inevitable.

It can be seen as an irony of history that the chain was carried to Acre in the Holy Land as a symbol of victory for the Fourth Crusade⁵⁸, whilst the intended relief of the oppressed Christian states in Palestine and Northern Syria came to nothing. Due to the »Latin« states that emerged in the wake of 1204 in Romania⁵⁹, the Western influx of forces into distant Outremer was reduced even more from then on.

When the Byzantines, coming from the Empire of Nicaea, had again taken their old centre of Constantinople in 1261⁶⁰ the task of protecting the city from enemy attacks was immediately undertaken, which also included sea defence; events in 1203/1204 should have made this necessity clear enough. However, from the reign of Michael VIII (1259-1282), as with the empire in general⁶¹, the fleet continued to decline and was even temporarily disbanded⁶². Attempts at a revival towards the middle of the fourteenth century also failed⁶³. In 1349, Ioannes VI Kantakouzenos had already recognised the impossibility of operating a shipyard in the upper Golden Horn near Kosmidion, and relocated such activities to the harbour of Kontoskalion, which was protected from enemy attacks⁶⁴. Suitable wood for shipbuilding was difficult to obtain⁶⁵ and there was a lack of suitable skilled workers, who instead migrated to the West and later to the Ottoman Empire because of better career prospects⁶⁶.

Stretching a chain across the Golden Horn became more complicated over time: its production required – increasingly scarce – financial resources; and the Byzantine side became dependent on the co-operation of Genoese Pera on the opposite bank. If we ignore a dubious note in a small chronicle⁶⁷ from 1448, this only happened once, and for the last time, during the final siege of Constantinople by the Ottomans under Sultan Mehmed II (1451-1481) at the beginning of spring, 1453⁶⁸. Again, from 2 April 1453, that is two to three days before the main force of the Ottoman army arrived in front of the city⁶⁹, τὸν μέγαν λιμένα καὶ τὸ Κέρας ἅπαν (»the large harbour and the whole [Golden] Horn«) were closed with an iron chain. According to Nicolò Barbaro, this chain rested on large pieces of wood (*tal cadena si iera de legnami grossissimi e redondi, e innarpexadi uno cun l'altro cun ferri grossi*) and

49 Kislinger, *Ruhm* 46-49. – Only mentioned cursorily in Pryor/Jeffreys, *Dromon* 86.

50 Pryor/Wilson, *Chain* 369-370.

51 Hugonis comitis Sancti Pauli epistola de expugnata per Latinos urbe Constantinopoli, in: Tafel-Thomas, *Urkunden* 306 resp. Hugonis Sancti Pauli, *Epistola* 813: *Inde perereximus ad quondam turrim fortissimam, que Galata nuncupatur, in qua firmatur maxima catena ferrea grossa nimis, que posite supra ligna transversa mare transnabat, attingens a turri usque ad muros civitatis*; Niketas Choniates, *Historia* 542-543 (van Dieten). – Pryor/Wilson, *Chain* 371-372; Pokorny, *Zwei unedierte Briefe* 205.

52 Guillard, *Chaine* 91-92 with quotations from the relevant sources. – Genç, *The Golden Horn Chain* 61 with fig. 30.

53 Robert de Clary, *Conquest* § 44 (Dufournet). – Pryor/Wilson, *Chain* 372-373.

54 The basis for this is *Historia ducum Veneticorum* 93 (Simonsfeld). – Queller/Madden, *Fourth Crusade* 117-118; Angold, *Fourth Crusade* 93; Philipps, *Fourth Crusade* 169. – Rightly rejecting Pryor/Wilson 369. 374; Harris, *Byzantium* 167. – Guillard, *Chaine* 91. – The ship involved, the Venetian *Aquila*, may have sailed over the already sunken chain, which was still visible from a certain angle. – Harald Hadrada, later King of Norway (11th c.), managed to leap over the chain using a combination of speed and shifting weight, when he escaped from the Byzantine emperor's service: Snorri Sturluson, *Heimskringla*, vol. 3, 52.

55 Pryor/Wilson, *Chain* 374-376.

56 See n. 40, 46 and 68. – Pryor/Wilson, *Chain* mentioned (371) Guillard, *Chaine*, at the beginning, but did not afterwards consult the article, possibly for linguistic reasons (cf. Schaller, *Review* 305). As a result, they miss Guillard's useful ideas about the position of the tower on which the chain was fixed on the Acropolis side.

57 Niketas Choniates, *Historia* 504 (Van Dieten). – Lilie, *Handel und Politik* 633. – The use of these ships in guarding the chain, according to Niketas Choniates, *Historia* 542-543 (van Dieten), is doubtful, as is Pryor/Wilson, *Chain* 384.

58 Receipts in Pryor/Wilson, *Chain* 379 n. 32 and 33. – Kedar, *Chains* 28.

59 Van Tricht, *Latin Renovatio*. – Burkhardt, *Mediterranes Kaisertum*. – Pokorny, *Königreich von Thessalonike*. – Chrissis, *Crusading*. – Lock, *Franks*. – Tsougarakis/Lock, *Latin Greece*.

60 Georgios Pachymeres, *Relationes historicae* II 27 (I 140-149 Failler). – Nicol, *Last Centuries* 37-41.

61 Nicol, *Last Centuries*. – Laiou, *Constantinople and the Latins*. – Oikonomides, *Hommes d'affaires*. – PLP no. 21436 (Palaiologos Andronikos II). – Recently, Külzer/Kislinger, *Byzantium 1204-1453* offered a brief outline of the development.

62 Georgios Pachymeres, *Relationes historicae* VII 26 (III 81-83 Faillier). – Ahrweiler, *Byzance et la mer* 374-388. – Matschke, *Schlacht bei Ankara* 107-125.

63 Kleinchroniken, *Chronik* 7, 12 (I 65 Schreiner), *Chronik* 8, 51b (I 86 Schreiner). – Nicol, *Last Centuries* 226-233. – Matschke, *Flotte*. – PLP no. 1180 (Apokaukos Alexios), no. 10973 (Kantakouzenos Ioannes VI).

64 Ioannes Kantakouzenos, *Historia* IV 11 (III 70 Schopen); Nikephoros Gregoras, *Historia* XVII 2 (II 847 Schopen). – Simeonov, *Kosmidion* 220-221, in this volume.

65 Ioannes Kantakouzenos, *Historia* IV 11 (III 72. 74 Schopen). – Makris, *Studien* 162-164.

66 Makris, *Studien* 118-127; Bondioli/Penzo, *L'influsso greco nelle costruzioni navale veneziane* – Matschke, *Schlacht bei Ankara* 89-107.

67 Kleinchroniken, *Chronik* 9, 50 (I 99 Schreiner, commentary II 469-471). – Pryor/Wilson, *Chain* do not know the source and its analysis, probably due to a lack of knowledge of German.

68 In general, see Runciman, *Fall of Constantinople*; Philippides/Hanak, *Siege and Fall*; Pertusi, *Caduta di Costantinopoli*. – Genç, *Golden Horn Chain* 234-237.

69 Kleinchroniken, *Chronik* 34, 20 (I 270-271 Schreiner, commentary II 481). – Georgios Sphrantzes, *Chronicon* XXXV 6 (133 Maisano).



Fig. 3 Transport of Turkish ships in spring 1453 overland into the Golden Horn. Painting by Fausto Zonaro (1854-1929), court painter to Sultan Abdul Hamid II. Istanbul 1908, oil on canvas. TBMM National Palaces Collection. – (Fausto Zonaro: Fatih Sultan Mehmet, Ordusuyla İstanbul’u fethe giderken. inv. no. 11/1493, © Millî Saraylar İdaresi Başkanlığı, İstanbul).

reached from Galata (Pera) – as only Kritobulos wrote – to the Gate of Eugenius⁷⁰ in Constantinople. Cargo ships and »triremes« again secured the taut chain⁷¹ and an attack by the Turkish fleet on 21 April was repulsed⁷².

However, Mehmed II managed to better position his long-range cannons, firing over Genoese Galata to score hits in the Golden Horn⁷³. When the attackers succeeded in hauling ships north of Pera overland into the Golden Horn⁷⁴ (fig. 3), the large natural harbour was lost by the defenders. Crews from ships that were not necessary for guarding the chain were sent to support the men defending the walls against increasing attack⁷⁵. The end was near.

When the Turks finally invaded the city on 29 May, those who could, fled by ship. A wooden support (or several) of the chain was chopped down by axe⁷⁶, it partly sank and the ships sailed over it. It is not certain whether the victors actually recovered parts of the chain, especially those attached to the bank. Chain links⁷⁷ (fig. 4) scattered across four Istanbul museums today may come from the Golden Horn, as is officially claimed, but a provenance from Rhodes, which was conquered by the Ottomans in 1522, is also conceivable⁷⁸.

70 Kritobulos, *Historia A* 18,8 (37 Reinsch), is not applicable, as also Guiland, *Chaine* 109-110. The plural τῶν Εὐγενίου Πυλῶν (*tōn Eugeniōn pylōn*) indicates that there was a main gate and side gate; cf. Ioannes Kantakuzenos, *Historia IV* 28 (III 213-214 Schopen) ἐκ τῶν Εὐγενίου πυλῶν and IV 31 (III 232 Schopen) ἐπὶ τὰς Εὐγενίου πύλας. – However, right at the end of the chain Dukas, *Historia XXXVIII* 6 (333 Grecu) ἀλύσει ἀπὸ τοῦ μέρους τῆς πύλης τῆς Πόλεως τῆς καλουμένης Ὀρραίας. See n. 40. – On the dating, see Pertusi, *Caduta di Costantinopoli* 13 (report of Nicolò Barbaro); Guiland, *Chaine* 93. 94-95 on the various opinions of researchers on the Constantinopolitan end of the chain. – Pryor/Wilson, *Chain* 378.

71 Kritobulos, *Historia A* 24, 2, 28, 2 and 37, 1 (40. 43. 50 Reinsch).

72 Kritobulos, *Historia A* 37, 3-5 (50-51 Reinsch). Further attacks took place on 16, 17 and 21 May, see Pertusi, *Caduta di Costantinopoli LXXXII-LXXXIII*; Philippides/Hanak, *Siege and Fall* 576-577.

73 Runciman, *Fall of Constantinople* 116. – Pertusi, *Caduta di Costantinopoli* 22. 24 (report of Nicolò Barbaro).

74 Dukas, *Historia XXXVIII* 8 (337-338 Grecu); Pertusi, *Caduta di Costantinopoli* 138 (report of Leonardo di Chio, chapter 11). – Runciman, *Fall of Constantinople* 104-106. – Philippides/Hanak, *Siege and Fall* 438-447.

75 Philippides/Hanak, *Siege and Fall* 582-583. – There is no source for the argument proposed by Runciman, *Fall of Constantinople* 117, that unmanned ships in the harbour of Prosporion (by the Eugenios Gate) were tied together.

76 Pertusi, *Caduta di Costantinopoli* 35-36 (report of Nicolò Barbaro). – Pryor/Wilson, *Chain* 378. – Philippides/Hanak, *Siege and Fall* 464-465. 467-469. – Hasluck, *Constantinopolitana* 165-167 about three ships from Crete involved. – The chain was opened for a short time on 20 April to enable ships with supplies to enter the Golden Horn: Runciman, *Fall of Constantinople* 142. – Makris, *Studien* 183.

77 These are the Turkish Military Museum (Askeri Müze), the Turkish Naval Museum, the Istanbul Archaeological Museum and the Rumeli Hisarı Museum. Pryor/Wilson, *Chain* 379-381 with photograph on 378 (after van Millingen, *Walls, facing* 228). – The chain parts in the four museums were studied and measured by Genç, *Golden Horn Chain* 68-230 (with numerous illustrations). He concludes that the three parts in the Navy Museum and the Rumeli Hisarı Museum, and the one in the Archaeological Museum all come from the Military Museum (illustrations of the parts still kept there, see Genç, *Golden Horn Chain* 68-69). These parts have originally come from the depot, then museum in or at the Hagia Eirene. A total of 185-190m are preserved (Genç, *Golden Horn Chain* 242). – Kedar, *Chains* 7 (chain elements in the Turkish Naval Museum) and 28-30 (*The Broken Chain as Trophy*). – Kedar, *Chains* (2012) does not seem to know Genç, *Golden Horn Chain* (2010), who also covers other chains of the Mediterranean. – Kastenellos, *Byzantium*, in his essay *The Chain across the Golden Horn*, 89-103 offers several images of chain links in Istanbul museums (probably based on Genç, *Golden Horn Chain*).

78 Pryor/Wilson, *Chain* 379 n. 34. – Also sceptical were Guiland, *Chaine* 91 n.1 and Philippides/Hanak, *Siege and Fall* 432 n. 9. cf. already Schneider / Nomidis, *Galata* 2 n. 3 with reference to Hasluck, *Constantinopolitana* 163-165. According to Hasluck (1923) these chain-elements were brought to Constantinople from Rhodes between 1843 and 1854. Their oval form with compressed sides (»figure of eight«-shape) corresponds with former descriptions at Rhodes, but not with that of Evliyâ Çelebi from the 17th century regarding other chain-elements at Constantinople, said to be elliptical in shape and more than a metre long (Hasluck, *Constantinopolitana* 164-165). – However, dismissive is Genç, *Golden Horn Chain* 25. 236.

Fig. 4 Iron links (allegedly) of the chain over the Golden Horn, (before) 1899 kept next to a porphyry sarcophagus in the area of Hagia Eirene. Original photograph from 1891 (cf. Genç, Golden Horn Chain 65-66. 231-233. 241); Pryor/Wilson, Chain falsely attributed this photograph to van Millingen). With passepartout by the court photographers Abdullah Frères, part of the Abdul Hamid II Collection, now kept in the Library of Congress, Washington, D.C., with permission for download (excerpt also in van Millingen, Walls, facing 228); adaptation by F. Siegmeth).



For the technical data of the chain, the preserved links in the Istanbul Museums are nevertheless a suitable starting point, even if only in comparison. The surviving material⁷⁹ does not coincide at all with the required length of the chain of approximately 750m, which would cover only the part lying in the water⁸⁰, plus the length for attaching the chain on both sides. This would make an additional 30-40m minimum, which would result in a chain of 810-830m in total. However, the chain would have to run over an unknown number of floating pontoons in order not to sink into the water due to its weight. Thus, it would even have to be longer than the calculated 810-830m⁸¹. An alternatively extremely tight clamping over water between the two end-points would also have meant considerable tensile forces on both sides of the anchorage, which were greatly reduced when lying on floats plus shallow immersion in the water.

For the water part alone, assuming a straight line, Pryor/Wilson calculated on the (weak, if not dubious) basis

of a single chain link a total weight of c. 30t. According to Genç, an estimate of »only« c. 18-19t would be more convincing⁸². An additional weight would have to be calculated if a Constantinopolitan end point of the chain is presumed that would have been anchored beyond (southeast) the Seraglio Point (Sarayburnu)⁸³. Based again on Genç's calculations, this would have meant a plus of approximately 7.5t at 300m⁸⁴. The chain⁸⁵, which initially ran on the land (along the wall), would have reduced the tensile force of the chain at the (western) suspension point, but at the same time had the result that the chain ran quite flat into the water. This, in turn, would impede lifting them to rafts or pontoons⁸⁶.

Only experimental archaeology may provide more clarity on the matter in future. Further investigation will also have to include the question how the chain was moved when it was lowered to allow ships to enter the harbour, as is documented by the sources⁸⁷. The proposal of a hydraulic

79 According to Genç, Golden Horn Chain 242 it is 185-190m.

80 Pryor/Wilson, Chain 371. – Genç, Golden Horn Chain 234 assumes only 500-600m chain length on the water, but this does not correspond to the local conditions.

81 Pryor/Wilson, Chain 381 calculate on the basis of c. 1500 chain links (each 55cm long) a total length of 825m. – Takeno/Takeno, Mystery of the Defence Chain 201 assume a length of 1000m, but in my opinion this is calculated too long. They calculate (op. cit. 201-203) a float every 2.64m along the length of the chain lying in the water.

82 According to Pryor/Wilson, Chain 381-382 this means a chain weight of 40kg/m. – Takeno/Takeno, Mystery of the Defence Chain 201: 40t. – The indepth analysis of all chain parts in all four museums (see n. 75) in Genç,

Golden Horn Chain 83-216 resulted in calculating for each chain link a length of 45-60cm (average of 52-54cm) and a weight of 11.6-15kg (average of 12.35-13kg). The estimated weight of 20kg per chain link in Pryor/Wilson is thus too high by more than 7kg/m or over a third of the total weight.

83 Takeno/Takeno, Mystery of the Defence Chain 204.

84 Takeno/Takeno, Mystery of the Defence Chain 208.

85 Takeno/Takeno, Mystery of the Defence Chain fig. 5 on 205f. – For the discussion of the version I wish to thank Arne Effenberger, Berlin, contributor to this volume.

86 Pryor/Wilson, Chain 381-383. – Takeno/Takeno, Mystery of the Defence Chain 201-203.

87 Runciman, Fall of Constantinople 142.

mechanism (waterwheel and gear train) for this purpose⁸⁸ is worth considering.

The decisive breakthrough was achieved by the Turkish besiegers in 1453 on the landward approach⁸⁹, but it was once again evident that mastery of the maritime zone was decisive for the fate of Constantinople. The Byzantine coastal defences had proven themselves against the Avars and Slavs in 626, the Arab attacks of 667-669 and 717/18, as well as against the raids of the Bulgarians and Rus' from 860 to 1042, but this was no longer the case in 1203/1204 and again in 1453, each with a negative outcome for the defenders. The

chain across the Golden Horn had always been an element of the whole defences, but advancements in technology (e. g., longer range cannons as early as 1453) made this means of protecting the region increasingly obsolete⁹⁰. Heavy gun batteries towards the sea (and from the twentieth century also against air attack) and extensive protection of the hinterland became increasingly important in modern times for the military defence of the central harbours. Only the danger of submarine attack on vessels anchored in port in the last century led again to the use of physical barriers to entry, this time underwater, to protect naval bases⁹¹.

Summary / Zusammenfassung

The Golden Horn: Constantinople's Superharbour (Überhafen) and its Chain

Even the Byzantines themselves saw the various harbours, landing stages, *skalai* and shipyards along the Golden Horn as a unit; the inlet as a whole was the city's harbour. Its prosperity was somewhat impaired by a difficult entrance due to the current, silting from sediment deposits in the harbour bays, and a negative image of the shore areas following the plague waves of the sixth to eighth centuries. Nevertheless, from the tenth century onwards, the Golden Horn rose again to become the commercial centre of Constantinople, in which the trading states, especially the Venetians and Genoese, played an important role. An iron barrier chain was used to protect against enemy attacks, which was stretched from the Acropolis area to the fort of Galata (Pera). Wooden pontoons prevented it sinking from under its own weight. The use of the chain is documented several times from 717/718 to 1453 and was not always successful.

Das Goldene Horn: Der Überhafen von Konstantinopel und seine Sperrkette

Schon die Byzantiner selbst haben die diversen Häfen, Anlegestellen, *Skalai* und Werften entlang des Goldenen Hornes als Einheit gesehen, der Meeresarm insgesamt war der Hafen der Stadt. Etwas beeinträchtigt wurde seine Prosperität durch eine strömungsbedingt schwierige Einfahrt, Sedimentablagerungen in den Hafenbuchten, was zu Verlandungen führte, und ein schlechtes Image der Uferzonen im Gefolge der Pestwellen des 6.-8. Jahrhunderts. Dennoch stieg das Goldene Horn vom 10. Jahrhundert an wieder zum kommerziellen Zentrum Konstantinopels auf, woran die Handelsniederlassungen vor allem der Venezianer und Genuesen gewichtigen Anteil hatten. Dem Schutz vor feindlichen Angriffen diente eine eiserne Sperrkette, die vom Akropolis-Bereich zum Kastell von Galata/Pera gespannt wurde. Ein Absinken infolge ihres hohen Gewichts verhinderten hölzerne Pontons. Der Einsatz der Kette ist mehrfach von 717/718 bis 1453 belegt, war nicht immer erfolgreich.

88 Takeno/Takeno, *Mystery of the Defence Chain* 208-210. – Similarly, but technically far more demanding is the concept of a suspension tower with a large wheel inside (diameter 7 m) and a large counterweight (supported by an attached water tower), combined with eight pontoons with slip wheels. See G. Anapnotis in his (still unpublished) text »The Truth About the Great Chain of the Golden Horn«, available under the entry of Nikolaos Uzunoglou (National Technical University of Athens) on researchgate.net (accessed 21 Sept 2021). Anapnotis is aware of the difficulty Byzantium would have had to build such a complex construction in the later period. Thus, he assumes a construction in the 7th c. that continued until 1453 (which is unsophisticated). – Genç, *Golden*

Horn Chain 61, however, thinks that a mere horizontal capstan, operated by human or animal power (comparable to the principle of a horse mill / »Göpel Mill«), would have been sufficient to move the chain (which I doubt).

89 Philippides/Hanak, *Siege and Fall* 505-546. 619-623. – Asutay-Effenberger, *Landmauer* 87-94.

90 Zorić, *Catena portuale*. – Kedar, *Chains* 30-31.

91 Those harbours include the Austro-Hungarian naval base of Pola (today Pula in Croatia), see H. H. Sokol, *Österreich-Ungarns Seekrieg 1914-18, I-II* (Wien 1933, reprint Graz 1979) I 135-139.