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Mittelmeerraum von der Antike bis
in byzantinische Zeit.
Neue Entdeckungen und aktuelle
Forschungsansätze

*Harbors and Harbor Cities in the
Eastern Mediterranean from Antiquity
to the Byzantine Period:
Recent Discoveries and Current Approaches*

Band 2

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Hrsg. von
Sabine Ladstätter – Felix Pirson – Thomas Schmidts

Istanbul, 30.05.-01.06.2011



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On the Urbanism of Roman Harbours: the Evolution of Space Organization in Harbours of the Aegean Sea

Catherine BOURAS

Abstract

This paper attempts an overview of the evolution of Aegean harbours in the Roman period. Most harbours were developed in earlier periods for the needs of the cities. Some of these, in the Classical and Hellenistic period, had a powerful naval fleet, housed in shipsheds built around the basins of closed, military harbours. Via some examples, the evolution of urbanism in this particular harbour area of the city will be illustrated, showing that while shipsheds and other military constructions went out of use after the *pax romana*, such areas developed in a different way, opening towards the sea and to commerce and meanwhile becoming a new monumental area of the city.

Özet

Yazı, Ege limanlarının Roma dönemindeki gelişimine genel bir bakış denemesi niteliğindedir. Limanların çoğu, kentin ihtiyacı için erken dönemlerden itibaren gelişmiştir. Klasik ve Helenistik dönemlerde bu limanlardan bazıları, askeri liman etrafına inşa edilmiş gemi barınaklarında duran güçlü bir deniz filosuna sahipti. Liman bölgesindeki kentleşmenin gelişimi, bu yazıda özel örnekler yoluyla canlandırılmakta; gemi barınakları ve diğer askeri yapıların *pax romana* sonrasında işlevini yitirerek, deniz ve ticarete açılmak ve kentin yeni bir anıtsal bölümü haline gelmesi suretiyle başka amaçlara yönelik olarak gelişmesi gösterilmektedir.

The importance of harbours has been widely demonstrated in the last decades by scholars: since the second half of the 20th century and the progress of underwater archaeology, interdisciplinary research has focused on the remains of submerged or silted harbour basins and jetties as well as on landscape mobility which has caused ancient harbours to disappear¹. Harbours were (and continue to be) important components of cities and their

¹ On the discipline of harbour archaeology, see Blackman 1973, 115–140. On the geoarchaeological interest in Mediterranean harbours, see Fouache et al. 2005; Gifford et al. 1992; Goiran – Morhange 2003; Marriner – Morrhang 2007; Marriner et al. 2005; Marriner et al. 2007; Marriner et al. 2008; Vött 2007.

territory, as they ensure their access to the sea and to the maritime networks and trade, as well as house their naval defence. In this paper we will examine the harbour area in cities of the Aegean Sea during the Roman period and observe the evolution of the spatial organisation from the Hellenistic period to the Roman. In the Aegean area, the harbours that prospered during the Roman period were mostly well established since the Classical or even the Archaic period in locations carefully chosen for their geographic position. According to their situation in relation to a city and its wealth, and to a broader network, some harbours housed a number of warships up to the Hellenistic period; this was the case for many city-states on the mainland and on the islands. After the pacification of the Mediterranean and the organisation of the provinces, however, the use of naval force in the Greek city-states was reduced and disappeared in most cases. The military facilities of these harbours, which comprised mainly shipyards (*neoria*), shipsheds (*neosoikoi*) and other installations², were not necessary anymore and they were gradually replaced by other buildings.

One important feature of Hellenistic harbours was their naval power and the *neoria* built around the basin to shelter as many war vessels as the city possessed³. The naval character of harbours of the Aegean Sea in the Hellenistic period is emphasized by their important architectural infrastructure: the shipsheds themselves and the maritime fortification designed to protect the ships, their sheds and the naval area of the harbour. In harbours such as Zea and Mounychia in Piraeus, these take up the whole space around the basin⁴; the same is true for Rhodes, in the basin called ›Mandraki‹⁵, whereas in other basins such as Kantharos in Piraeus⁶, or in Kos, the space devoted to naval equipment does not take up the whole harbour area, leaving space for other maritime-related activities⁷. It is therefore no surprise that in ancient sources – whether the source is a historical testimony or ancient geographer’s texts – the number of harbour basins that the city possessed was mentioned as well as the fact that it was ›closed‹ with chains⁸, since the λιμὴν κλειστός is an attribute of a city with naval power. In several recent studies, e. g. studies of the closed harbour of Thasos, scholars have argued that shipsheds were built all around the harbour basin, excluding all other maritime activities outside this space⁹: the different activities present in harbour spaces are geographically separated. This is attested in harbours such

² IG II² 1035, l. 44–46, in which elements of topography and of equipment are mentioned for the Great harbour and for Zea. On the topography of the harbours of Piraeus, see: Hoepfner – Schwandner 1994; von Eickstedt 1991 and most recently on the shipsheds of Piraeus, Lovén 2012.

³ Blackman 1982, 79–104. 185–211.

⁴ Von Eickstedt 1991; Lovén 2012.

⁵ Filimonos-Tsopotou 2004; Blackman 1999, 41–50.

⁶ Von Eickstedt 1991 and Garland 1987, 152 f.

⁷ Blackman 2004, 77–82; Brouskari 2004, 63–75; Bouras 2008, 252; Bouras forthcoming.

⁸ See for example: Ps.-Skyl. 67. On the discussion about the use of these chains in the harbour to close the basin or to lock specific areas of the harbour space, see Bouras 2008, 82–91; Bouras forthcoming (Izmir) and the chapter on the harbour of Kos in Blackman et al. forthcoming. Many thanks to D. J. Blackman for discussions on this matter and for sharing his yet unpublished chapter on the harbour of Kos.

⁹ Simossi 1994–1995, 133–160; Grandjean – Salviat 2000b; Grandjean 2011, 337–342; Bouras 2012, 141–150.

as Kantharos (Piraeus) or Delos where *horoi* mention specific borders for the emporion¹⁰ or for the long vessels to berth¹¹.

The battle of Actium in 31 B.C., the last great naval battle, marked the end of the Roman Republic and, with the beginning the Imperial era, the need for warships and their shelters and for naval installations was not as vital for the cities which were demilitarised. Indeed, these were gradually abandoned. Nevertheless, some cities such as Rhodes were allowed to maintain their fortification for honorific purpose – Rhodes also maintained some of her shipsheds and triereis¹². The general pattern across the Aegean is, however, that these buildings were re-occupied by commercial buildings – mainly for storage – during the Roman period after having been abandoned or destroyed. The example of Rhodes is particularly interesting as the whole area was remodelled in the Roman period and the military installations were replaced by monuments which better suited the improvement of the area¹³.

The harbours of Rhodes

The topography of ancient Rhodes has come to light in the last decades thanks to the contribution of Ioannis Kontis and Ioannis Papachristodoulou during rescue excavations¹⁴, and to the recent detailed study of the fortification by Melina Filimonos-Tsopotou (**Fig. 1**)¹⁵. Its extent has been traced through rescue excavations all around the city, thus outlining the West harbour, the *limen kleistos* of Mandraki, the Great harbour, the basin of Akantia and the South-East harbour. In the area of the West harbour, research has shown that the basin was silted by the end of the 4th century B.C. and that the town extended north. This was probably the first commercial harbour used by the city: it had storage facilities and commercial buildings behind a reinforced quay that had been misidentified as a part of the fortification. However, excavations north of that quay wall have shown that the town was extended north after siltation of the basin, therefore the North-West harbour was no longer in use from the 3rd century B.C. onwards.

The military harbour on the east side of the town, also called Mandraki, is better known. Its fortifications have been studied and two of the shipsheds that were built along its shores have been excavated¹⁶. On the west shore of the harbour, a building with central column bases was discovered on the Tsouvala plot¹⁷: since the long building with a central line of square pillar bases is oriented east-west at a right angle to the shore, it has been assumed

¹⁰ Garland 1987, 152–153.

¹¹ ID 2556.

¹² Strab. 14, 2, 5; see also Brélaz 2005, 199–203, who discusses the advantages that Rhodes had as a *civitas libera* to keep its fortification and a warship for honorific purpose.

¹³ Cante 1985–1986, 175–266; Blackman et al. 1996, 371–426; Blackman 1999, 41–50; Bouras 2008, 66 f.

¹⁴ Kontis 1958, 146–158 and Papachristodoulou 1994.

¹⁵ Filimonos-Tsopotou 2004.

¹⁶ Filimonos-Tsopotou 2004; Blackman et al. 1996, 371–426; Blackman 1999, 41–50; Hoepfner 2003.

¹⁷ Tsouvala plot, Fatourou 1967, 463–465.

that these were remains of shipsheds¹⁸. On the south shore, under the remains of the Roman tetrapylon, D. J. Blackman and A. Giannikouri have excavated the remains of several phases of *neosoikoi*¹⁹. Altogether it was possible to trace 100 slipways around the basin²⁰, since in the Hellenistic period this harbour was exclusively dedicated to naval purpose and a restricted area – circulation was forbidden for citizens, according to Strabo's testimony²¹.

The commercial harbour, south of the military harbour, was protected to the west by a fortified mole, built in the 4th century B.C. A complex stratigraphic sequence illustrates the life of this quay, with several circulation layers, and post holes obviously for lighter structures, but no evidence for commercial buildings or storage facilities has been recovered²².

On the other two harbour areas to the south of the Great harbour, the Akantia basin and the south-east one, the only structures that have been revealed are the submerged remains of the mole in the first case, the fortification line around both basins and several structures outside that line in the case of the South-East harbour: four pillar bases were discovered at 150 m north of the east shore as well as three similarly constructed bases and foundations for three more²³, although one can assume that they played a role in the commercial activities and exchanges of Rhodes.

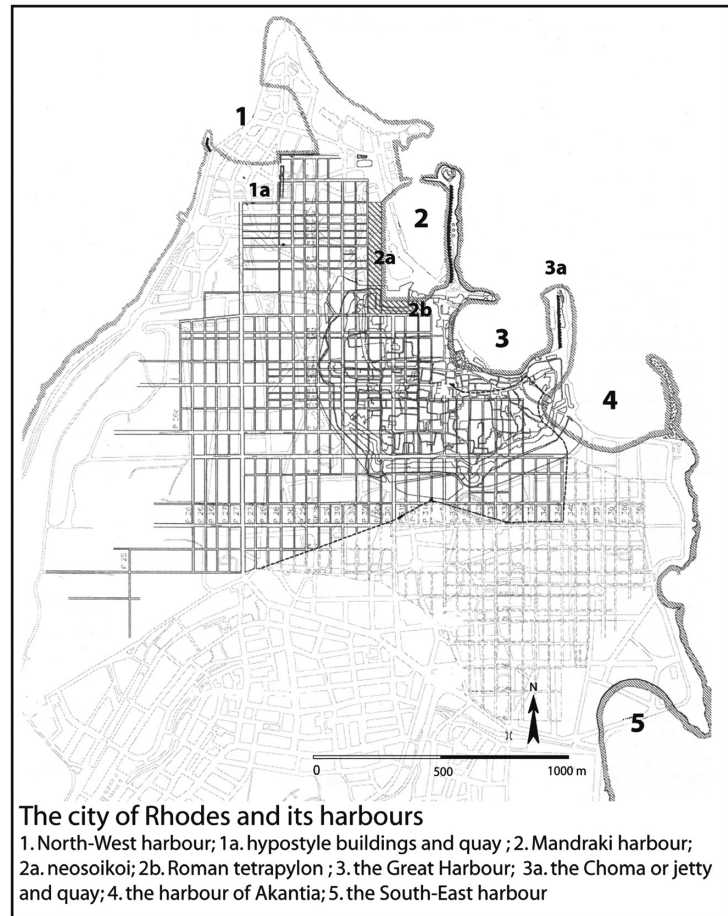


Fig. 1 Map of the city of Rhodes, with the positions of the harbours (adapted from Filimonos-Tsopotpu 2004)

¹⁸ Filimonos-Tsopotou 2004, 53.

¹⁹ Blackman et al. 1996, 371–426.

²⁰ Blackman 1999, 41–50.

²¹ Strab. 14, 2, 5.

²² Platon 2006, 991–994, also: P. Karvonis, Chronique des fouilles en ligne, n. 601 <<http://chronique.efa.gr/index.php/fiches/voir/601/>> (24. 4. 2013).

²³ Filimonos-Tsopotou 2004, 67; on the remains found outside the fortification wall at the South-East harbour, see Kontis 1962, 131–132.

Concerning our matter of spatial development in harbours, the most interesting sector in Rhodes is the junction between the commercial Great harbour and the military harbour, Mandraki. Indeed, on the south shore of the military harbour, the superimposition of the remains of the tetrapylon and of several phases of the shipsheds testifies to a substantial remodelling of this area after the earthquake of the middle of the 2nd century A.D.: the new building programme included the arch and a monumental transformation of the street to the south, which penetrated the city and extended towards the agora. The crossing of the *cardo* and the *decumanus* of the Roman city was emphasized by a tetrapylon arch which had two main openings. The Roman monument was excavated by the Italians in 1925 and published in the 80's by M. Cante, allowing a reconstruction of the arch²⁴. It was a rectangular building with four arches carried by pillars and offering two main faces, one to the north, i. e. towards the sea, and the other to the south, marking the beginning of the *decumanus* which was lined on either side by porticoes in front of shops. The two other sides, east and west, gave access to terraces.

In the earlier planning, this area was dedicated to the Rhodian navy and its protection: the military harbour excluded any other activity – religious, commercial – these taking place instead at the Great Harbour and very likely at the other two basins to the south. It was cut off from the rest of the city by the back walls of the *neosoikoi* and closed – or closable – from the sea by the maritime fortification which left a narrow entrance to the basin from the north²⁵. After the *pax romana* the Rhodian military fleet did not play the same role as it had during the Hellenistic period; the shipsheds were therefore not a necessary expense anymore. In fact, the report for the Tsouvala plot excavation mentions the remains of a later building and a pipe, built on top of the remains of the shipsheds²⁶: one can assume that by then the west shore must also have been transformed into a commercial space. The construction of the tetrapylon on the south side in the 2nd century A.D. radically changed the function of the area of the military harbour of Rhodes which became a space open to the sea, and if the remains of the Tsouvala plot are correctly identified, then this sector became a place of exchange and commerce during the Roman period, while the tetrapylon played the role of a monumental gate and a key articulation between the harbour area and the city²⁷.

The closed harbour of Kos

The city of Kos was established in the middle of the 4th century after a synoecism in the north-east of the island, opposite the Carian coast²⁸. The excavations in the modern city carried out by the Italians in the 1950's uncovered ancient houses and a significant part of the monumental quarter of the ancient city just south of the harbour basin: the agora,

²⁴ Cante 1985–1986, 175–266.

²⁵ On the definition of the closed harbour see Blackman 1982, 194 and on further discussion on the meaning of κλειστός λιμήν, see Bouras 2008, 54; Bouras forthcoming; Blackman et al. forthcoming; see discussion on the chains. A testimony of specific regulation is given by Strabo, referring to the example of Rhodes, Strab. 14, 2, 5.

²⁶ Tsouvala plot, Fatourou 1967, 463–465.

²⁷ Bouras 2008, 252 f.; Bouras 2012, 141–150.

²⁸ On the history of Kos, see Sherwin-White 1978 and on the synoecism of Kos, see p. 54.

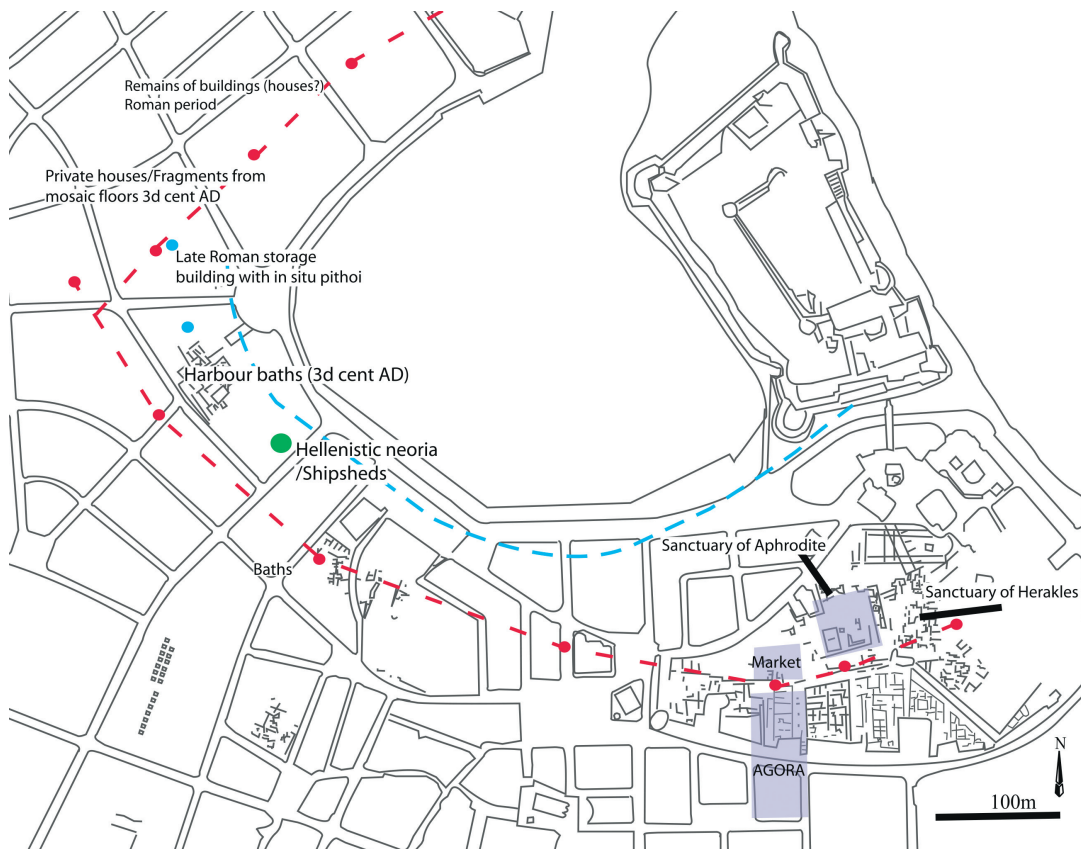


Fig. 2 Map of the area of the harbour of Kos, with approximate situation of excavation finds: the sanctuaries of Herakles and of Aphrodite, the monumental gate, the shipsheds, the fortification etc. (after Bouras 2008, adapted from an original map in: Brouskari 2004, 63–75 fig. 4)

parts of the fortification wall on the moles (east and west), porticoes and sanctuaries²⁹. These systematic excavations along with rescue operations carried out by the 24th Ephorate of Prehistoric and Classical Antiquities have yielded some elements of the topography of the harbour of Kos, to which Pseudo-Scylax refers as a closed harbour³⁰. The harbour area is outlined by the fortification wall which has been located in several places (**Fig. 2**): south of the ›Sanctuario del porto‹ (1), during rescue excavations under the Archaeological Museum (2), north of the North Bath complex (3), on Irodotou Street (4), south of the Harbour baths (5), on Bouboulinas Street (6), on three more plots as far as the Electricity Company's building (7), and recently, west of the Aphrodision³¹. These remains place the harbour area outside the city's fortification, but within the protection of two prolongations of the west and the east fortification walls. Two porticoes were built along these walls and inside the harbour area, and these had most likely a commercial or storage use. However, as their remains have not yet been published, very little is known about these buildings³².

²⁹ Morricone 1950, 6; Livadiotti – Rocco 1996, 92–106.

³⁰ Ps.-Skyl. 99.

³¹ Giannikouri et al. 2011, 357–379; Rocco – Livadiotti 2011, 383–424.

³² Morricone 1950, 54–74.

The configuration of a formally closed harbour locked off from the urban space is not surprising since a similar situation occurred in other cases of military harbours: the fortification wall of the harbour of Thasos originally ran between the shipsheds and the agora, before it was demolished to allow the construction of the north-west portico at the end of the 4th century B.C. or at the beginning of the 3rd century B.C.³³; in Rhodes and in Piraeus too, the military harbour was closed off from the city.

Another feature of the closed military harbour of Kos which is archaeologically attested is the shipshed located approximately in the middle of the harbour area which was excavated in 1986³⁴. The remains which have recently been re-examined by D. J. Blackman include two long north-south walls with the remains of the slipway³⁵. The early stages of the excavations have shown that later buildings (two wells and shops or a warehouse) – most likely Roman – had been built on top of the remains of the destroyed shipsheds³⁶. This construction included four rooms with an east-west orientation and a back wall to the south, but the north wall was not recovered, suggesting that their entrances were on the harbour side. Their walls were built with mortar and they reused the earlier walls of the shipsheds in their foundations. On the south side of the plot, more walls were too partially recovered to be able to draw a plan. More blocks from the earlier buildings were reused in a strong east-west oriented construction (i. e. across the shipshed) which has been interpreted as a Roman quay wall – since this wall lies in the middle of the earlier shipsheds, it seems obvious that these were destroyed and probably submerged. This quay wall was 1.50 m wide and 1.25 m high. This identification, however, raises the question of the sea level at the time of the construction of the quay and, consequently, of the reconstruction and organisation of this quay wall. One cannot base conclusions on main sea level change in the Aegean³⁷ since Kos is known as a tectonically active zone of the south Aegean volcanic arc³⁸ and local relative sea-level change could not be determined from archaeological evidence. Nevertheless, one cannot help wondering if the water was deep enough for a commercial ship to dock at the quay in front of the warehouses which replaced the shipsheds whose foundations are still partially preserved, and if not, perhaps a wooden structure could have been used in order to reach greater depth.

The east part of the ancient harbour is the best preserved since it is part of the agora and the harbour quarter. On the harbour side, the remains still visible are those of two sanctuaries: a double sanctuary of Aphrodite Pandemos and Pontia and a smaller one

³³ Grandjean 2011, 309–312.

³⁴ Brouskari 2004, 68; Kantzia 1992, 632–637.

³⁵ Blackman 2004, 77–82; Brouskari 2004, 63–75; see also: Blackman et al. forthcoming chapter on Kos.

³⁶ Kantzia 1992, 632–637. On the date of destruction of the shipsheds, the mid-2nd cent. earthquake in the Dodecanese, which is well accounted for in written sources provides us with a terminus ante quem, however it is likely that these buildings went out of use at an earlier date.

³⁷ The size of the harbour basin has obviously changed since Antiquity. Indeed, Blackman estimates the distance between the shipsheds and the shore today to reach ca. 42 m, the basin has therefore shrunk since (see Blackman et al. forthcoming – with reference to Brouskari 2004, 64; Kontogiannis 2001, 413 for shoreline mobility from the Roman to the Medieval period). On the main sea-level rise in the Aegean, see: Poulos et al. 2009, 10–17.

³⁸ On the situation of Kos on the volcanic arc of south Aegean, see Dermitzakis et al. 2001, 25–36.

dedicated to Herakles³⁹. Both sanctuaries have been identified by votive inscriptions that can be related to them. The most interesting inscription for the chronological sequence of the harbour area is preserved on a stone found in the Asklepieion, but originating from the sanctuary of Aphrodite⁴⁰. The document concerns the sale of priesthoods and besides religious practices concerning seamen, merchants, *naukleroi* and the men who serve on long ships, it also mentions the history of the buildings and repairs that were made after earthquakes at the beginning of the 2nd century B.C. Most importantly, it provides us with some topographic elements for the harbour: »... (the sanctuary) of Aphrodite Pontia, which lies between the (sanctuary) of Herakles and the neoria built by the chains, leaving the entrance free, by the slipways ...«.

This text identifies with certainty the sanctuary known as the ›Santuario del porto‹, recently examined by G. Rocco⁴¹. It also implies that given the short distance between the Herakleion and the Aphrodision, an equivalent distance could separate the Aphrodision from the *neoria* – i. e. the restricted military area in the Hellenistic period, which encompassed the shipsheds and the neoria. Furthermore, since one of the shipsheds has already been located roughly in the middle of the shore as mentioned above, perhaps more of them could be placed to the east of ship shed 1, and not only to the west as suggested by D. J. Blackman⁴².

The recent architectural study of the remains by the Italian architects⁴³ in that area has shown the different construction phases of the sanctuaries and their gradual monumental transformation from the Hellenistic period to the Roman. It has also focused on the area of the agora south of the harbour quarter and on the articulation between the harbour and the agora. Indeed, while the agora developed from the South agora in the 4th century B.C. to a much wider complex in the later Hellenistic period, surrounded with porticoes and long narrow rooms on the east portico and extending to the north fortification wall, excavations have shown several building phases and sub-phases in the north area of the agora in relation to its communication with the harbour. In the Hellenistic period, the portico of the agora was accessible from the harbour area by a ramp which levelled a difference of 2.50 m height and a gap in the north city wall. At a short distance to the north, under the remains of the Imperial period, excavation has brought to light the foundations of an L-shaped portico: this has been identified as a market on the harbour, in relation to an inscription which was to be placed in the fish market⁴⁴. The presence of a market on the harbour side should be no surprise on a harbour like Kos: indeed research has already

³⁹ On the sanctuary of Aphrodite, see Rocco 2004, 175–194; Rocco 2009, 599–612; on the Herakleion, see Rocco 2004, 175–194; Malacrino 2006, 181–219.

⁴⁰ IG XII 4, 1, 302, l. 41–44.

⁴¹ Rocco 2004, 175–194; Rocco 2009, 599–612.

⁴² Blackman 2004, 77–82.

⁴³ A research programme on the remains of the agora and of the harbour sanctuary is ongoing by a team of the Facoltà di architettura of the Politecnico in Bari (Italy) under the direction of Prof. G. Rocco and Prof. M. Livadiotti. All new hypotheses could not be formulated without the results of their work on the site.

⁴⁴ Segre 1993, ED 128 = NS 440.

confirmed a well-organized naval base and two developed and already embellished sanctuaries at the same period. A separate commercial area on the harbour – we already know of two porticoes alongside the fortified moles – could play the role of an emporion. Through the study of the remains in this area it was possible to reconstruct an important remodeling in the Imperial period of which some remains are visible on site: the fortification and the north portico (on the harbour) were dismantled and reduced to a uniform level and a monumental entrance to the agora was built with a marble paved terrace on the harbour side. This entrance took the form of a new Corinthian hexastyle marble porch frontal complex with a hall which is interpreted to have housed an Imperial cult⁴⁵. During the Hellenistic and in the Roman periods, a secondary arched passage built into the fortification between the sanctuary of Aphrodite and the agora complex permitted communication between the harbour and the city⁴⁶.

In the light of recent architectural research on the area of the agora of Kos and its junction with the harbour, it is now undeniable that the harbour of Kos was an important monumental area of the city, although separated from its space by the means of the north city wall, which benefited from several construction and embellishment programmes in the Hellenistic and Roman periods. So, in the Hellenistic period and probably still in the early Roman period, Kos' *limen kleistos* had a restricted area which could be locked with chains – *kleithra* – to the west, and a more open space with a commercial building and a sacred area opening on the harbour just in front of the harbour basin. This sacred and monumental area was in the immediate vicinity of the agora which attracted the political and the main commercial activities of the city. The very close link between the harbour area and the agora is moreover stressed by the fact that the cult of Herakles took place in both locations, on the agora and in the sanctuary of the port: ... *περὶ τᾶς ἱερῶσύνας τοῦ Ἡρακλεῦς τοῦ Καλλινίκου τοῦ ἐπὶ ἀγορᾷ καὶ ἐπὶ λυμένι ...*⁴⁷. This is also clear from the articulation of the monumental area of the harbour with the agora, marked by the monumental gate to the agora/forum, and by a gate between the sanctuary and the agora. The building phases that have been brought to light by the study of the remains of both sanctuaries could perhaps have concerned the whole harbour area in an attempt to monumentalize and embellish the area. This tendency, as it has very recently been shown, ends in the transformation of the fish market of the harbour into the monumental gate to the agora – being even more than a gate since it also housed the Imperial cult⁴⁸. The city developed as well, since the rescue excavations of the last decades have recovered private houses with mosaic floors and bath complexes to the west of the monumental area⁴⁹. When the shipsheds fell out of use in the Roman period, commercial buildings which were oriented towards the harbour were built over their remains.

⁴⁵ Rocco – Livadiotti 2011, 404 fig. 23 a. b.

⁴⁶ According to graphic reconstructions. See also Rocco – Livadiotti 2011, 383–424.

⁴⁷ IG XII 4, 1, 320 = Segre 1993, ED 180, lines 8–9.

⁴⁸ Rocco – Livadiotti 2011.

⁴⁹ Brouskari 2004, 63–75.

Ephesos and Miletus

The harbours of Ephesos and of Miletus, or rather the monumental equipment around their harbour basins have already been thoroughly described and studied⁵⁰. Nevertheless, one might like to compare the evolution of the harbour areas in Ephesos and in Miletus with the harbours described above. In the case of Rhodes and of Kos, not only were the areas embellished and monumentalised, but also the naval equipment formerly housing warships was no longer in use or even destroyed by the beginning of the Imperial period, being replaced by warehouses or buildings with commercial function. The junction between the harbour area and the urban space itself is emphasised by one or more monumental gates. On the other hand, the monumental equipment of the harbours of Miletus and of Ephesos is not related to the destruction of military facilities. The harbour area of Ephesos has indeed benefited from the relatively rapid progression of the coast, forming new land on which to build – although reducing the capacities of the harbour basin which required special structures in order to function from the Hellenistic period onwards⁵¹.

Thasos

Considering and comprehending the architectural evolution of harbour spaces is more difficult in some cases, as rebuilding or complete remodelling is more subtle or not as obviously attested in archaeological evidence or written sources.

One such case could be the harbour(s) of Thasos. The harbour of Thasos is well known for its closed military harbour⁵². There have been several maritime excavations in the harbour basin in order to understand the different construction phases of the moles and their fortifications as well as to determine whether the entrance of the harbour was at its present place, in the north-west, or at the north-east, a position which would have ensured greater protection⁵³.

The recent publication of the city-walls by Y. Grandjean considers that any issues concerning the *kleistos limen* of Thasos, its fortification, and its ancient outline, have – for the time being – been resolved⁵⁴. Whether or not the closed harbour was indeed solely dedicated to military equipment and housing, the question arises where commercial ships moored

⁵⁰ For Ephesos: Kraft et al. 2000, 175–239; see also full bibliography in Bouras 2008, 107–122 and Bouras 2009, 495–508. For bibliography on Miletus, see: Bouras 2008, 99–106.

⁵¹ Kraft et al. 2000, 188 f.

⁵² Recently, Grandjean 2011, particularly on the fortification of the military harbour and the issues relating to its reconstruction, see 321–347, with previous bibliography. Also Bouras 2012, 141–150.

⁵³ Simossi 1998, 133–159.

⁵⁴ There have been different hypothesis concerning the reconstruction of the outline of the harbour basin. One point of view considers the number of warships that the city possessed indicating the military importance of Thasos on the northern Greek coast (that number is estimated to 45, see Grandjean – Salviat 2000b, 515), and the vital importance of a strictly closed basin with an entrance at the north-east of the basin. The other point of view takes into consideration the natural landscape evolution and the formation of the basin inside a lagoon where the moles were founded on natural outcrops. The basin would have never silted, since the city-walls themselves protected the basin, retaining the materials brought down by the acropolis streams. For a recently published overview, see Grandjean 2011, 321–347.

and how goods made their way to the heart of the city, and whether monumental commercial facilities were developed west of the agora during the Roman period? The results of maritime research consider that the commercial harbour of the city was situated north of the military one and south of a great mole (approx. 100 m length) which seems contemporary with the fortifications. This is one protected harbour basin to be taken into consideration when looking at the decree mentioning the tonnage of ships and where they were permitted to berth⁵⁵. Maritime research has shown that the west/south-west zone, by the tower of Heracliodoros (G) may have been used as a quay, because a mooring stone has been retrieved along that stretch of the fortification (H–G) and on the inner side of the harbour⁵⁶. If reconstructions of that mole are correct⁵⁷, then a third harbour space must indeed have been in use south of the closed harbour.

This theory is supported by the form of the maritime fortification⁵⁸ and by the form of the city wall at this point, particularly by the construction of the maritime gate in the first half of the 4th century and its position outside the closed harbour. Also, I have already argued that the importance of this third harbour area definitely survived through the Roman period, since the circulation within the town shows direct connection between the political and commercial heart of the city – the agora, the *›cour aux cent dalles‹* and the *macellum*⁵⁹ – and this zone through streets which lead directly to a series of gates on the north-west part of the fortification.

Through the examples of Rhodes, Kos and Thasos, we have attempted an overview of the evolution of the spatial organization of harbour areas in the Roman period. These sites are representative of cities where monumental architecture is important in the Hellenistic and Roman periods. They are also cities whose harbours play an important role in their ostentation and their image. Other harbours do not show remodelling to the same extent. Kenchreai's harbour, which was an exceptional case, was completely rebuilt and reorganised to suit its commercial vocation. The evolution of its equipment does not testify to a change of function of the harbour, but rather to the development of certain activities. Smaller cities or smaller harbours show little or no evidence of such evolutions, whereas at other sites, such as the harbours of Piraeus, military installations remained in use throughout the Roman period.

⁵⁵ IG XII 8 Suppl. 348, l. 1–5.

⁵⁶ Lianos et al. 1985, 126.

⁵⁷ Simossi 1993, 36; Simossi 1998, 156 f.; Grandjean – Salviat 2000b, 52; Grandjean 2011, 337–342; Bouras 2012, 143 f.

⁵⁸ The tower of Heracliodoros (G) has been considered as a honorific monument offered by the Olynthians rather than a defensive tower of the fortification (see Pouilloux 1947–1948, 262–272; Dunant – Pouilloux 1958, n. 376) and since it was built at the north-west of the harbour in its original position, one must assume that this area was not just a fortified mole, but perhaps rather a more developed quay. This theory has already been developed by Simossi 1993, 36 (see also Simossi 1998, 133–160).

⁵⁹ Marc 2012, 3–17 with reference to earlier bibliography.

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