

## **ABDERA: THE SEA MATTERS. DID THE CITY MAKE ITS HARBOURS, OR DID THE HARBOURS MAKE THE CITY?**

The present study on the harbours of Abdera<sup>1</sup> is integrated into a wider discussion on a difficult and not thoroughly studied subject namely harbour structures and the relations between coastal cities and the sea. The study will view the material both synchronically and diachronically focusing on the northern Aegean coastal areas.

The notion, whether the city of Abdera influenced its harbours or the harbours influenced the city, reflects the discussion of which influenced the other the most – the harbour or the city? –, reflects ancient cities' need for a harbour, to provide adequate access to the sea and hence to maritime activities. It also refers to the enquiry on whether and in which aspects the sea and the river Nestos have affected the lives of the Abderitans. Finally, it sets the question of whether the city constructed the harbours in order to benefit the city, and to what extent the harbours themselves »created« the city through the variety of commodities and the potential the harbours offered. Or, if the harbours actually destroyed led the city into decline when they were no longer helping it due to natural and historical reasons.

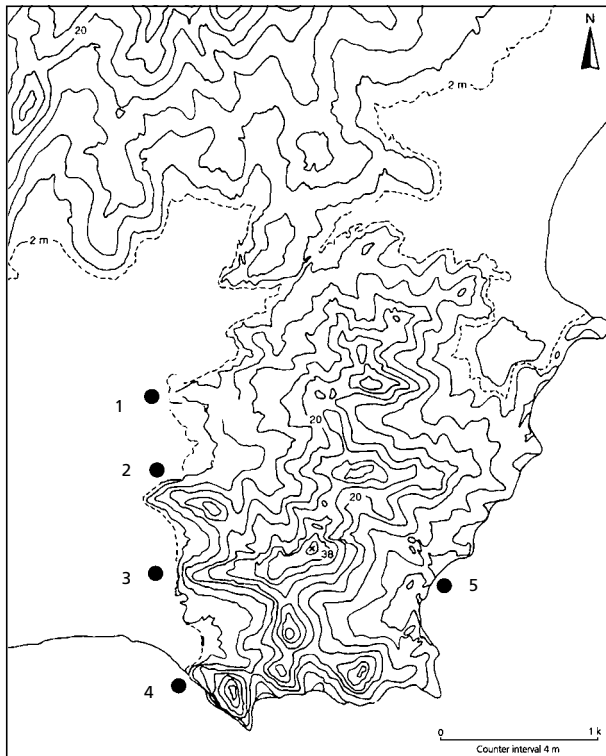
To discuss the harbours, we will follow three varied and different clues.

### **FIRST CLUE: PALAEOENVIRONMENT**

The first clue concerns the palaeoenvironment of the region whose changes affected the city<sup>2</sup>. In the specific period of the study, the morphology of the coastline in the area of Abdera was different from today. The history of the coastal topography is not known in detail, but we know that parts of the ancient coastal cities of Macedonia and Thrace are now submerged<sup>3</sup>. This is also the case for Abdera, where the two breakwaters of the Hellenistic city are now underwater<sup>4</sup>.

In Abdera, the largest changes have not been the result of submersion, but that of alluviation caused by the activity of the river Nestos, in its delta region and along the last part of its route. Furthermore, it is known by historical data and geological studies that river estuaries in Northern Greece are dynamic systems presenting a phenomenal increase and rapid advance, resulting in alluviation orientated from east to west<sup>5</sup>. The main reasons for this phenomenon are the strong easterly winds and the coastal currents that transfer the most deposition materials along the coast.

Until recently, in the eastern part of the Nestos delta and almost up to the ancient city of Abdera, many inactive riverbeds comprised remains of central distributaries, which caused the alluviation in the area<sup>6</sup>. This phenomenon is particularly evident by the fact that the estuaries of the ancient distributaries are located more northerly than the current coastline. The natural processes of the delta formation were disrupted from 1945 onwards man, aiming to change this active environment, moved the riverbed 4km to the west and built drainage works<sup>7</sup>. There is also archaeological evidence concerning this issue: near the present coastline, there are no archaeological sites dated to periods earlier than the Late Hellenistic, while the denser habitation in the area is observed during the Byzantine Period<sup>8</sup>.



**Fig. 1** The area of ancient Abdera. The location of the harbour structures (1-5) is marked. – (Map C. Kallintzi; Syrides/Psilovikos 2004, 352 fig. 1).

An equally visible phenomenon is the alluviation of the sea gulf in the west of the ancient city, confirmed by geomorphological studies, which caused large-scale changes in habitation and urban development. This took place during the 5<sup>th</sup>-4<sup>th</sup> century BC<sup>9</sup>. As indicated by the contour lines of the topographic diagram of **figure 1**, the area where the ancient city developed was a peninsula, which was connected to the mainland by a narrow strip of land. The existence of a bay to the west of this peninsula (**fig. 8**) has been confirmed through core drilling, but also through excavations and surface surveys<sup>10</sup>, during which a thick layer of sea sand and shells was located near the northern side of the wall in the Northwest edge of the northern enceinte (**figs 1; 2, 1**). Further south, in the north-western edge of the southern enceinte and west of the wall, as we will discuss below, a rock-cut foundation on the natural rock of the ancient beach has been revealed (**figs 1; 2, 3**)<sup>11</sup>. Moreover, there are still marshes in the region, which comprise remains of the old bay and are drained by ditches. If the terrain is observed carefully, one can discern the soil ramp separating the ancient gulf and current marsh from the stable ground.

According to Psilovikos and Syrides, the palaeogeographic evolution of the gulf took place in four stages: The first is related to the conditions during the colonisation period. In the second stage, the gradual submergence began, along with the shift of the coastline further south, due to the alluviation of Nestos. In the third stage, a reef was formed at the height of the current coast that separated the gulf from the sea and transformed it into a marsh. During the fourth and last stage, the entire area west of the city was occupied by marshes<sup>12</sup>.

## SECOND CLUE: THE CITY

The second clue concerns the establishment and development of the city. Abdera was founded<sup>13</sup> in the broader context of the colonisation of Aegean Thrace during the 7<sup>th</sup> and 6<sup>th</sup> century BC as a colony of two Ionic cities, Clazomenae<sup>14</sup> and Teos<sup>15</sup>. The selection of the area was dictated primarily by economic factors, as the Ionians foresaw that it was rich in metals, timber and horses, and that its fertile plains were ideal for the cultivation of cereals and vine as well as animal breeding, mainly cattle and sheep<sup>16</sup>. Further, it was easy to obtain slaves<sup>17</sup>. Political factors played an important role in the second colonial wave, as the Teians left their homeland due to Persian expansionism.

The choice of this particular location was due to the existence of a gulf protected from the winds, its proximity to the estuary of the river Nestos, and to the end of the terrestrial passageways leading to the Thracian hinterland. Furthermore, during the second attempt at founding the colony by the Teians (545 BC), all the neighbouring areas suitable for the establishment of a colony were already occupied by colonists from other metropoleis<sup>18</sup>. The city of Abdera did not occupy the same location throughout its long

**Fig. 2** The harbour structures of Abdera (1-5). – (Synthesis C. Kallintzi).



history<sup>19</sup> (fig. 2). The north enceinte was the oldest habitation site, as it was used from the mid-7<sup>th</sup> century BC<sup>20</sup>. By the middle of the 4<sup>th</sup> century BC, the entire gulf had turned into marshland, which was impassable for humans and inaccessible to ships. Consequently, the transfer of the urban grid further south was absolutely necessary. Towards the end of the 4<sup>th</sup> century BC, the initial site was abandoned and the urban complex was transferred to the southern enceinte<sup>21</sup>. During the Roman Imperial Period, the city expanded further, to the west of the walls.

### THIRD CLUE: PROBLEMS FROM THE RIVER AND THE SEA

The third clue focuses on the problems caused by the river and the sea.

Throughout its existence, the city was at the mercy of environmental changes, and the Abderitans had engaged in a titanic struggle against the elements of nature<sup>22</sup>. From the first colony, the poor climatic conditions caused by the marshlands and the increase of diseases such as malaria were the greatest challenges for the Clazomenians. It was a challenge they failed to overcome. This problem is reflected directly in their extensive cemeteries around the city: numerous deaths of infants and children, which hindered population increase<sup>23</sup>. Literary sources also attest to this situation: in the 5<sup>th</sup> century BC, Hippocrates examined several sick people suffering from fever, headache and dysentery<sup>24</sup>. This unhealthy climate also caused problems in the following centuries, as inferred by an incident of the early 3<sup>rd</sup> century BC, mentioned by Lucian, which concerns an epidemic that struck the city, with the main symptoms being severe seven-day fever and delirium<sup>25</sup>. Furthermore, this poor climate with the heavy atmosphere due to moisture created the myth of abderitism<sup>26</sup>.

The marshy and sandy land was considered suitable for the burial of the diseased, but at the same time required special reinforcement. The movement of wagons with their heavy loads, the stone and clay sarcophagi, would have required the existence of solid roads<sup>27</sup>, especially during the winter and spring months. Also, within the city, there had been attempts in this field, such as soil consolidation with a compact layer of small stones in front of the Sanctuary of Demeter in the northern enceinte, or the placement of amphorae under house floors to drain the moisture<sup>28</sup>.

Nonetheless, often the flooding of Nestos caused changes to the layout of the city, both in the northern enceinte, with the siltation of the original harbour<sup>29</sup>, as we will see below, as well as in the southern one. Here the situation is more complex, as the floods were severe and repeated. Excavations in the area of the west gate of the wall located the sand layers and the gradual raising of the ground level that has been causing successive constructions and changes to the city's layout<sup>30</sup>.

## HARBOURS

### Research

This situation, as described so far, had a direct impact on the city harbours<sup>31</sup>, namely their foundation, their use and ultimately their abandonment.

In Abdera five harbour structures have been located from the 1960s to 1992, three of which are currently located inland, while the other two are submerged off the coast (figs 1; 2, 1-5). They are natural harbours, with artificial elements, protected by fortifications and appear to have been directly connected to the urban grid<sup>32</sup>. Research has so far provided adequate evidence, yet there are still several gaps, one of which concerns their precise dating.

### Harbour structures of the northern enceinte

In the Northwest corner of the city's northern enceinte (figs 1; 2, 1; 3), there was an organised harbour with facilities providing security and services to the ships that berthed in it<sup>33</sup>:

#### Fortification wall and tower

A fortification wall is protecting the northern side of the harbour's entrance. The wall runs further into the sea and ends in a square construction (fig. 4)<sup>34</sup>. This structure's function is unclear. Ch. Samiou, suggests that it served as a breakwater or as a tower for observing the harbour<sup>35</sup>. We could also add the operation of a lighthouse, but this view appears to be wrong, as it is known that the construction of lighthouses is dated after the 3<sup>rd</sup> century BC<sup>36</sup>. The foundation of the fortification, according to the excavator Ch. Koukoulis-Chrysanthaki, must be dated to the end of the 6<sup>th</sup> century BC<sup>37</sup>.

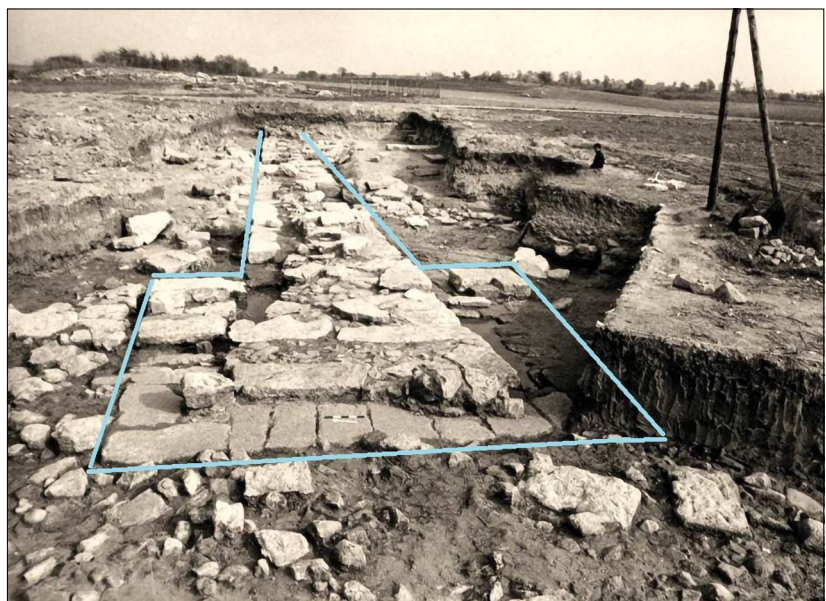
#### Shipshed

At the northeast edge of the harbour existed a shipshed<sup>38</sup>, constructed with the same building plan as the fortification<sup>39</sup>. It was a roofed, oblong building, placed parallel to the fortification wall at a distance of 6 m. Its north side has been revealed, consisting of a wall in its western part and a colonnade (fig. 5) in its eastern part. The columns are not situated on a stylobate, but on independent rectangular bases. In its interior, which lacks a floor, there is an incline westward, the direction of the sea. Apart from a few destroyed fragments of the second colonnade<sup>40</sup>, the southward part of this building remains unrevealed. Its dating remains a challenge. The flood of the late 6<sup>th</sup>-early 5<sup>th</sup> century BC, which silted the harbour rendering it useless<sup>41</sup>, is considered the *terminus ante quem* for its construction. This damage also included the shipshed installations.

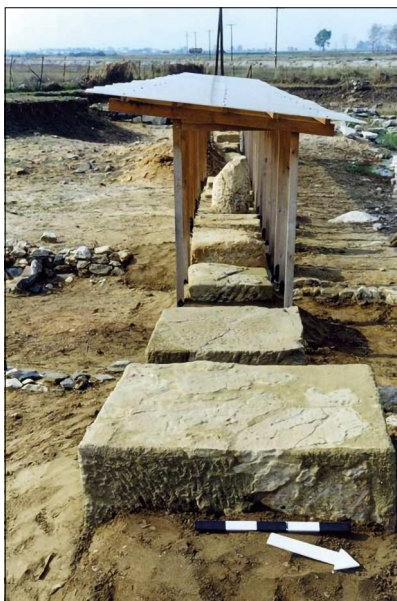
This harbour west of the city's northern enceinte has been in use for a limited period. The latest chronological boundary for its use is associated with the construction of the city wall, whereas the earliest is the aforementioned flood. Thus, its operation broadly covers the period from 525-520 to 490-480 BC.



**Fig. 3** Abdera. North enceinte. Aerial view of the excavation in the northwestern corner of the enceinte, where the harbour with the shipshed is located. The walls of Clazomenians are marked by (C), the Teians walls by (T), the gate is (G), and the colonnade of the shipshed is marked by (S). – (Photo A. Garcia, 2021).



**Fig. 4** Abdera. North enceinte. The end of the Teian wall and details of the square construction. – (After Koukouli-Chrysanthaki 1990, 101 fig. 139; blue marking by C. Kallintzi).



**Fig. 5** Abdera. North enceinte. Shipshed. Detail of the colonnade. – (Photos and synthesis C. Kallintzi, 1998).



**Fig. 6** Abdera. North enceinte. Harbour structure no. 2 (quay). – (Photo D. Lazaridis, 1964).

### Quay

In about the middle of the west side of the enceinte, there is a second harbour structure dated to the early 5<sup>th</sup> century BC<sup>42</sup> (figs 2, 2; 6). It is a structure with a heavy foundation and a width of up to 2.70 m, built with massive rough granite stones, which was revealed in a length of 10.90 m. The dimensions of the largest stone are 1.40 m × 0.85 m × 0.35 m. The surface of the quay has only one rectilinear side, the north one, in front of which a pure marine sand layer was found. This structure is obviously a quay and is most probably associated with the part of the western side of the enceinte which came to light a short distance away (less than 50 m) to the south-southwest<sup>43</sup> (fig. 7).

Excavations and geomorphological research were carried out in this area in 2022 as part of the Archaeological Project of Abdera and Xanthi (APAX)<sup>44</sup>. The aim was to investigate a construction that was interpreted as a quay. The actual excavation proved rather difficult since its point of interest was and still is constantly under water. The goal of the geomorphological research was to determine the actual coastline during the Archaic and Classical periods. The research data are still under processing and assessment.



**Fig. 7** Abdera. North enceinte. The area of the **harbour structure no. 2 (quay)**. A section of the western wall and buildings inside it can be seen. – (Photo Th. Papadopoulos, 2020).

#### Interrelation of the harbour structures

The relation of these two areas of the harbour in the northern enceinte, which were previously described (fig. 2, 1-2) has been interpreted as two independent harbours. Moreover, it has been argued that the southern area succeeded the northern one when this was silted<sup>45</sup> and also that they possibly co-existed for some time<sup>46</sup>. If this is the case, they comprise the northern and southern boundary of the same harbour, which thus appears to have **a length of 400m and a width of about 100-150m (fig. 8)**. Its large size is also indicated by the fact that in 491/490 BC<sup>47</sup> the entire Thassos fleet berthed there<sup>48</sup>. It was here where recorded naval operations of the Peloponnesian War took place; in 405 BC Eteonikos<sup>49</sup> arrived with ten triremes in order to reinstate Spartan hegemony and in 376/375 BC Chabrias<sup>50</sup> with a squadron of the Athenian fleet to save the city from the invasion of Triballi.

Without excluding the sequential construction of these harbour constructions, we think that it is possible that **the commercial zone of the harbour was developed in the southern site**. The wall of the enceinte is very close to it, while in its immediate interior a building has been excavated, some parts of which have been interpreted as **stores (fig. 7)**<sup>51</sup>. Moreover, in the late 5<sup>th</sup> century BC Hippocrates mentions the city's agora<sup>52</sup>, which he crossed on his way from the harbour and through the gate<sup>53</sup> to the city's interior.

In an attempt to clarify these contexts and their relationship with historical events, we will follow the subsequent steps:

The first step regards historical events: In 547/546 BC Cyrus, the king of Persians, conquered Asia Minor. In 545 BC Teians abandoned their homeland to escape from Persian occupation and founded Abdera<sup>54</sup>. Between 520-515 BC the first coins of Abdera are being minted<sup>55</sup>. Between 512-510 BC, during the campaign of Megabazus against the Paeonians, Abdera came under the reign of the Persians<sup>56</sup>. In this way, the Teians



**Fig. 8** Abdera. The ancient bay and the harbour structures nos 1-4. – (Photo C. Sergeev Tzochev, 2016).

once again encountered those they had tried to avoid through migration, namely the Persians. From that point onwards the Persian presence was decisive in the course of the city. In 492 BC, after the Ionian Revolt, Mardonius campaigned in Thrace and renewed Persian domination that, according to Ch. Veligianni<sup>57</sup>, should have resulted in an oligarchic government for Abdera, which character cannot be determined, though the attitude would clearly be in favour of the Persians. During the same year, it is possible that a Persian military authority was established in the city<sup>58</sup>. Since then, the harbour of Abdera was used as a naval base of the Persian fleet and as a base of operations for the Persian army<sup>59</sup>. During 500-494/493 BC or in 491/490 BC, according to two different points of view, the Thasians surrendered their fleet to the Persians, in the harbour of Abdera, after the demand of Darius<sup>60</sup>. In 480 and 479 BC the city hosted Xerxes and his army<sup>61</sup>. In 476/475 BC Abdera was liberated from the Persians<sup>62</sup>, but the use of the Persian weight standard for several decades after their retreat, until 425 BC, indicates the maintenance of commercial contacts. The second step concerns the residential history of the region: **In 650-625 BC the wall of the Clazomenians (fig. 3), who came to the area in 654 BC<sup>63</sup>, was built<sup>64</sup>.** At the east end of the uncovered part, a gateway came to light. **In 545 BC the Teians arrived<sup>65</sup>** and found various pre-existing structures constructed by the Clazomenians, including some fortifications (fig. 3). Thus, it seems that they used the pre-existing infrastructure with some repairs that can be dated to the second half of the 6<sup>th</sup> century BC<sup>66</sup>. In the last quarter of the 6<sup>th</sup> century BC, they engaged in a greater building programme that included the abolition of the gate<sup>67</sup>, the construction of a new fortification wall, harbour facilities, a shipshed and a public building nearby<sup>68</sup>. At the same time, the production of the porous limestone quarries of the city – a material with which these buildings were built – was intensified<sup>69</sup>. In the late 6<sup>th</sup>-early 5<sup>th</sup> century BC there was a flood, the harbour was silted and the shipshed was destroyed. Soon the western part of the city wall was built, which passes forward, but at a higher level than the end of the shipshed colonnade<sup>70</sup>. **The southernmost harbour structure is dated around the early 5<sup>th</sup> century BC.**

The third step is the synthesis of the data: The comparative analysis of historical events with the dating of the harbour structures makes apparent the contemporaneity of the Persian activity in the area with the construction activity associated with the harbours. The presence of the shipshed leads to the hypothesis that the use of the northern harbour was military<sup>71</sup>. The strong fortification with its sea part indicates that it was built for the protection of this harbour. Meanwhile, the rectangular construction at its edge (fig. 4), if it was indeed a tower, protected the entrance into the shipshed. It should be noted here that the oldest fortification wall, the Clazomenian, which had the same direction, could remain in use and be repaired. It seems



that the modification of the wall's shape, which as discussed was undertaken by the second colonists, the Teians, under a well-organised building program, was made to incorporate the harbour within the fortification<sup>72</sup>. The abolition of the gate is perhaps included in this context, in order to eliminate a vulnerable spot nearby. Thus arises the question: who constructed the shipshed, a building used in a military harbour? The Abderitans could be the obvious answer. But then again Abdera was a colony permanently dependent on its metropolis<sup>73</sup>, a city that had no military orientation or leadership tendencies in the region. It is noteworthy that almost no weapons have been found in the excavated graves<sup>74</sup>, meaning that either the Abderitan society did not have a large number of warriors, or that family members preferred to conceal that particular characteristic of the recently deceased as they considered it less important. Moreover, until the end of the archaic period, all the military threats against it came from the land, Thracians being the main opponents, who had no known maritime activity in the area. As for the Persians, the procession of the armies of Megabazus and Mardonius was done overland. Finally, it appears that there was no need for protection from the other Greek cities, as in the late 6<sup>th</sup> century BC the colonial situation was stable in the region. Almost every major coastal city had a harbour with shipshed and other facilities<sup>75</sup> for its warships. Nonetheless, the special circumstances at Abdera, alongside their early dating, pose some questions: Why should they undertake such a large military work in this early period? How was such a costly construction financed? Or were the costs not borne by Abdera? The attempt to address these questions leads us in a different direction: At the end of the 6<sup>th</sup>-beginning of the 5<sup>th</sup> century BC another force was active in the region: **The Persians. They required a military fleet to conquer Greece, hence they probably built the shipshed and their fortification.** We cannot be sure if these works were paid with Persian darics or with the newly minted Abderitan oktadrachms and tetradrachms, as part of the tax to the Great King<sup>76</sup>. The assumption phrased today requires much more study and research, but it is a proposal worth exploring.

### Harbour structures of the southern enceinte

After the mid-4<sup>th</sup> century BC, the Abderitans, due to the filling of the bay where the harbour was located and a series of historical events – such as the raid of the Thracian tribe of the Triballoi, and the conquering of the area by Philipp II of Macedonia<sup>77</sup>, **abandoned the northern enceinte<sup>78</sup> and built a new urban complex, the southern enceinte<sup>79</sup>.** Built with the Hippodamian system, it has a rectangular shape, it is bounded by strong walls on its three sides, while the fourth is protected by the relatively steep coast and the fortified acropolis. To its east and west, two harbours were constructed to cover the city's increased needs. The western harbour was the largest and most important. It was protected by the acropolis and had direct access to the city, with which it was connected through the gate of the western wall. From this harbour two harbour structures are currently visible: the quay on the north and the breakwater on the south (**figs 1; 2, 3-4**).

#### Quay

The third harbour structure of the city is a quay (**figs 2, 3; 9-12**). This quay dates from the 4<sup>th</sup> century BC. It is located on the shore<sup>80</sup>, outside the north-western edge of the enceinte, where there is probably a tower<sup>81</sup>, and is connected to the wall (**figs 9, 12**). It is an elongated structure<sup>82</sup>, **36 m in length, and 2.40 m in width**, while the maximum preserved height is 0.75 m. It consists of two parallel rows of well-joined ashlar blocks, between which there is a compact fill of small stones.

The foundation in the central and southern parts is a rock-cut foundation trench, cut in the soft natural bedrock of the ancient coast, which was cut vertically, in order for the ashlar of the internal side to fit perfectly. Where this was not possible, small flat stones placed vertically were used as wedges. In the northern part, it was founded in a thick sand layer, which was in places stabilised with an artificial substratum. Some of the ashlar of the internal side, bear rock cuttings on their upper surface functioning as push marks for the formation of a step, by placing one more row of stones.

To maintain this structure, various protection measures had been taken: in front of it, i. e. in the sea, there are many worked stones and boulders that served as a breakwater (**fig. 10**), restraining the force of the waves. Most are located at a distance up to 25m from it (**fig. 11**). The structure is strongly inclined towards the seaside (**figs 9-10**) to avoid undermining by the waves<sup>83</sup>. Finally, the stones on the internal side are soft local stone<sup>84</sup> (psammites) from the ancient quarries, while the external side has hard limestone, resistant to the erosive action of the waves.

On the eastern front of the structure tangent, there is a wall<sup>85</sup> (**fig. 9**), quite damaged, which appears to be part of the city wall, with direction E-W, that is connected to the north-western edge of the enceinte (**fig. 12**).

### Southwestern breakwater

The fourth harbour structure<sup>86</sup> is located to the southwest of the enceinte (**figs 1; 2, 4; 13-14**), beneath the Acropolis, which, due to its strategic position on the hill, could control the entire surrounding sea area, providing total protection to the ships in the harbour. This structure belonged to the main harbour of the city in its period of prosperity, which must have hosted both military and commercial ships. It is a breakwater built of enormous granite boulders roughly worked<sup>87</sup>, mainly on its western edge, where it ends. The older view, that it terminated in a circular tower<sup>88</sup>, has not been confirmed by the brief excavation carried out in 1992 by the Ephorate of Underwater Antiquities<sup>89</sup>. Along its northern side, there is a step belonging to a later building phase and comprises a new front of a platform, when the older one no longer served the operational needs of the harbour. Outside its turning point towards the north, it was reinforced by two large adjacent horse-shoe-shaped or semicircular towers. The older phase and construction belong to the **4<sup>th</sup> century BC**. It should be noted here, that in a rare receding of the waters at the end of March 2021, the archaeologist of Ephorate of Antiquities of Xanthi Konstantinos Darakis, took a series of drone shots in which several details of the construction can be seen.

The efficiency of this breakwater as a technical work was satisfactory, considering, as proved by I. Avgouloupis<sup>90</sup>, waves with a height greater than 60cm could not rise in the harbour for any combination of intensity and wind direction. Therefore, this harbour can be characterised as safe.

Concerning the initial dimensions, and thus the capacity of the harbour, these are difficult to define. The harbour basin was formed by the north-western projection of the wall of the southern enceinte with the waterfront and by the southern breakwater<sup>91</sup>. It had the shape of an arch with a chord of 700m and a radius of approximately 250m. The problem, however, is that we know neither the position of the ancient coastline – apart from the aforementioned part of the quay – nor the exact course of the coastal fortification wall. Apart from the north-western corner of the enceinte, which we mentioned previously, a portion about 110m long has been revealed with a gate flanked by towers<sup>92</sup>. The remaining course remains a hypothesis. Another issue to be explored is how close the harbour was to the city boundary. The distance of the visible part of the breakwater from the gate is now 300-380m (**fig. 14**) and it seems too large for the transportation of commodities and other transport activities from and to the harbour. On the other hand, excavations



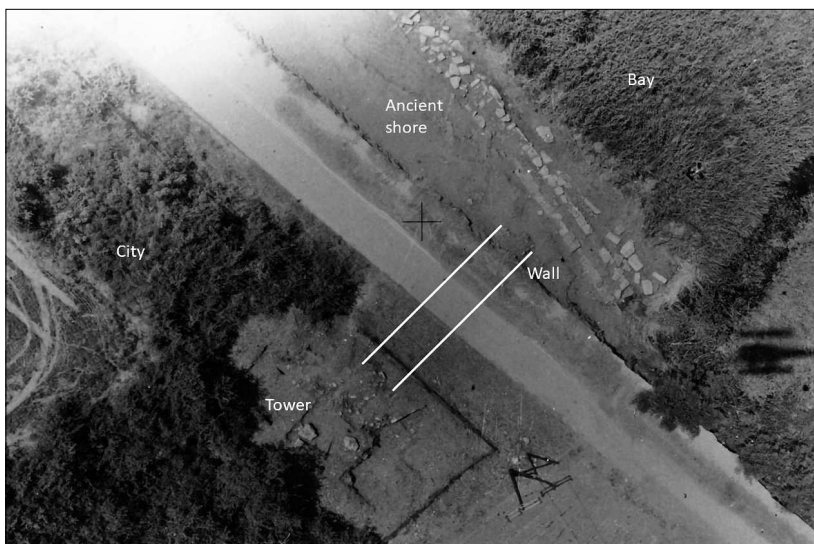
**Fig. 9** Abdera. South enceinte. Harbour structure no. 3 (quay). General view. – (Photo S. Stournaras, 1994).



**Fig. 10** Abdera. South enceinte. Harbour structure no. 3 (quay). Detail from the west. – (Photo C. Kallintzi, 1993).



**Fig. 11** Abdera. South enceinte. Harbour structure no. 3 (quay). Breakwater blocks west of the quay. – (Photo C. Kallintzi, 1993).



**Fig. 12** Abdera. South enceinte. The area of the harbour structure no. 3. – (Photo S. Stournaras, 1994).

west of the wall have shown that both the above buildings are dated much later<sup>93</sup> (1<sup>st</sup>-4<sup>th</sup> centuries AD) than its construction period<sup>94</sup> (4<sup>th</sup> century BC). The bath<sup>95</sup> and the purple dye workshop<sup>96</sup> seem to have been located on the coast for the immediate drainage of effluent into the sea. Furthermore, it is documented through excavation that within 50-60m west of the gate there are no archaeological deposits<sup>97</sup>.



**Fig. 13** Abdera. South enceinte. Harbour structure no. 4. Southwestern breakwater after sea level receding. – (Photo K. Darakis, 10.03.2021).



**Fig. 14** Abdera. South enceinte. The southwestern breakwater and the Western Gate of the city. – (Photo 1993).

Apart from these archaeological data, it should be noted that at a distance of 60-70m west of the gate, there was an area with still water until 2007, possibly indicating a previous coastal setting. The above observations suggest that the excavated part of the western wall was coastal and that the gate served directly the traffic of the harbour. Moreover, the possibility of finding in the future another jetty or other harbour structure in front of it cannot be excluded.

This harbour survived until the Byzantine Era when the city – limited to the ancient acropolis hill – had been renamed Polystylon. According to the excavator Ch. Samiou, the breakwater includes an imprecisely dated Byzantine phase<sup>98</sup>. The last information involves the Late Byzantine Period when Polystylon was a fortified maritime city<sup>99</sup>. In the 14<sup>th</sup> century, it was associated with operations of the civil war between emperor Anna Palaiologina and Ioannis Katakouzenos (1341-1346). In 1342 the imperial fleet under the command of admiral duke Apokaukos, an adversary of Katakouzenos, docked there. The following year the fleet of Omour Bey, the emir of Aydin and an ally of Katakouzenos, moored in the harbour. This is the final known reference to the harbour of Abdera.

### Eastern harbour

The fifth harbour structure<sup>100</sup> is located in the north-eastern part of the enceinte (figs 1; 2, 5; 15):

The harbour is formed by the extension of the north-eastern part of the wall which went into the sea to a length of 30m. This section served as a breakwater ending in a semicircular structure, like a tower. The structure has a diameter of approximately 6m and is constructed with blocks, from the ancient quarries near Mandra<sup>101</sup>.

Under this curved edge lies a rectangular structure that actually is the pre-existing ending of the wall. The ashlar blocks of the superstructure of this section have all fallen mainly on the eastern side of the breakwater, testifying that it was destroyed by collapsing to the east, possibly due to an earthquake. They all bear masonry incision features and other technical details (tenons or axe-shaped clamps). The absence of diagnostic pottery is impressive. The dating to the Classical Period can be based on the fact that it is an extension of the terrestrial wall, as well as the type of masonry.

The structures of this harbour are now not visible, as they are under the surface of the sea. At the end of March 2021, the sea briefly receded; diver Michalis Z. Vagousis found the opportunity to take a number of photographs, which he kindly gifted us. In these, the construction of the circular tower-like building is visible quite clearly (fig. 15).

This small open harbour must have been of secondary importance, and probably served fishing or small merchant ships, while it would have been an alternative solution for berthing when the southwest wind was blowing.

### Storage rooms

In the eastern part of the city, close to the coastal part of the wall, a roofed building interpreted as a storage room has been identified, connected to the eastern harbour<sup>102</sup>. Four small rooms have been excavated, on an E-W axis, while a second row of rooms must have existed.

The building is dating to the second half of the 4<sup>th</sup> century BC. There is no direct evidence for its use. Due to the great destruction, the mobile finds are very few and not helpful. However, its arrangement with the small spaces, along with the fact that it is very close to the eastern harbour, allows the assumption that it served as a storage room for merchandise. This interpretation is also supported by the fact that the most common types of vessels found in its interior are fragments of transport amphorae<sup>103</sup>.



**Fig. 15** Abdera. South enceinte. Harbour structure no. 5 (east harbour). The semi-circular structure after the sea level receded. – (Photo M. Vagusis, 28.03.2021).

## THE RELATIONSHIP OF ABDERA WITH THE SEA

### Maritime communications and trade

Through the predominant commercial route to other Greek cities, the maritime one, coins and numerous other products from these cities arrived in Abdera, while Abderitan products were distributed to them in turn<sup>104</sup>. During the Archaic period, the Ionic orientation of the city is evident, while there are relationships with Aegean islands and southern mainland Greek centres. The silver coins of the 6<sup>th</sup> and the first half of the 5<sup>th</sup> century BC found in areas of the Persian kingdom indicate commercial transactions, but also a probable tax payment<sup>105</sup>. In the second half of the 5<sup>th</sup> century BC, Athenian ceramic products dominate in Abdera, which is associated with the participation of the city in the Athenian Leagues. Concerning the relations with the neighbouring cities, there was strong commercial competition for the control of trade with the Thracian hinterland. After the middle of the 4<sup>th</sup> century BC, the economic and political importance of Abdera is gradually reduced. In this context, particularly characteristic is its absence from the trade arrangements with the Odrysian kingdom, mentioned in the inscription of Pistiros, in contrast to the leading role held by the neighbouring Maroneia. After the conquest of the Macedonians, the orientation of the city changes again. During the Hellenistic and the following periods jewellery, vessels and other luxury items are imported to Abdera from all over the Greek world.

In all chronological periods, transport amphorae are the most circulated commodity. Ships at the harbour of Abdera unloaded amphorae from all the regions of Asia Minor, the Aegean islands, Aegean Thrace and the Chalkidiki peninsula, but mainly from the neighbouring island of Thasos.

## Marine Products

The relationship of the Abderitans themselves with the sea, in their daily lives, was direct and constant<sup>106</sup>. As we are informed through ancient literary sources<sup>107</sup>, coinage representations and archaeological finds, they included many marine products in their diets, such as tuna, mullets, cuttlefish and a variety of molluscs that abounded in the gulf west of the northern enceinte<sup>108</sup>. Fishing was an important occupation, evident from archaeological finds such as bronze fishing hooks, lead weights and needles for net knitting.

Molluscs, and more specifically the **murex** species, provided the raw material for purple dye production. During the Roman Imperial Period, there was **a workshop in the coastal area**, of which the laundry has been excavated, while numerous shell deposits are noted<sup>109</sup>.

## EPILOGUE

The study has shown that the city of Abdera offers interesting data regarding the introduction and evolution of harbour structures. Making good use of the natural shape of the coast, in addition to various constructions and improvements, led to the creation of safe harbours that accommodated both military and merchant traffic throughout antiquity. However, the weaknesses of research based on fragmented or limited archaeological evidence are also apparent, as excavations have not been completed in any of the aforementioned areas. To fully understand the nature and development of Abdera and the relationship of the city to its harbours, it is necessary to investigate more closely, how the landscape and landscape changes affected human occupation.

With the data at hand, we can observe that the association of Abdera with the sea was decisive throughout its existence. Thus, the story of the harbours is intertwined with the city's economy. The building of naval facilities would have been quite a costly affair. The construction of a harbour is a challenging undertaking, in terms of financing, raw materials, workforce, time, as well as technical knowledge. It also necessitates the existence of human capital, especially of corresponding specialised personnel. These skills would be acquired gradually and transferred to the next generation of workers. In the case of Abdera, we saw that their changing location and form were dictated by the geomorphological changes caused by the river Nestos and the sea, as well as technological advances achieved in the space of time that had passed. As the city's main activity was trade, it always had to have a direct connection with the sea. In order to serve these interests, the main body of the city was relocated, thus one could state that a new city was founded or that the city was re-founded when the immediate connection between the city and the sea was no longer there.

The sea was the reason for the decline of Abdera, when the flooding of Nestos and sea currents turned the area of the southern enclosure into marshland<sup>110</sup>, in addition to the development of land transportation by the Romans at the expense of the maritime ones<sup>111</sup>. Due to this, Abdera was deprived of the supporting mechanisms of the country, i.e. farms, settlements, quarries etc. and the productive activities moved towards North, along Via Egnatia<sup>112</sup>.



On the other hand, the sea was the reason for the survival of Abdera, during the Byzantine Period and the following centuries, as the presence of the harbour contributed to the preservation of the small town Polystylon, as well as the minor settlements created after it was disbanded; the latter settlements led to the formation of the modern village of Abdera<sup>113</sup>.

## Notes

- 1) I would like to thank the organising committee for the invitation to participate in this workshop. The translation into English was done by the archaeologist Anastasia Dimoula and the English teacher Orpheas Sims-Kallintzis. Many thanks should also go to Ioannis Triantafyllidis for his help in matters of terminology and for his general care. This research was carried out within the framework of my service at the Ephorate of Antiquities of Xanthi, Greek Ministry of Culture and Sports.
- 2) Kallintzi 2011, 87-90. – Kallintzi et al. 2022. – Georgiadis et al. 2022.
- 3) Papageorgiou/Steiros/Papavasileiou 1996, 246. 250. Submerged ancient cities on the coasts of Central and Eastern Macedonia and Aegean Thrace are noted on the map on page 255 (fig. 6).
- 4) Lazaridis 1966, 364-365, pl. 384, γ-δ; 1971, 40-41, § 202-204. – Samiou 1992, 696. – Papageorgiou/Steiros/Papavasileiou 1996, 250. – For the coasts of the ancient city around Cape Bouloutra (Ai-Yannis) see: Delimani/Xeidakis 2018, 999-1000.
- 5) Psilovikos/Vavliakis/Laggalis 1988, 316. – Papageorgiou/Steiros/Papavasileiou 1996, 250.
- 6) Psilovikos/Vavliakis/Laggalis 1988, 314 fig. 1; 317.
- 7) Psilovikos/Vavliakis/Laggalis 1988, 322-325.
- 8) Kallintzi 2011, 1306 ff.
- 9) Syrides 1996, 366-368 (note that the archaeological dates of this article are incorrect). – Psilovikos/Syrides 1997, 711-713. – Koukouli-Chrysanthaki 1997, 720-721.
- 10) For the project of the Ephorate of Antiquities of Xanthi concerning intensive survey in the northern enceinte and the cemeteries of Abdera see: Kallintzi et al. 2020 and Kallintzi et al. forthcoming.
- 11) Kallintzi 1992, 486.
- 12) Psilovikos/Syrides 1997, 711-713. – Syrides/Psilovikos 2004, 356-359.
- 13) Kallintzi 2011, 98-100.
- 14) Ael. 12, 9. – Hdt. 1, 168-169. – Plut. mor. 812a. – Solin. 10, 10. – Tiverios 2008, 91-92. – Graham 2001, 272.
- 15) Hdt. 1, 168-169. – Strab. 14, 1, 30 (C 644). – Herrmann 1981, 27. – Tiverios 2008, 94.
- 16) Kallintzi 2011, 92-93 (flora), 94-95 (fauna).
- 17) IThrAeg E3 and pp. 173. 186-190. Law on buying and selling slaves and beasts of burden. Dated to the 4<sup>th</sup> century BC, it is later than the colonisation, however, it underlines the existence of a slave market at the agora of Abdera
- 18) To the West of Nestos there was Thasian Peraia; to the East, there was Dikaia, Strymi (also a colony of Thasos) and Maroneia (a colony of Chios) (IThrAeg pp. 127-128).
- 19) Kallintzi 2011, 1085-1087.
- 20) Kallintzi 2012, 132-136.
- 21) Kallintzi 2012, 136-139.
- 22) Kallintzi et al. 2022.
- 23) Due to poor living conditions and illnesses caused by them, infants and children were a high-risk group. Consider the numbers: in Ammolofos cemetery, from which we have most details on Clazomenians colony, out of 309 individuals, only 42 were adults. 174 were infants, up to two years of age. 49 newborn babies died during birth. The remaining people were 21 children aged between two and six, seven children aged between seven and twelve, and 16 teenagers (12-18). Skarlatidou 2010, 358-364.
- 24) Hippocr. 3, 3, 17 (6-9); 7, 1, 115.
- 25) Lukian. 25, 1-2.
- 26) Mart. 10, 25, 4. – Vitruv. 5, 5, 6. – Cic. Att. VII 7. 4, 3-6. – Kallintzi 2011, 91. The term »Abderitism« was a synonym for naïve behaviour and stupidity. Abderites had become the laughing-stock of derogatory comments and jokes.
- 27) Kallintzi 2004, 285; 2011, 783-786.
- 28) Kallintzi 2011, 1094. 1097. 1106. 1112.
- 29) The establishment of harbours by the mouth of the estuaries, their siltation from the river-borne mud and the movement of estuaries, and, finally the consequent relocation of the city, was not uncommon in antiquity. See: Blackman 1982, 186-187.
- 30) Kallintzi 2011, 1124-1125.
- 31) Samiou 1999. – Kallintzi 2011, 1187-1188. – Salzano 2014-2015, 62-65.
- 32) Cf. Blackman 1982, 194.
- 33) Kallintzi 2011, 1188-1189.
- 34) The wall in thickness varies from 2.70m to 3m. The external face consists of large rectangular stone blocks arranged in the isodomic system, while the inner face is constructed of small stones. Koukouli-Chrysanthaki 1990, 101. 242-243; 1991, 193; 1997, 720. – Kallintzi 2012, 133.
- 35) Samiou 1999, 364.
- 36) Blackman 1982, 207: »There is no evidence for the use of lighthouses before the Pharos was built at Alexandria in the early 3<sup>rd</sup> century BC«.

- 37) Koukouli-Chrysanthaki 1997, 720 (last quarter of the 6<sup>th</sup> century BC); 2004, 242 (late 6<sup>th</sup> century BC).
- 38) Koukouli-Chrysanthaki 1991, 193-195; 1992, 162-163; 2004, 244-245.
- 39) Koukouli-Chrysanthaki 1997, 720-721; 2004, 244-245.
- 40) Koukouli-Chrysanthaki 1992, 162.
- 41) Koukouli-Chrysanthaki 1997, 721 (late 6<sup>th</sup> century BC - beginning of the 5<sup>th</sup> century BC); 2004, 245-246 (early 5<sup>th</sup> century BC).
- 42) Lazaridis 1965, 459. – Koukouli-Chrysanthaki 1983, 8; 1988, 47. – Kallintzi 2011, 1189.
- 43) Kallintzi 2007, 1083-1087; 2012, 134.
- 44) Kallintzi et al. 2020; forthcoming.
- 45) Triantaphyllos 2004, 206. – Kallintzi 2011, 1189.
- 46) Kallintzi 2011, 1189.
- 47) Isaak 1986, 89. – Veligianni-Terzi 1997, 695.
- 48) IThrAeg p. 159. – Hdt. 6, 46.1: Δευτέρω δὲ ἔτει τούτων ὁ Δαρεῖος πρῶτα μὲν Θασίους διαβληθέντας ὑπὸ τῶν ἀστυγείτων ὡς ἀπόστασιν μηχανώατο, πέμψας ἄγγελον ἐκέλευέ σφεας τὸ τεῖχος περιαιρέειν καὶ τὰς νέας ἐς Ἄβδηρα κομίζειν. – Hdt. 6, 48. 1: οἱ δὲ Θάσιοι τῷ βασιλεῖ κελεύσαντι καὶ τὸ τεῖχος τὸ σφέτερον κατεῖλον καὶ τὰς νέας [τὰς] πάσας ἐκόμισαν ἐς Ἄβδηρα.
- 49) Veligianni-Terzi 2004, 146.
- 50) IThrAeg p. 162. – Veligianni-Terzi, 2004, 203 (second half of 375 BC).
- 51) Koukouli-Chrysanthaki 1989, 226.
- 52) Hippocr. 3, 3, 17 (13). The agora of the northern enceinte of Abdera has not been located. However, during this early period, its existence may not necessarily mean the existence of buildings. Cf. Kallintzi 2011, 1093.
- 53) Hippocrates in his letter to Damagetus mentions the gates of the city, the walls, and a tower: Hippocr. ep. 17.
- 54) Herrmann 1981, 27. – Tiverios 2008, 94.
- 55) Chryssanthaki-Nagle 2007, 97.
- 56) Kallintzi 2011, 100 n. 187; 1327.
- 57) Veligianni-Terzi 1997, 696 n. 28.
- 58) Veligianni-Terzi 1997, 695-696 n. 26.
- 59) IThrAeg p. 159. – Chryssanthaki-Nagle 2007, 105-106.
- 60) Hdt. 6, 46-47. – IThrAeg p. 159. – Chryssanthaki-Nagle 2007, 105-106. – Kallintzi 2011, 100-101.
- 61) Hdt. 7, 118-121. 8, 120.
- 62) Veligianni-Terzi 1997, 696; 2004, 59. – IThrAeg p. 160. – Chryssanthaki-Nagle 2007, 107. – Kallintzi 2011, 101.
- 63) Graham 2001, 272. – Hdt. I 168-169.
- 64) This wall is constructed of small stones and has a consistent thickness of 4m. At its western excavated end there is a gate. – Koukouli-Chrysanthaki 1997, 717; 2004, 240; Kallintzi 2012.
- 65) Herrmann 1981, 27. – Tiverios 2008, 94. – Hdt. 1, 168-169. – Strab. 14, 1, 30 (C 644).
- 66) Koukouli-Chrysanthaki 1997, 720; 2004, 238, 244. – Kallintzi 2012, 133.
- 67) For another gate to the north part of the enceinte see Kallintzi 2012, 134.
- 68) Koukouli-Chrysanthaki 1991, 200-201; 2004, 242 ff. – Kallintzi 2011, 1091.
- 69) Koukouli-Chrysanthaki 1988, 48. – Kallintzi 2011, 1270; 2021, 573-575. The two largest quarries of ancient Abdera, on the hill Petroloufos, and in the area south of the present village of Mandra, are in a European grant of Eastern Macedonia and Thrace region, which is undertaken by the Ephorate of Antiquities of Xanthi. Currently (2022) it is in progress and involves extensive work such as cutting vegetation, and removing soil, in addition to research as well as enhancing the presentation. The current phase will run until 2023, and the results will be announced then. It is overseen by the author, M. Chrysaphi, K. Chatziprokopiou, D. Skoulariki.
- 70) Koukouli-Chrysanthaki 1991, 195-196; 1997, 721.
- 71) Blackman 2014, 523: »shipsheds, a diagnostic feature of ancient military harbours«.
- 72) Blackman 1982, 194.
- 73) Kallintzi 2011, 1328-1329.
- 74) Kallintzi 1997, 823; 2006, 149.
- 75) Cf. Blackman 1982, 204. – For a recent list of naval harbours see: Salzano 2014-2015, 62-242.
- 76) Kallintzi 2011, 1327.
- 77) Koukouli-Chrysanthaki 1988, 51-52. – Chryssanthaki 2001/2002. – Kallintzi 2011, 103.
- 78) For the abandonment of the northern enceinte of Abdera see Kallintzi 2011, 1097-1099. For the abandonment of the northern enceinte of Abdera see Kallintzi 2011, 1097-1099.
- 79) For the construction of the southern enceinte of Abdera see Kallintzi 2011, 1141 ff.
- 80) Cf. Blackman 1982, 202.
- 81) The excavation at this location has not been completed. Fallen building material has been found on a foundation, which is most probably made up base or part of a tower. Kallintzi 1992, 487-488.
- 82) Kallintzi 1992, 485-487; 1993, 631-633; 2011, 1191-1192.
- 83) Blackman 1982, 196.
- 84) Kallintzi 2021, 563-564.
- 85) Kallintzi 1992, 487 pl. 133 b.
- 86) Kallintzi 2011, 1192-1194.
- 87) Samiou 1999, 365.
- 88) Lazaridis 1971, 40-41 § 203. – Triantaphyllos 2004, 266.
- 89) Samiou 1992, 696. – Two horseshoe-shaped towers are mentioned, but not the circular one at the end of the breakwater mentioned by D. Lazaridis.
- 90) Avgoloupi 2008, 3. 51.
- 91) Avgoloupi 2008, 19. – Kallintzi 2011, 1193.
- 92) Kallintzi 2012, 136 n. 57 with all previous articles on the area of the western gate and this part of the walls.

- 93) Kallintzi 2011, 1125ff.
- 94) For the difficulties in dating the building of the wall of the southern enceinte see Kallintzi 2011, 1145-1146.
- 95) Kallintzi 2011, 1126-1127.
- 96) Athanasiou/Kallintzi 2009, 456-457. – Kallintzi 2011, 1127-1129.
- 97) Kallintzi 2007, 1099-1100.
- 98) Samiou 1999, 365.
- 99) Kallintzi et al. 1998, 65-66.
- 100) Lazaridis 1966, 364-365; 1971, 41, § 204. – Samiou 1999, 365. – Kallintzi 2011, 1194-1195.
- 101) Kallintzi 2021, 564-567.
- 102) Athanasiou/Kallintzi 2009, 459-460. – Kallintzi 2011, 1122-1123.
- 103) Athanasiou/Kallintzi 2009, 459-460.
- 104) For the commercial, economic and cultural contacts of Abdera and for the general orientation of the city throughout antiquity see indicatively: Skarlatidou 2010, 359-362. – Kallintzi/Chryssaphi 2010. – Kallintzi 2011, 1318ff. – Kallintzi et al. 2020b; 2022. – Kallintzi/Kefalidou 2022. – Georgiadis et al. 2022.
- 105) Chryssanthaki 2004, 312-313. – Zournatzi 2000, 59-60. – Kallintzi 2011, 1327.
- 106) Kallintzi 2011, 95.
- 107) Athen. VII 124 (324b), III 87 (118c), VII 77 (307b). – Arist. 598a.
- 108) Syrides 1996, 358. 362. 366.
- 109) Athanasiou/Kallintzi 2009, 456-457.
- 110) For the changes in the paleoenvironment in the area, see: Kallintzi 2011, 87-90.
- 111) The main trade routes, which supported the intra-colonial relationships, were through the sea. However, Abdera, very much a city of commerce, was the destination of overland routes, through which goods arrived at the port from the hinterland. For the land-based transport of Abdera, on both local and long distance terms, see Kallintzi 2011, 1276-1281.
- 112) For the changes in transportation, the use of land, and the makeup of the *asty* and *chora*, which began in the 2<sup>nd</sup> century BC and peaked in the Roman Imperial Period, see Kallintzi 2011, 1338-1339.
- 113) Kallintzi 2011, 1340ff.

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### Zusammenfassung / Summary

Die Stadt Abdera besteht aus zwei befestigten Arealen. Das nördliche war die erste Siedlung, die von Kolonisten aus Klazomenai (654 v. Chr.) und Teos (545 v. Chr.) gegründet wurde. Die Bucht an der Westseite bot der Siedlung einen Zugang zum Meer und war ein Ort, an dem maritimes Leben stattfand. Zwei Stellen mit baulichen Resten von Hafenstrukturen wurden dort erkannt. Am nordwestlichen Ende der Befestigung befand sich ein Hafen mit Umfassungsmauern und einem Schiffshaus. Dieser Hafen fiel einer Reihe von Überschwemmungen des Flusses Nestos zwischen dem späten 6. und frühen 5. Jahrhundert v. Chr. zum Opfer. Weiter südlich wurde ein zweiter Baurest eines Hafens entdeckt, bei dem es sich um einen Kai gehandelt haben dürfte. Es wird angenommen, dass diese beiden Strukturen die Enden eines einzigen Hafens bilden, der ein Becken besaß, das groß genug war, um die gesamte thasische Flotte aufzunehmen.

Die nördliche Anlage wurde zwischen dem Ende des 4. und dem Anfang des 3. Jahrhunderts v. Chr. aufgegeben, da die Bucht aufgrund der Aktivität des Nestos verlandet war und die Stadt somit ihre direkte Verbindung zum Meer verlor. Dies führte dazu, dass sowohl die Stadt als auch die Hafenanlagen in den Süden verlegt wurden.

Die südliche befestigte Stadt verfügte über zwei Häfen: einen westlichen und einen östlichen. Von ersterem kennen wir zwei Überreste, die wahrscheinlich die nördliche und südliche Grenze des Hafens bilden. Beim nördlichen handelt es sich um einen Kai, der parallel zum antiken Ufer verläuft. Der südliche ist wahrscheinlich ein Wellenbrecher, der das Becken vor den Ost- und Südwinden schützte. Der östliche Hafen ist kleiner. Es handelt sich um die Überreste einer Mole, die die Verlängerung der Stadtmauer bildet und in einem runden Turm endet. Diese beiden Hafenanlagen sind die einzigen, die unter Wasser gefunden wurden.

Übersetzung: Th. Schmidts

The city of Abdera consists of two fortified enclosures. The northern one was the first settlement established by Clazomenian (654 BC) and Teian (545 BC) colonists. The bay at the western side of the settlement was its access to the sea and a locus of maritime activity. Two positions with remains of harbour structures have been identified there. At the northwest end of the enceinte, there was an organised harbour including fortifications and a shipshed. This harbour was destroyed by a sequence of floods of the river Nestos in the late 6<sup>th</sup>-early 5<sup>th</sup> century BC. Further south, a second harbour construction has been identified, which should have been a quay. It is assumed that these two constructions form the extremities of a single harbour, which had a basin large enough to accommodate the entire Thasian fleet.

The northern enclosure was abandoned towards the end of the 4<sup>th</sup>-early 3<sup>rd</sup> century BC because the bay was silted due to the activity of the river Nestos and the city lost its direct connection to the sea. This resulted in the relocation of both the urban complex and the harbour installations to the south.

The southern enceinte had two harbours: the western and the eastern one. Regarding the former, we know of two harbour structures that probably define its northern and southern border. The northern one is a quay that runs parallel to the ancient shore. The southern one is probably a breakwater that protected the basin from the east and south winds. The eastern harbour is smaller. They are the remains of a mole formed by the extension of the city wall and ends in a circular tower. These two harbour structures are the only ones to be found underwater.