Ainos in Thrace: Research Perspectives in Historical Geography and Geoarchaeology

Anca Dan, Sait Başaran, Helmuth Bruckner, Ercan Erkul, Anna Pint, Wolfgang Rabbel, Lyudmila Shumilovskikh, Dennis M Wilken, Tina Wunderlich

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Wolfgang RABBEL, Lyudmila SHUMILOVSKIKH, Dennis WILKEN and Tina WUNDERLICH*

AINOS IN THRACE: RESEARCH PERSPECTIVES IN HISTORICAL GEOGRAPHY AND GEOARCHAEOLOGY[1]

ABSTRACT

Before the closing of its lagoons and the progradation of the Hebros delta, Ainos took advantage of an almost insulate position, which made it one of the main hubs between the Greek Aegean and the Thracian hinterland. Annual Turkish archaeological excavations (since 1973) and international geoarchaeological research (since 2011-2012) have revealed several components of the *polis*' territory (necropoleis, roads, anchoring sites, fortifications) and offered information about the ecological impact of the Greek, Roman, Byzantine and Ottoman occupation on the natural environment. This article is a short critical synthesis of these discoveries, which can serve as a basis for the reconstruction of Ainos' environmental history.

Keywords: fortifications; harbors; necropoleis; roads; delta; salines; fisheries; geoarchaeology; geophysics; palynology.

RÉSUMÉ

Avant la fermeture de ses lagunes et la progradation du delta de l'Hèbre, Ainos a bénéficié d'une position presque insulaire qui lui a permis d'être l'un des principaux centres d'échanges entre la mer Égée grecque et le continent thrace. Des fouilles systématiques turques qui ont lieu chaque année (depuis 1973) et des recherches géoarchéologiques internationales (depuis 2011-2012) ont identifié et mis au jour plusieurs composantes du territoire urbain et périurbain (nécropoles, routes, mouillages, fortifications) et ont fourni des données sur l'impact de l'occupation grecque, romaine, byzantine et ottomane sur l'environnement. L'article offre une brève synthèse critique de ces découvertes, qui peut servir de base à une histoire environnementale d'Ainos.

Mots-clés: fortifications; ports; nécropoles; routes; delta; salines; pêcheries; géoarchéologie; géophysique; palynologie.

*) A. Dan, Classicist, CNRS Paris, PI in the *LEGECARTAS* project (anca-cristina.dan@ens.fr); S. Başaran, Archaeologist, director of the Ainos excavations, Istanbul University and Turkish Ministry of Culture (sait.basaran@gmail.com); H. Brückner, Geomorphologist, University of Cologne, PI in the DFG-SPP 1630 *Harbours* (h.brueckner@uni-koeln.de); E. Erkul, Geophysicist, Kiel University (ercan.erkul@ifg.uni-kiel.de); A. Pint, Paleontologist, University of Cologne (annapint@web.de); W. Rabbel, Geophysicist, Kiel University (wolfgang.rabbel@ifg.uni-kiel.de); Lyudmila Shumilovskikh, Palynologist, University of Göttingen (shumilovskikh@gmail.com); D. Wilken, Geophysicist, Kiel University (dennis.wilken@ifg.uni-kiel.de); T. Wunderlich, Geophysicist, Kiel University (tina.wunderlich@ifg.uni-kiel.de).

1) *In memoriam Aksel Tibet, in urbe Aenorum, die Kalendarum Octobris A.D. 2017.*

This article summarizes results from the project *LEGECARTAS* (*Lectures géoarchaeologiques des cartes anciennes*) of the CNRS (2017-2019), the subproject *The Thracian harbour city Ainos* of the DFG SPP 1630 *Harbours – from the Roman Period to the Middle Ages* (2011-2017), as well as the annual archaeological excavations supported by the Turkish Ministry of Culture, the Edirne administration and Museum, and the Istanbul University. We acknowledge the support by Thomas Schmidts, Mainz, and Martin Seeliger, Frankfurt, PI and staff member, respectively, in the SPP 1630 *Harbours*.

1. AN OLD INSULAR SETTING BETWEEN THE HEBROS AND THE AEGEAN

There are cities whose history is fully determined by their environment: one of them is Ainos (modern Enez, in Turkey's European district of Edirne). The Aeolians founded Ainos in the 7th c. BC on a maritime peninsula of the N Aegean, SW from the mouths of the Hebros (modern Evros/Maritza/Meriç) and NW of the Melas gulf (today Saros körfezi, Fig. 1-2)[2]. Nearby peaks of extinct volcanoes, rising up to 423 m (Hisarlı Dağ) and 196 m (Çatal Tepe), were good observation points both to the hinterland and the sea, from Mount Athos in the Chalkidiki to the Thracian Chersonese, over the islands of Samothrace,

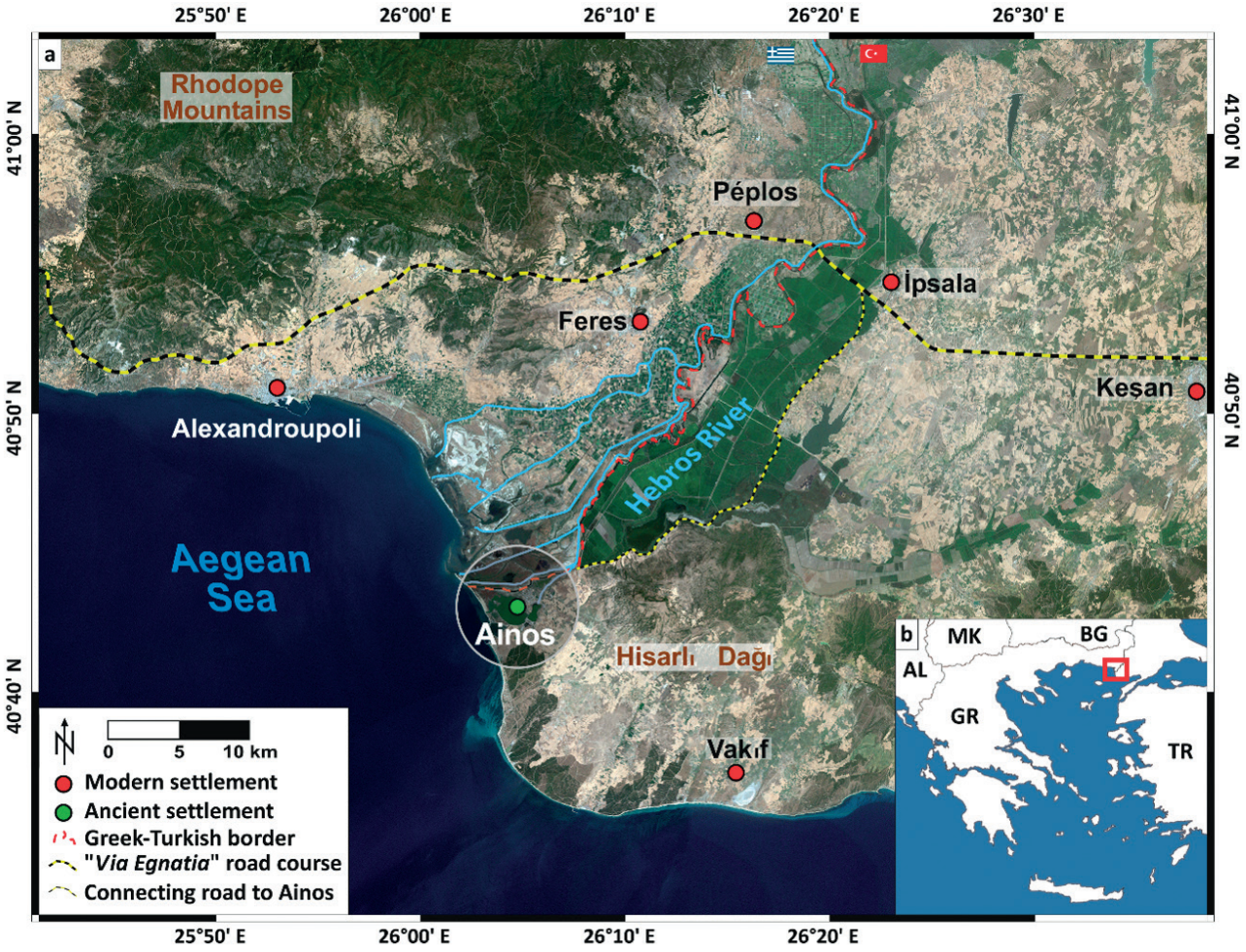


Fig. 1: Google map of the Ainos region (M. Seeliger and H. Brückner).

2) Ainos the Aeolian (Hdt. 7.58) was founded by the Mitylenians according to Ps.-Scymn. (696-697), or by the Alopekonnesians with the Kymeans according to Strabo (7 fr. 52 Meineke = fr. 21 Radt, maybe following Ephor. *FGrHist* 70 F 39, *ap.* Harp., *s.v.* Αἰνίους; *cf.* St. Byz., *s.v.*). Dion. Byz. (48) attests the installation of the Thasians in Ainos, under Archias, son of Aristonymos. For Ainos' contacts with Aiolia, see Başaran 2000. Thracian Ainos is already mentioned by Homer (*Il.* 4.519-520), and assigned by Hipponax to the famous Thracian king Rhesos (fr. 72 Degani/West/Gerber [P.Oxy. 2174 fr. 3], cf. *Il.* 10.435-441, and Serv., *Ad Aen.* 1.469, maybe from a confusion with homonymous sites near the Strymon or in the Chalcidike). The Homeric reference is a further proof of Ainos' importance in the Archaic Aeolian and N Ionian networks, and later on, its place in the Attic sphere. For the history of the settlement, see Casson 1926: 255-259; May 1950; Isaac 1986: 141-157; Loukopoulou 1989 and 2004; Soustal 1991: 170-173; Ousterhout, Bakirtzis 2007: 8-47. Besides the annual reports in the *Kazı Sonuçları Toplantıları*, the last excavations were published by Başaran 1996, 2002, 2007a, 2011; also Yeşil *et al.* 2017. For the geological and geomorphological setting, see Alpar *et al.* 1998; Alpar 2001.

Fig. 2: Map of the NE Aegean (Comte de Choiseul-Gouffier, *Voyage pittoresque de la Grèce*, vol. 2, Paris, 1809, pl. 13 in front of p. 97).

Fig. 3: Enez (Ainos) as seen from the presumed former harbour area. View towards E (A. Dan).

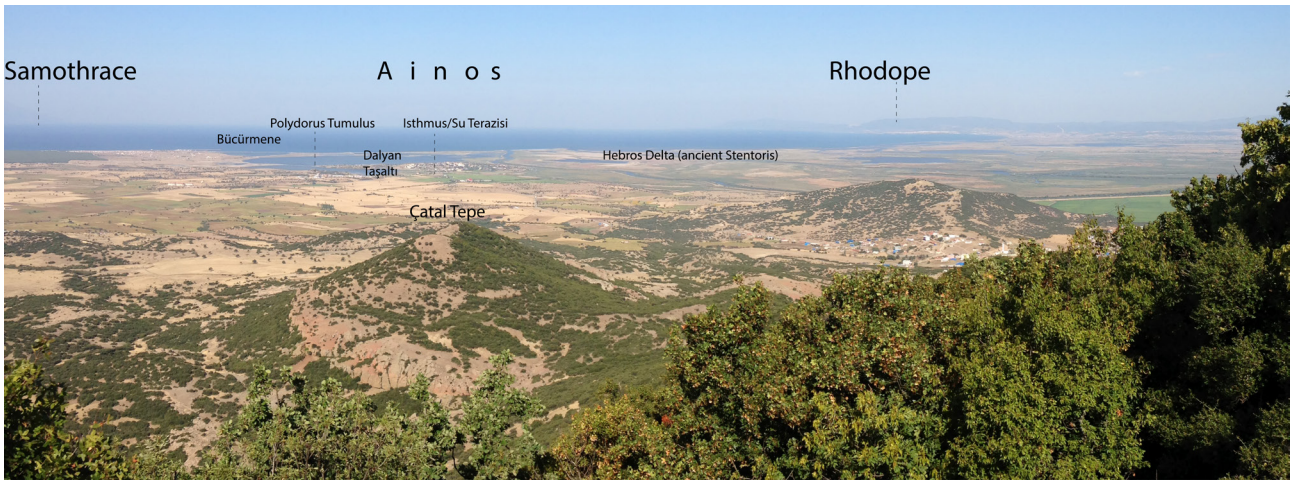
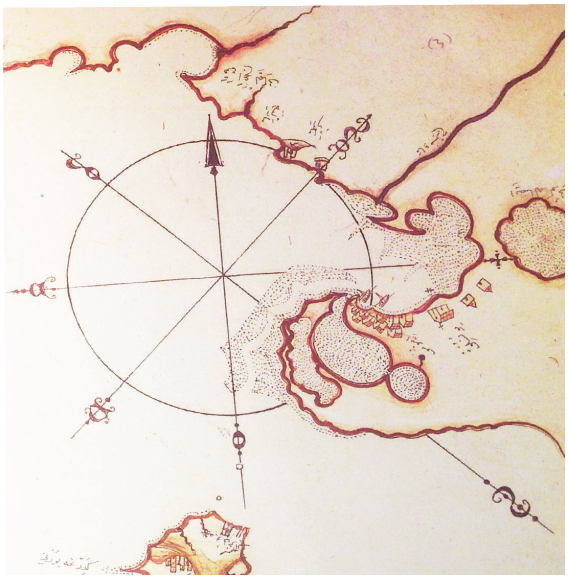


Fig. 4: Enez (Ainos) and its environs as seen from the mountain Hisarlı Dağı. View towards W (A. Dan).

Lemnos, and Imbros (Fig. 3-4). Traces of occupation have been found on the Hisarlı Dağ and Çatal Tepe from late Classical and Hellenistic times, possibly corresponding to Pseudo-Scylax' τείχη Αἰνίων ἐν τῇ Θράκῃ (67), which B. Isaac (1986) proposed to identify with Pausanias' Mende and Sipte (5.27.12). Their magmatic rocks (granite, tuff) were suitable construction stones. The foothills exposed to the SW favored the pasturages of the famous Thracian horses and goats, as well as the cultivation of vineyards and olive trees[3]. Although water was available from wells on the promontory, the springs of Ayana and Ayamana (from the Greek names of the Holy Anna and the Holy Mother [Mary]), located in the territory of the modern Yenice köy at the foot of Çatal Tepe, have been continuously used since Antiquity. Roman, Byzantine, Ottoman, and modern pipes brought their water to the city.

The land around Ainos is part of the N Aegean region with a typically NE Mediterranean environment, characterized by mostly young unconsolidated rocks, natural hazards (earthquakes, flooding, meteorological extreme events: Brückner 1994; Yaltırak *et al.* 1998), Csa climate (Koeppen/Geiger), and N winds (etesians, meltem). Ancient authors are aware of some of these risks and catastrophes which affected Ainos in Antiquity (Plin. *NH* 17.30; Ath., *Deipnosophists* 8.44 351c). The soils of the lower areas are fertile for

3) The goat (of Hermes, Pan), which is equally a symbol of the Hebros itself (according to Hsch., *s.v.* "ἔβρος· τράγος βάτης. καὶ ποταμὸς Θράκης"), is the most frequent symbol on the silver coins of Ainos from the first half of the 5th c. BC onward (May 1950). The cult of Pan is attested by at least one relief (now in the Edirne Museum), associated by S. Casson with the most famous cave of Ainos. Traces of olive pollen have been discovered by L. Shumilovskikh in late antique strata. For wine, see *infra*.



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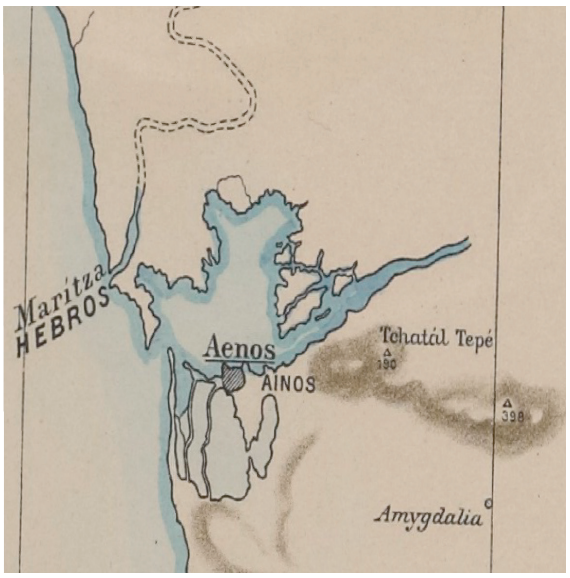

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Fig. 5: Sections of maps of the Hebros mouth illustrating the evolution of the delta and the lagoons: (1) Piri Reis (E. Z. Ökte, *Kitab-ı Bahriye Pirî Reis*, Istanbul, 1988, pl. 50a); **(2) 19th c. Ottoman map** (Istanbul University Archive 92281)**; (3) H. Kiepert** (*Specialkarte vom westlichen Kleinasien*, Berlin, 1891); **(4) Google Earth** (accessed: 1.7.2019).

cereals – as attested also by the literary sources (Plin. *NH* 18.70) and by the civic coins, like the 3rd c. BC coinage with an ear of grain. Today the alluvial plain of the lower Hebros includes the lakes Gala Gölü (a natural reserve), Celtik Gölü, Pamuklu Gölü, and Sığırcı Gölü. Until early modern times, they formed the Lake Stentoris, an open shallow lagoon rich in fish and of strategic importance for all those who wanted to control the N-S and E-W passages along the N Aegean and toward Thrace, up the Hebros and its tributaries (Fig. 5)[4]. At the same time, the maritime lagoons in the environs of the promontory

4) Several Greek literary sources confirm the importance of Ainos' seafood and fishes: Archestr. fr. 21, 56 Brandt = 7, 23 Olson-Sens *ap.* Ath., *Deipnosophists* 3.44 92d (mussels), 7.131 326f-327a (pig-fish, sanddigger); also 7.24 285f for *aphias*, small fish (anchovy?)

Fig. 6: The excavation of the Neolithic fortification and ceramic finds at Hoca Çeşme (S. Başaran).

of Ainos, around the modern lake of Bücürmene, made excellent salines – like the basin still known as Tuzla. During the 15th century, Critoboulos of Imbros (*Histories* 2.12 [104] Reinsch / 2.70 Riggs) notes that these salines were one of the most important sources of richness for the city. Finally, deposits of potting clay are easily accessible on the promontory (on Killik Tepe, the SE hill) and nearby: from Antiquity to modern times, Ainos has been one of the main N Aegean centers of pottery (Başaran 2003; Karadima 2004; Akyüz, Başaran 2008; Garlan 2013: 257-259) and terracotta production (Başaran 2007b; Kurap *et al.* 2010; Akyüz *et al.* 2015).

The land resources, together with the abundant seafood, have attracted people since the Neolithic. The oldest site is Hoca Çeşme, 2.5 km E of Enez on a 35 m high and 150 m large plateau, whose name recalls its freshwater springs. This fortified settlement, which dates to the 7th-5th millennia BC, was unearthed by Sait Başaran and Mehmet Özdoğan from 1988 until 1993 (Fig. 6; Özdoğan 1996: 336-337; Başgelen, Özdoğan 1999: 217-220; Özdoğan 2000). During the first phase of habitation, the ramparts were built of stones of various sizes; they are still preserved on a length of 55 m. They protected round huts with rock foundations and walls of adobe and woven branches. The earliest Neolithic ceramics indicate connections with Anatolia, while later layers contained materials related with the Balkan Sésklo and Karanovo cultures. We may suppose that this sedentary community took advantage of the nearby sea and rivers, but we are still ignorant about the reason why they did not occupy the Enez promontory itself. The earliest sherds discovered by Sait Başaran in Enez, under the Byzantine/Genoese/Ottoman castle ("Acropolis"), date back to Chalcolithic times only (4th millennium BC), like on several other neighboring sites. It is, however, impossible to say if there was continuity or, on the opposite, discontinuity of indigenous occupation until the arrival of the Greeks.

thought to be born out of mud. The medieval Agriovivario could be situated in this area: Soustal 1991: 169-173, 347-348, 461 (*s.v.* Agriovivario, Ainos, Maritza, Stentoris). *Cf.* Comte de Choiseul-Gouffier 1809: II.107-109.

Fig. 7: Ainos' isthmus: general view, and details from the Su Terazisi necropolis (S. Başaran).

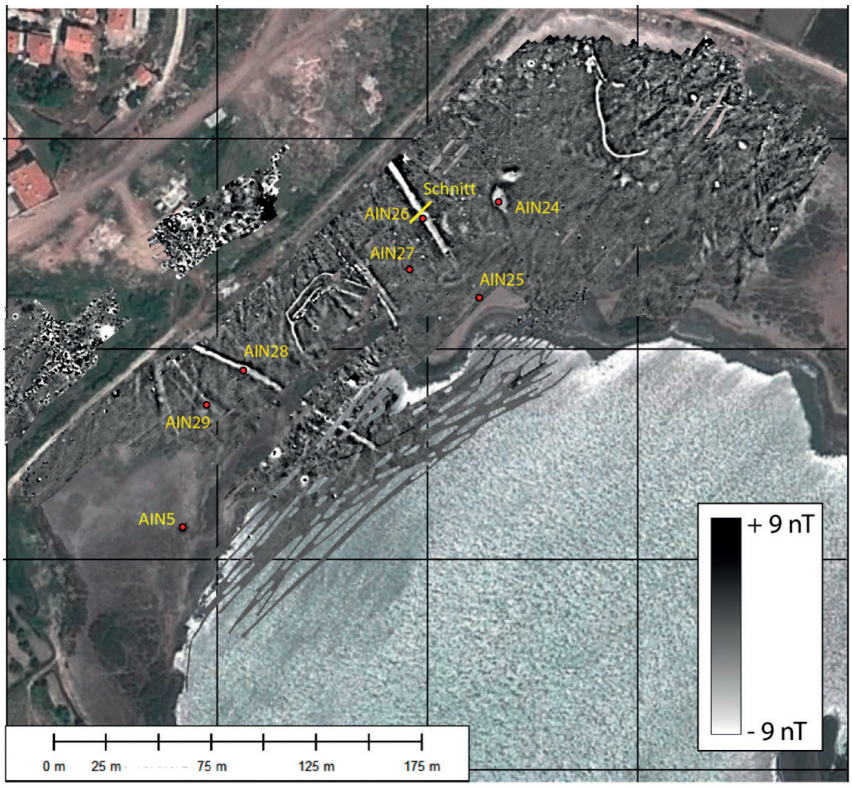

Fig. 8: Geophysical image of former drainage canals in the northernmost part of the Taşaltı lagoon (E. Erkul, D. Wilken) **with coring sites** (H. Brückner, M. Seeliger and A. Pint).

In fact, so-called "Thracian" gray ceramics were found in the lowest layers of the "Acropolis"; but as yet, no structure has been identified as belonging to a Thracian settlement preceding the Aeolian city and no precise chronology could be established for these phases of habitation (according to A. Erzen in Naumann *et al*. 1983: 241, and in Naumann *et al.* 1984: 212-213; *cf*. Baralis 2016: 32-33). This apparent chronological gap raises questions about the value of the Greek historical traditions referring to one or two Thracian cities that would have preceded the Aeolian foundation.

The hypothesis that we are currently testing by geophysical surveys and geoarchaeological corings in order to explain the weak indigenous presence on the peninsula is that during the postglacial rapid marine transgression, Ainos had turned into an "estuarine island", which only later on became landlocked by a tombolo (isthmus). The isthmus allowed an easy connection with the hinterland, offering the Greeks a settlement site which corresponded to their maritime needs – as it has been understood since the 19th century (*e.g.* Slade 1833: II.383-384). Yet, because of its flat and low topography, the isthmus remained

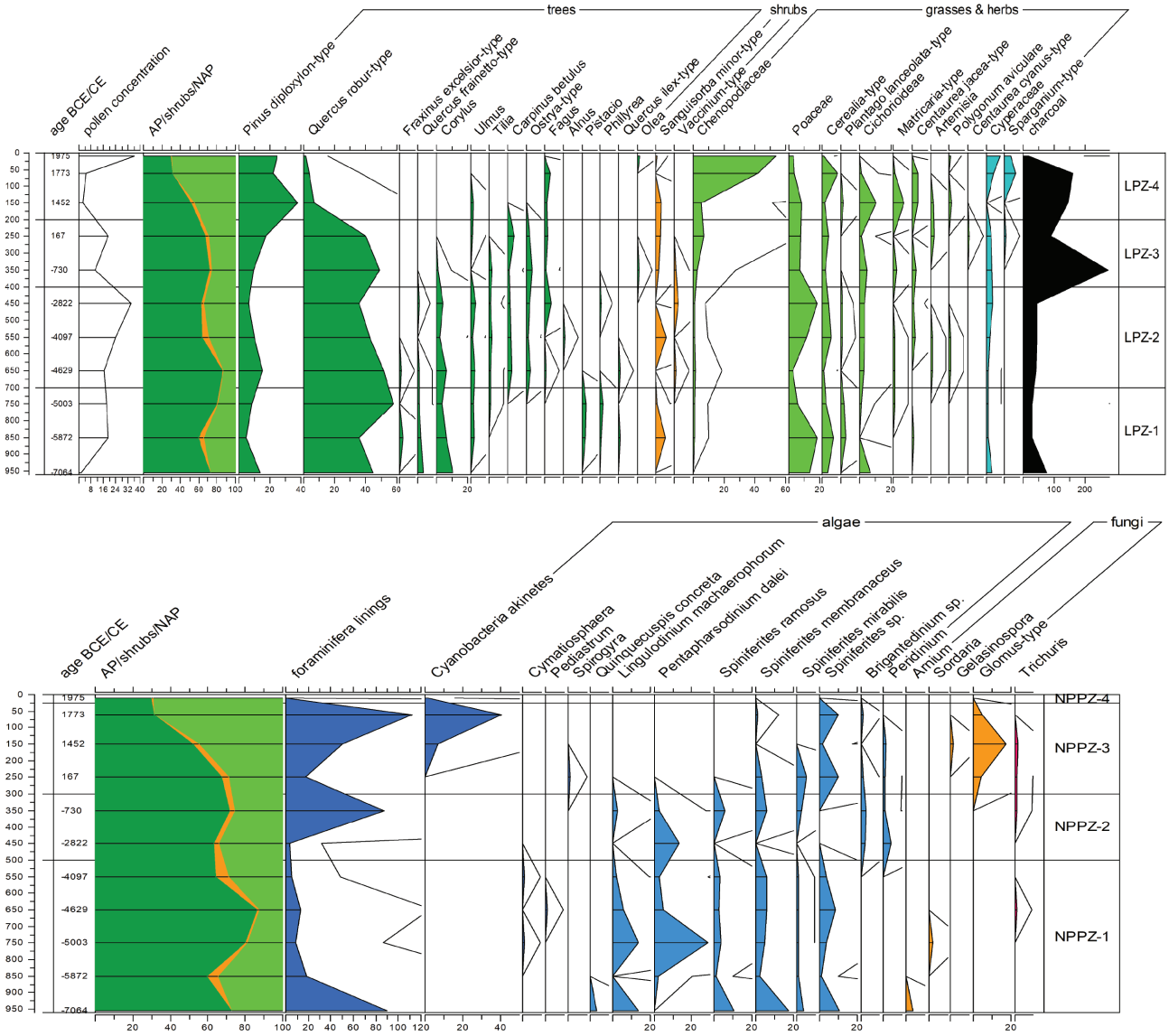

Fig. 9: Vegetation changes since 5000 BC, based on pollen and non-pollen palynomorphs from coring AIN 50 (L. Shumilovskikh)**; its position and stratigraphy are similar to AIN 5 (Fig. 8, 14).**

swampy, as shown by the current name of its NE shore, "water terrace" (Su Terazisi), and by the numerous ancient and modern drainage canals on both sides, toward the brackish Taşaltı lagoon and Lake Stentoris (Schwardt *et al.* forthcoming, Fig. 7-8). In fact, this insular nature has proven to be most favorable for Ainos: in the 1950s, the isthmus was artificially cut in order to deviate part of the Hebros waters into the Taşaltı Gölü and the Dalyan Gölü. This stopped inundations and refreshed the water of the lagoons.

According to the preliminary results of the palynologic studies of Lyudmila Shumilovskikh, when the sea surrounded Ainos, the impact of the Neolithic and Chalcolithic communities on their environment remained limited. Coring AIN 50 (40°43'12.72" N, 26°05'19.48" E, 0.17 m a.s.l., Fig. 9) on the presently amphibious shore of the Taşaltı lagoon indicates the presence of a climax vegetation with open deciduous oak woods, pine and hazel in the 7th-6th millennia BC. These natural open oak woods are different from the pine forests of the last 600 years. This vegetation change is probably due to the intensive anthropogenic impact of wood clearing for agriculture and pasture. The resulting strong soil erosion caused rapid delta progradation, siltation of the lagoons and harbors, and finally, the cessation of river navigation (still possible with maritime ships until the second half of the 19th c.: *Admiralty* 1917: 21; Slade: II.378; Hasluck 1908-1909: 249-250; *cf.* De Boer 2010).

Two important environmental changes occurred during Antiquity: between ca. 5000 and 2800 BC (i.e., in Chalcolithic times), mixed deciduous oak woods with elm, lime tree, hornbeam, and beech became dominant, either as an effect of climate change or early anthropogenic clearings: the last remains of these wild oak and elm forests were mentioned by modern travelers in the Hebros valley up to the 19th c. (*e.g.* Keppel 1831: I.252-253). However, this already altered ecological environment was strongly modified by the settlers of the Greco-Roman times. From the 7th c. BC to the 3rd c. AD, intensive deforestation, iron-plough agriculture, goat herding and charcoal production contributed to the degradation of the vegetation to macchia and even phrygana. This points to the presence of larger communities, who used the land and water resources not only for local needs but also for large-scale trade, including the use of timber for ships and sea salt for fish conservation. The dramatic ecological change is a good illustration of the major environmental impact of the Greeks and later the Romans, who exploited the best natural sites in their Mediterranean networks.

2. SEA, RIVER, AND LAND CONNECTIVITY: STREETS, NECROPOLEIS, AND HARBORS

Ainos was the city of Hermes *Perpheraios* (Call. *Iamb* 7, *cf.* Bousquet 1948). The famous inscription attesting the existence of *naukleroi* (Miller 1873; Dumont 1892: 437 nr. 103), the coins (Tekin 2007, Baker 2013) and the various ceramics (Lätzer-Lasar 2016) discovered in Ainos recall the city's status as a hub between the Aegean and the North, through the Hebros to the hinterland, as drawn on the *Tabula Peutingeriana* (Fig. 10). The archetype of this compilation of Roman *itineraria picta* probably goes back to the mid-4th c. AD, but the road network shown in Thrace was constructed on previous paths by the Romans between the 1st c.

Fig. 10: Ainos ("Aenos") on the *Tabula Peutingeriana* (http://peutinger.atlantides.org/map-a/).

Fig. 11: Classical terracotta sarcophagi and bronze hydrias in stone sarcophagi from the Su Terazisi necropolis (S. Başaran).

BC and 2nd c. AD. In the system developed around the *Via Egnatia*, Ainos appears as a nodal point of three roads, in the middle of the stations of Dymis/Feres (?) to the N (across the Hebros), Plotinopolis/Didymoteicho and Hadrianopolis/Edirne to the NNE (up the Hebros), and Zorlanis/Keşan to the NE (to Byzantium/Istanbul). Sait Başaran discovered several segments of ancient paved roads outside the city. The first is at the E extremity of the isthmus connecting the peninsula to the mainland, on the N shore of the Taşaltı lagoon. The second and third segments are on the SE shore of Lake Stentoris, at Gala Gölü Milli Parkı, and near Çeflik Köyü. One of these two points could correspond to Pliny the Elder's *Stentoris*

harbor, a station from which one could cross the river to Pheres, Doriskos, or Traianopolis (Başaran 1999; *cf*. Külzer 2008: 192-204; Külzer 2011). Further geophysical prospections and geomorphological corings are, however, necessary in order to reconstruct the puzzle of the S branch(es) of the *Via Egnatia*, determine the former natural environment, and establish the chronology of the road building.

To date, the city's large and wealthy necropoleis are the best indicator for the trajectory of the exterior roads and, more generally, for Ainos' vast economic networks. Excavated by Sait Başaran since 1982, three main funerary zones of Greek and Roman times extend from the S and E shores of the promontory along the isthmus and the modern way to Keşan. The earliest Greek materials, unearthed from the Su Terazisi necropolis (on the isthmus, Fig. 7-8), are W Anatolian (Orientalising), Corinthian, and Attic vases, accompanied by local imitations. They show that by the end of the 7th c. BC and during the 6th c. BC, Ainos' trade networks with the E, S, and N Aegean were already well established. A change occurs by the beginning of the 5th c. BC, when the N Ionian and Aeolian importations are replaced by the Athenian black- and red-figure cups, amphoras, hydrias, and lekythoi. Yet the Micrasiatic connection persists until Roman times, as attested by marble reliefs illustrating the funerary banquet of the deceased with his *familia* (in the Edirne Museum).

The Ainians not only bought but also adapted the imports in their own way, sometimes even without parallels in the rest of Thrace. A good example is the so-called Clazomenian sarcophagi of the 6th c. BC, imported throughout the N Aegean up to Chalkidiki and Abdera. Terracotta sarcophagi remain one of the possible burial choices in Thrace up to the Black Sea, throughout Classical and Hellenistic times. However, in Ainos, the quantity and quality of their polychromic painted decoration are unique. Also, while bronze hydrias were often used as incineration urns in the 5th c. and especially in the 4th c. BC in central Greece and throughout Thrace up to the Black Sea, in Ainos they are buried in small stone sarcophagi, similar to those in which they would have been casted (Fig. 11).

The Su Terazisi necropolis has been continuously used from the first generations of ἄποικοι up to late Roman times, for both inhumation and cremation, in all kinds of graves – from the simple deposition of the body into the ground or into a stone frame, to reinhumation or incineration and deposition of the remains in amphoras, hydrias, pelykai, pithoi, terracotta and stone sarcophagi, without any inventory or with smaller vases, jewelry, and coins. Goods of different origins are usually combined in the same grave. This mixture of funerary rituals and inventories is also attested in another necropolis, at the NW end of the isthmus on the slopes of the promontory dominating the Taşaltı lagoon. On several terraces, graves of different forms have been carved from the late Archaic-Classical to the Byzantine times (Fig. 12). We did not find the ancient fortification closing the urban space in this zone. Therefore, we do not know the precise location of the city gate for travelers coming by land from the isthmus. However, the lines of tombs and the presence of an exedra suggest the existence of a path along the edge of the city through the necropoleis.

Fig. 12: Taşaltı necropolis (S. Başaran).

Ainos' necropoleis extend from the SE slopes of the promontory on the isthmus, along the road to the E, at least for 2 km until Çakıllık, where Sait Başaran found inhumation and incineration graves from the

Fig. 13: Finds from the Çakıllık necropolis (S. Başaran).

5th-4th c. BC. Ainos was by then Athens' ally in the Delian League and later in the Second Attic League. Two discoveries point to the richness of some Ainians at that time: the quantity and quality of bronze hydrias used as incineration urns, and the discovery of a marble funerary lion (Fig. 13).

Further archaeological and geoarchaeological prospections are needed in order to map all the funerary sites around Ainos and evaluate the demographic and economic fluctuations in time. The only conclusion that we can as yet draw is that the necropoleis confirm the prosperity of the ancient and Byzantine city as well as the importance of the isthmus relating it to the mainland. The presence of several tumuli illustrate the symbolic value of the isthmus, as probably the only terrestrial connection of Ainos with the mainland. The most important is the mysterious tumulus assigned since the 1st c. AD to the legendary Trojan prince Polydoros (Plin. *NH* 4.43) and observed by the modern travelers since the 15th c. (Bertrandon de la Broquière, in Schefer 1892: 173-174; Cyriacus of Ancona, in Bodnar 2003: Diary II, 104-106; see also Fig. 2). Nonetheless, until now, no funerary chamber could be found by excavations, non-invasive geophysical methods, or coring attempts.

Today, there is a second road on the sand bar between the Taşaltı Gölü and the Dalyan Gölü. As yet, we do not know if a bridge already existed in ancient and Byzantine times or if this NS passage at the connecting shores of the two lagoons was only possible by (flat) boats. The oldest walls that we could observe under the 20th c. road, and the wood that we could recover from this structure and date by ^{14}C are from the Ottoman times (16th-17th c.). This matches the Byzantine archaeological evidence for the opening of the Taşaltı lagoon to flat-bottomed boats, by which construction materials were brought for the so-called Kral Kızı basilica. This also corresponds to the modern maps, showing the opening

of the lagoons until the 19th c. and the existence of a Byzantine and Ottoman road following the seacoast, passing the Gümrük Kervanseray (18th c.) toward Gallipoli (Fig. 2).

The geomorphological corings revealed a marine / lagoonal influence in the Taşaltı lagoon during the 3rd c. BC and beyond. Considering the age / depth model and the sea level evolution, it can be assumed that at coring site AIN 5 (= AIN 50, 40°43'12.72" N, 26°05'19.48" E, 0.17 m a.s.l.), the water depth was at least ca. 1.5 m before the turn of the eras, and ca. 1-0.8 m during medieval times (Fig. 8, 14). Thus, throughout Antiquity and medieval times, it would have been possible to cross this lagoon with relatively flat boats. Roman constructions and tombs have been observed on the S shore of the Dalyan Gölü, up to the natural salines used until the 20th c. But they do not have the richness of the contemporary graves discovered on the slopes of the city's promontory, and could be assigned to the population whose existence was directly related to the exploitation of the lagoons for fish and salt.

The abundance and variety of finds in these necropoleis raise the question as to the major harbors through which important quantities of foreign products arrived in Ainos (*cf.* Schmidts, Vučetić 2015: Brückner *et al.* 2015; Rabbel *et al.* 2015; Brückner, Schmidts 2019). At least one harbor has been known from Antiquity to Ottoman times (Fig. 3-4). Its natural bay, at the W extremity of the promontory, presented several advantages: as Ainos' shores were mostly marine in Antiquity, the position of this harbor was precisely at the crossing of the Aegean routes to the SW (Samothrace), NW (the Samothracian *peraia*, Thasos), SE (Chersonese), and NE (toward the Hebros). The maritime gate of the medieval fortification of the "Acropolis" is opened to the NW of this protected harbor, or in other words, toward the cape between the open sea and lake Stentoris. The site is close to the "Acropolis" and the littoral plain where an agora could have been installed (W of the so-called "Pan Cave"). The "Acropolis" mount offered the best protection against the strong N-NE winds. This potential harbor area is still easily identifiable today, at the foot of the N gate of the castle, between the two series of towers that were joined by fortification walls in medieval times, but seem to have been erected, at least in part, on the ancient (Hellenistic?) foundations. The medieval configuration of the wall, however, fits the literary texts that indicate the vulnerability of the city toward the sea and the importance of the walls down the "Acropolis" (Procop., *Aed.* 4.11; Agath. 5.22 p. 192 Keydell). Further geoarchaeological prospections and excavations are necessary in order to determine the shape and chronology of the harbor walls and check their connection with a mole, in case a mole existed in ancient or medieval times.

The geoarchaeological research of the last few years has taught us that the inner area between the two walls was already silted up during Classical Antiquity. Marine strata have been discovered at 4.85-2.75 m below the present sea level (b.s.l.), but they date back to the 3rd millennium BC; therefore, the area of the coring site was already silted up when the Greek settlers arrived. The underwater topography of the presumed harbor basin progressively sloped down W from the shoreline marked by the most NW tower ("A" for Hasluck 1908-1909). Near the tower, in the corings AIN 115 and 131 (40°43'24.68133" N, 26°04'41.73392" E, 0.586 m a.s.l.), marine and lagoonal strata at ca. 5-2.5 m b.s.l. date from the 5th millennium BC. At the arrival of the Greeks, the water level, determined after our preliminary estimation of the former sea level, was about -1 to -1.5 m. Therefore, as much as we can say before carrying out further research, the ancient and medieval foundation of this tower may have been nearshore. The harbor walls, at least in their medieval form, mainly protected the landing site, accessible by flat-bottomed boats or by foot. In September 2019, the core AIN 146 and two geoelectric profiles allowed us to locate the ancient and medieval harbor basin in front of this landing space. However, the magnetic and seismic prospections further to the W, in the lagoon, have not revealed any underwater structure. If a mole ever existed, several explanations are possible: the current techniques cannot reveal structures due to the methane gas formation in today's marshy environment; a wooden mole has since rotten away; or the mole was situated at another location.

During the last millennia, eroded sediments from the cliffs of Cape Sarpedon have been transported N by the coastal currents and re-deposited first as sand spits and later as sandbars, which eventually closed the ancient sea gulfs, thus forming Dalyan Gölü, and caused the abandonment of the main harbor in the 18th c. As its modern name indicates, the Dalyan Gölü became a fishery. At the same time, the progradation of the Hebros delta required the installation of a river harbor to the N of the Dalyan sandbar at the place still

known as İskele. The seagoing vessels had to anchor in the sea, while flat-bottomed riverboats could sail through Lake Stentoris up the Hebros until the 20th c., when alluviation and intensified irrigation lowered the water level and ultimately blocked navigation on the S mouth of the river (Dumont 1892: 204-205; Hasluck 1908-1909: 249-250).

During Antiquity and medieval times, however, when the Hebros mouths were still far to the N, somewhere between Ipsala and Gala Gölü, the N shore of the promontory and isthmus formed a very large bay with several indentations, where maritime and riverine ships could be anchored (Fig. 3, 5). We have two types of evidence for assuming that these inlets were possible anchoring points (during seasons when the N winds would allow it): first, several niches sculpted into the rock close to the former N beaches. The votive objects put in these niches could have been related to deities that the seamen of the region took as protectors for their journeys: among them, there was the Thracian hero, represented on several unpublished reliefs now in the Edirne Museum, or the Hebros river-god and the local nymphs on a relief now studied by Dan and Başaran (forthcoming). Second, the coring site AIN 54, N of the "Acropolis" (40°43'35.64208" N, 26°04'34.86147" E, 0.37m a.s.l.), had a water depth of at least 4 m at the beginning of the 1st millennium BC. From Roman Imperial times until the 17th / 18th c., deposits of dark gray sands and black silts, at 3-1.8 m b.s.l., point to a low-energy environment, possibly of a sheltered embayment (harbor?). It is reasonable to assume that this area first served as a landing site for seagoing vessels, and – after the Hebros delta had passed by – as a river harbor. Comparable is the situation at AIN 82 (40°43'42.97" N, 26°04'56.41" E, ca. 0.5 m a.s.l.):

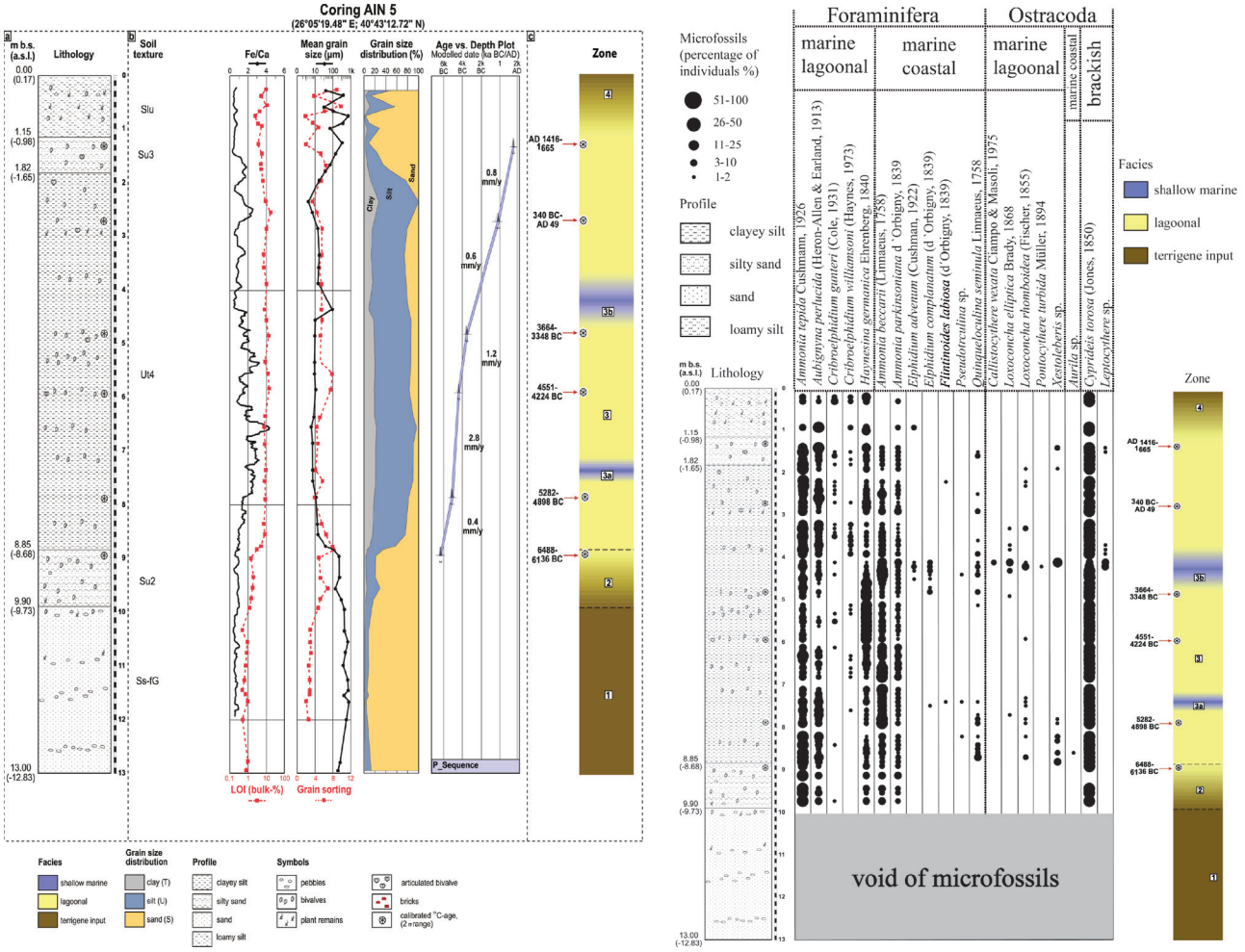

Fig. 14: Coring AIN 5 with stratigraphy, microfaunal analysis, facies interpretation and 14C age estimates (2 σ) (H. Brückner, M. Seeliger and A. Pint).

strata with marine fauna are attested from ca. 6.8 m until 4 m b.s.l., dating from the early 4th millennium until the turn of the eras. Lagoonal facies developed in Roman times, showing that the area may first have been a marine, later a fluvial landing site. Further to the E, the geoelectric profiles point to an ancient coastline, now covered by alluvium. In front of it, at AIN 23 (40°43'41.4" N, 26°05'39.6" E, 0.25 m a.s.l.), the age/depth model shows that the water depth was several meters in Greek times. The transition from open marine to lagoonal conditions occurred during Roman Imperial times; during Byzantine times, the lagoon silted up.

Thus, from Antiquity to medieval times, the Ainos promontory was surrounded by suitable anchoring sites: flat-bottomed boats could anchor in the natural harbor of the Taşaltı lagoon while large seagoing ships anchored on the W and possibly N shores. However, definite harbor moles have not yet been detected by geophysical measurements, corings, or archaeological surveys.

3. A 2600-YEAR-OLD CITY

The main result of the geophysical measurements in Ainos is the discovery of a SW portion of the ancient city wall, on the E shore of the Dalyan Gölü (Fig. 15). The "zig-zag" plan of its foundations suggests a Hellenistic date, which still needs to be confirmed by archaeological excavation (Seeliger *et al.* 2018). The conditions are difficult because of the continuous and intense occupation of the site. Therefore, we know almost nothing about the ancient urban topography outside the "Acropolis". Rescue excavations in the 1980s revealed a segment of the Roman paved street, covering public water pipes, and a house with frescoes and mosaics, abandoned in the 3rd c. AD, maybe after an earthquake. The date is confirmed by the ca. 160 silver and bronze coins spread on the floor.

From Justinian's time onward, the city walls protected only the "Acropolis", where the Byzantines, the Genovese family of the Gatellusi, and lastly the Ottomans had the political and religious center of

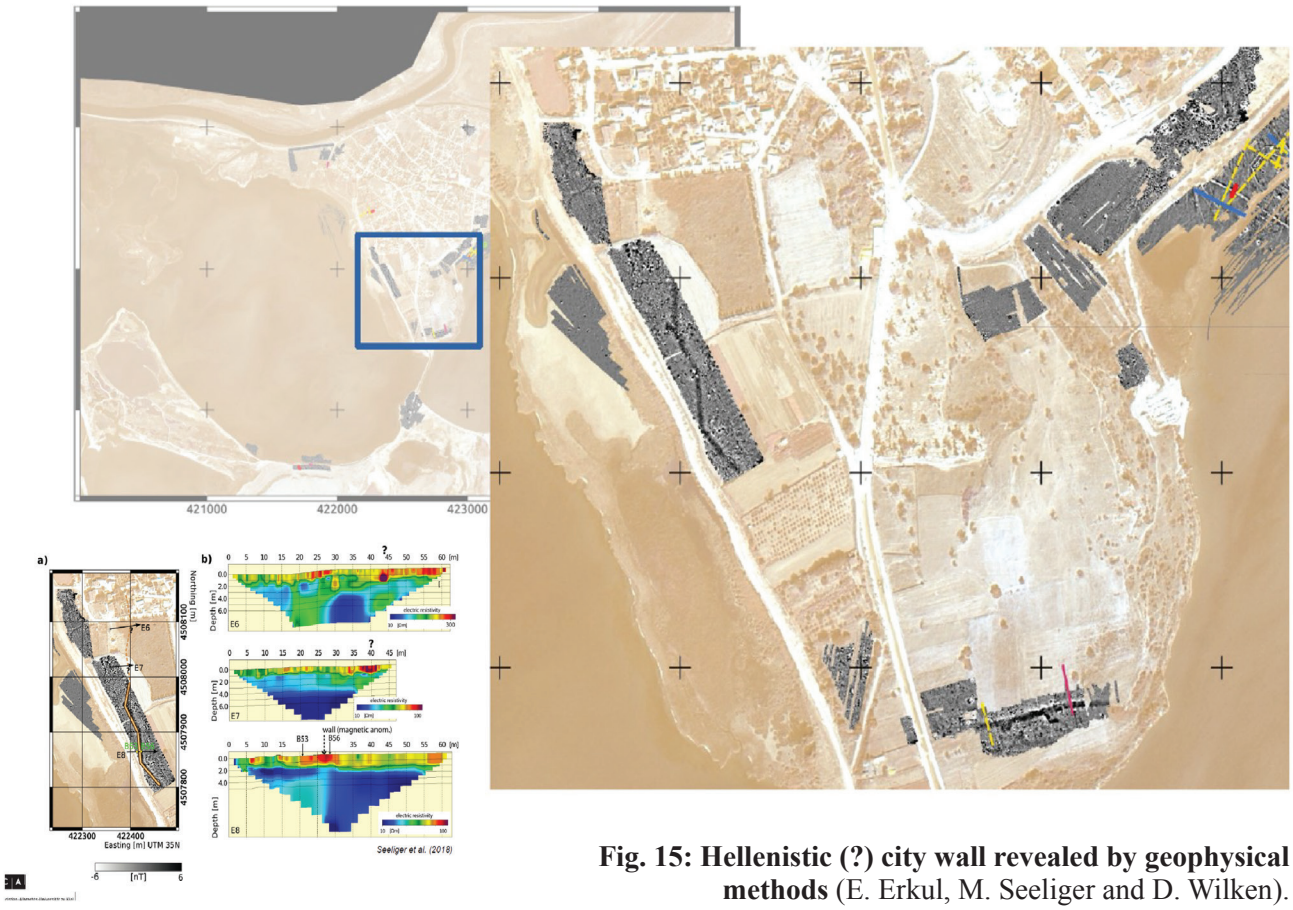

Fig. 15: Hellenistic (?) city wall revealed by geophysical methods (E. Erkul, M. Seeliger and D. Wilken).

their city (Hasluck 1908-1909; Wright 2014). The best-preserved Greek layer is a large cellar carved into the rock, where Sait Başaran discovered Classical amphorae, drinking vessels, and the terracotta head of a satyr. The Ainians' passion for wine must have been famous, since in the 3rd c. BC, Callimachus presented it as the cause of death of his friend Menekrates, compared to a Centaur (*Epigram* 61).

Another match between the literary references and the discoveries on the "Acropolis" concerns Apollo: the god is adapted to the commercial profile of Ainos, because he "oversees the village" (he is Apollo "Epikomaios" in Thphr. fr. 97.3 Wimmer *ap.* Stob., *Florilegium* 4.2.20) and gives advice to the fishermen to accept the statue and cult of Hermes (Call., *Iamb* 7). Unpublished fragments of Hellenistic and Roman sculptures of the god suggest the proximity of his temple, as one expects in an Aeolian city. In fact, the Hellenistic and Roman structures under the Fatih mosque – the so-called "Hagia Sophia" church, probably a Saint Constantine, if not a Virgin Mary church (Ousterhout 1985) – could belong to a temple: but nowadays it is impossible to make any speculation about its tutelary divinity. Inscriptions reused in Byzantine walls also indicate the existence of a temple of Zeus as well as of Rome and of the emperor. The publication of the epigraphic corpus by Mustafa Sayar will certainly offer a better picture of Ainos' political and religious landscape.

In conclusion, Ainos is a good example for the study of an average Aeolian, Roman, Byzantine, Genovese, and finally Ottoman city, benefiting from its strategic position and exceptional natural resources. Even if the continuity of urban life from Antiquity until the present day destroyed most of the ancient layers, archaeologists are still able to observe the networks of the Greek and Roman city by studying its rich necropoleis. Modern geoarchaeological research, based on non- or little-invasive methods, provide data on the environmental history of the site. The story that we hope to write is one of natural and anthropic changes of Ainos' connection points with Thrace and the Aegean, mainly through the lagoons that served as potential harboring sites, fisheries, and salines. The result would not be just another reflection on the interdependency between landscape and humans, but also a lesson of economic and cultural prosperity; the current city could thus learn from its past.

A.D. *et al.*

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