A physicochemical study of Medieval and Post-Medieval ceramics from the Aegean

Panagopoulou, A.

CHAPTER 2 POTTERY FINDS AND POTTERY PRODUCTION IN THE THREE STUDIED SITES

2. INTRODUCTION

There were three important harbours which connected Greece with the East and West: the harbours of Chalcis in Euboea, Athens in Attica and Mytilene in Lesvos. During the Middle Byzantine period a new settlement of Chalcis was founded. Chalcis near Thebes, located at a key point of the most important land road that connected Thessaloniki and Constantinople (Istanbul) with the regions of central Greece, the Peloponnese and the West. In this context, given the key geographical position of Chalcis on the major maritime trade routes of the Mediterranean, it seems that it functioned not only as a main port, but also as an important centre for the production and distribution of ceramics.

Furthermore, Athens dominates the Attica region, as it is the capital and the largest city of Greece, and is one of the world's oldest settlements, with the earliest human presence around the 11th–7th millennium BC and with its recorded history spanning around 4000 years. In addition, the Athenian Agora in Attica was the heart of public life in ancient Athens and the cradle of democracy. It was the place where the Greek civilization was developed, and consequently various pottery manufacturing techniques and decorative motives with cultural influences from other Greek areas and other countries were created. In Athens, the land communications that were in use during Medieval times did not deviate far from the road network of antiquity. The Athenian Agora area in Attica apparently formed part of an expanded trade network, spreading from the Levant to the coast of Western Turkey, over the Aegean and as far west as Southern Italy, based at least on the pottery sherds' finds. In Athens, the appearance of these Italian and Turkish imports instigated the manufacture of local pottery types (such as Greek imitation Maiolica), to the new pottery shapes, colours, and painted decorating styles, as well as to incised decorative styles of previous traditions (Vroom 2005, p. 175-177; Vroom 2007, pp. 323-324).

Finally, Mytilene in Lesvos was a prosperous Greek seaport, connecting East and West. During the Hellenistic, Roman and Medieval periods, as well as in the early modern and modern periods the communication between Lesvos and Western Turkey shores was frequent. During the Medieval period, the island retained its commercial links with Egypt and the Near East dating back to ancient times. The history of Lesvos is completely interwoven with that of the Aegean Sea, and the eastern Mediterranean in general (Kaldellis 2002). Also, the geographical position of the island of Lesvos determined its development during the Medieval period. The island did not only belong to the historical and cultural cycle of Greece, but also had a close relationship with Western Turkey (Asia Minor). What was observed was a large development in pottery manufacture in the Castle of Mytilene in Lesvos, which made products with decorative and technological influences of the pottery workshops of Western Turkey (Asia Minor) mainly.

The amount and quality of material evidence show that these three centres were of a certain standing both in the pottery production and in the cultural life of Medieval Greece. Furthermore,

they were important commercial hubs, related to the major maritime trade routes across the Mediterranean. The Frankish and Ottoman occupation periods may have changed the course of cultural development, but not entirely. Hence, in spite of all the technological advancements, the Byzantine substratum of local pottery in these three centres remained evident. Part of this thesis' aim, therefore, is to observe how the potters incorporated the foreign influences into their art throughout the period under study and even later, while maintaining their deep roots in the Byzantine tradition. The difference in techniques, glazings and firing technology may shed some light also on the influences that depended on the geographic location of these three regions and their proximity to major ceramic production centres of the late Medieval and Early Modern period, such as those of the West, namely Faenza, Montelupo etc in Italy or those of Easter, namely Iznik, Kütahya, Antalya and other centres in Ottoman Asia Minor. All three studied areas underwent phases of occupation (and subsequent influence) by the Italians (Genovese, Venetian) and the Ottomans. Athens and Chalcis experienced, furthermore, a Frankish and Catalan occupation period, which may be a reason for differentiating their pottery in the 13th and 14th centuries.

2.1 A SHORT HISTORY OF THE AEGEAN DURING MEDIEVAL AND POST-MEDIEVAL TIMES

The seamen recognized the unity of the Aegean coastal and inland area and named it 'Archipelagos' in 1210. The Aegean islands form a cobbled naval crossroads connecting large and smaller urban centers of the continental shores. Indeed, the Archipelago is defined by the coasts surrounding it, the coastline with a dynamic hinterland, densely populated urban centers and intense commercial activity. The Aegean Sea is the channel of naval trade between the Black Sea and the Mediterranean, riddled with the sea roads leading to Constantinople, Thessaloniki, Smyrna, and several other ports where the naval trade of the Mediterranean meets the land trade crossing the Balkan peninsula, Western Turkey (Asia Minor) and the Middle East (Belavilas 2010; Tolias 2010; Kosso 2011; Moschonas 2006).

The starting point of coastal residential flourishing is placed earlier in time, around the 10th century (Peacock 1977). From the 12th century, the Aegean islands were in various ways under Latin domination (Tolias 2010). In the 13th century, on the island coasts of the Aegean Sea there were settlements and small towns scattered. Rhodes, Mytilene in Lesvos and Naxos are in the middle of the stations and the outposts of the fleets and merchants of the Latins: the Order of Saint John that occupied the Dodecanese, the Genoese Company (Maona) that governed Chios and the Divine Duchy of the Duchy of the Archipelago. After the 11th century, the eastern Mediterranean was a busy sea. International trade flourished until about 1350 (Belavilas 2010). The 15th century changes the character of the Aegean. It is the century of the rapid expansion of Ottoman rule, which will be completed in the middle of the next one, turning the islands into a part of the Ottoman Empire. Thassos, Samothraki, Limnos, Imbros between 1453 and 1460, Lesvos in 1462, Euboea in 1470, Rhodes in 1522, the Cyclades and Sporades in 1537-1538, Chios in 1566, all the islands in the Aegean are eventually occupied, one after the other, by the Ottoman troops and are gradually integrated into the Ottoman administrative system (Laiou 2012, Balta 1992; 1989). People living in the islands of the Aegean and in some seaside cities in mainland Greece were influenced by the western civilization and tended to adopt western institutions and traditions. After the Ottoman

conquest, this world adapted partly to the new conditions and succumbed to Ottoman influence, without losing, however, completely its Latin veneer (Belavilas 2010).

The period between the 10th and the 12th centuries is well-known for the great Byzantine accomplishments, the demographic and economic growth and the socio-cultural achievements (Bintliff 2013; Runciman 2017). The majority of people during the Byzantine era were farmers (Laiou 2002, 49); agricultural settlements and villages were scattered across the Byzantine countryside and it seems that the provinces were connected to urban centres administratively, ecclesiastically and commercially (Figure 3) (Bintliff and Snodgrass 1985; Armstrong 1989; 1996; Cherry et al. 1991; Alcock et al. 1997; Mee and Forbes 1997).

The 13th century marked a decisive turn in the maritime trade and communication between East and West over the Mediterranean Sea (François 1997a). The conquest of Constantinople (Istanbul) by the Crusaders in 1204 ended up in the establishment of Frankish hegemonies in Greece and the Aegean and in the predominant role of Genoese and Venetians in the Bosphorus, commanding the Eastern trade even after the recuperation of the Byzantine capital by the Palaeologian dynasty in 1261. Furthermore, the advancement in ship-building led to the construction of larger and faster ships as well as to the more sophisticated methods of seafaring, partly based on the adoption of Arabic astronomical and mathematical equipment, which enabled the creation of new-generation nautical maps, the *portolans* (Dark 2001; Vroom 2016; Runciman 2017). The privileges offered by the Byzantines to the great Italian seafarers and their native cities led to the establishment of trade posts in important ports of the Aegean, such as Chalcis/Negoponte, Euboea, and Almyros, in the Gulf of Pagasae (Laiou and Morisson 2007). Such ports controlled the maritime communication between North and South, between Byzantine strongholds such as Constantinople (Istanbul) and Thessaloniki with the Levant and North Africa, Egypt in particular (Figure 4).

Chalcis/Negroponte was conveniently located on the straits of Evripos, where the stream changes course every six hours, and thus enables the departure either to the North or the South of the Euboean Gulf. Furthermore, it served as the port of the city of Thebes, important seat of power of the Duchy of Athens. Chalcis was also an important pottery production centre, both for wine-transporting amphorae and for luxury glazed ware. Scholars talk even of an "industrial triangle" among Chalcis, Corinth and Athens, based mainly on the finds of underwater archaeological research at Skopelos, Kavallianoi and Kastellorizo (Vroom 2016).

The maritime routes became literally divided between Venice and Genoa. It seems that Venice dominated the western ports of the Aegean (the ones controlled by its strongholds in the Cyclades and the Peloponnese) and Genoa the eastern ones (controlled mainly by its strongholds in Chios and other islands of the Eastern Aegean as well as by its "colony" at Pera and Galata in Constantinople (Istanbul). This is at least the picture as it emerges from the bottom of the sea, i.e. the underwater research in the numerous shipwrecks investigated over the past 4 decades (Figure 5) (Vroom 2016).

2.2 CHALCIS IN EUBOEA IN THE MEDIEVAL AND POST-MEDIEVAL PERIODS

Chalcis in Euboea was a strong and important center of Euboea since antiquity due to its important geographic location at the middle of the island, being at the same time part of the mainland and insular territory (Figure 1). Moreover, it is located on the sea roads that joined the eastern to the western Mediterranean. In antiquity the name of Euboean Chalcis was associated with the word 'χαλκός'-copper. This etymology is generally accepted today: Euboean Chalcis is "the brazen town". From the proto-geometric period down to the end of late Roman (early Christian) times the city spread over the foothills of Mt. Bathrobounia and the bay of Agios Stephanos, with a size fluctuating according to changing political and economic conditions (Sampson 1976; Kalligas 1982a; Bakhuizen 1985; Triantaphyllopoulos 1990). At an unspecified time between the 6th/7th and the 9th century and for reasons that probably relate to general historic conditions, the city was relocated in the area next to the Euripos Channel and occupied its present historic centre (Kalligas 1982b; Bakhuizen 1985; Triantafyllopoulos 1990). There was an established settlement here during the Middle Byzantine period (9th-12th century) under the name of Euripos. Negroponte, as the city was renamed, was eventually dominated by Venetians in 1390 (Skartsi and Vaxevanis 2017). The new site was a strategic location, since it controlled the major sea route leading from Italy and Crete to Constantinople and the Black Sea, while being at the same time a crossroads between mainland Euboea and Boeotia (Koder 1973; Kislinger 2010).

Concerning the Early Byzantine period (7th-9th century), it seems that Euboea remained relatively unscathed from the 'Slavic invasions'. During the Middle Byzantine period (9th-12th century), the island was considerably influenced by the Byzantine art, which had an obvious effect on the architecture and the fine arts of Euboea. In 1285 it was partially under the control of the Lombards, although Karystos, Larmena, and some other forts were still held by the Byzantines until 1296. In the Late Byzantine period (1204-1470), Negroponte was dominated by the Latins and later the island it came under Ottoman occupation. Following the dismantling of the Byzantine Empire in 1204, the city of Negroponte became a focal point of the Venetian maritime network. Lombard and Venetian Chalcis was gradually turned into an international outpost that played a key role in the Aegean politics of the time. By the late 14th century, the Venetian element gradually expanded within the city taking control of the entire island of Euboea. As a result, a high-quality material culture was created, evident in the ceramics, the weapons, the wall-paintings, the Gothic and Late Byzantine sculpture and in general in all artistic and artisanal production. Venetian plans depict this expansion as well as the rest of the demographic dispersion at the end of the 17th century. Elements of the area's human topography are also present on the Venetian plans executed during the 1688 siege (Figure 6). After the Ottoman conquest of 1470, the city of Chalcis in Euboea served as one of the administrative and economic centres of the southern Balkans and the Aegean region until the Greek War of Independence in 1821 (Kontogiannis 2012a; Papadia-Lala 2006; Triantafyllopoulos 1990).

Although these three 'cities' (Euripos, Negroponte, Eğriboz) shared common features deriving from the same geopolitical background, each one was involved a different identity of the leading elites, at least the part that exercised power and conducted public affairs (Byzantines, Franks/Venetians or Ottoman Muslims). Being a key commercial hub and naval crossroads of the Venetian maritime empire in the East, it connected the Black Sea and Constantinople, with southern Greece, Crete, and Venice (Jacoby 2001). Especially in the 14th and 15th centuries, the city gradually became the major transit station in the western Aegean, with commodities arriving

from various areas in order to be further transported to nearby or distant destinations. The city served as the station for the Theme's flotilla which was one of the main military/administrative divisions of the middle Byzantine Empire, being the physical port of call in the Aegean for nearby Thebes (Koder et al. 1976, p. 156; Triantafyllopoulos 1990, p. 170; Georgopoulou 2001, p. 73).

Travelers in antiquity set the stage for later visitors to Greece. Poetic and prose literary traditions about Euboea began early. Even from the Bronze and Early Iron Ages, there were stories about Euboeans in the larger world and their heroes, gods, and goddesses who visited the island at the center of the early Greek world. More travelers' accounts emerge during the later 15th and the 16th centuries when, apart from pilgrimage, other kinds of travel such as for trade purposes or embassies proliferate as well. During the 17th century diplomats, scientists, adventurers and traders are common types of travelers, recording their traveling experiences. In this tradition, travelers consciously searched for evidence of ancient culture in the modern populations. The Greek War for Independence marked a turning point, but travel flourished prior to the war, continued throughout it, and went on after (Kossso 2011). Kontogiannis designed the plan of the city combining the 1840 topographic plan and the modern settlement grid with the locations mentioned (Figure 7).

2.2.1 MEDIEVAL POTTERY IN CHALCIS IN EUBOEA

Studies of pottery from various excavation sites in the Mediterranean and the Black Sea areas have resulted in defining several categories of glazed pottery (based on their decoration techniques) during the 12th and the 13th centuries. The major part of the terminology used for this group of wares (Slip-Painted, Green and Brown Painted, Fine Sgraffito, Painted Sgraffito, Incised Sgraffito, Champlevé, Plain Glazed) still relies on C.Morgan's pioneer publication of the Byzantine pottery of Corinth in the 1940s (Morgan 1942; Vroom 2003; Waksman and Wartburg 2006; Vroom et al. 2021). Nowadays the term Middle Byzantine Production (MBP) has become widespread, including several of the abovementioned types (Fine Sgraffito, Painted Sgraffito, Incised Sgraffito or Aegean, Champlevé, Slip-Painted, Green and Brown Painted Ware) (see also Vroom 2003; 2005; 2014: pp. 80-87, 90-93; Waksman and Wartburg 2006; Waksman et al. 2014). The significance of these categories of mainly 12th-13th century glazed pottery is evident by their wide diffusion, which includes major sites, especially harbours, from southern France to Israel and from Chersonesos to Paphos (Vallauri 2003; Boas 1994; Megaw 1975; François 1997b, pp. 233-234). The 13th century is marked by political tumult and destabilization; as a result, the conditions which had supported the predominance of MBP gradually changed and led to the creation of a number of regional workshops the ceramics of which were mainly destined to cover local markets. Although, earlier techniques carried on, new types such as 'Sgraffito with Concentric Circles' (previously related to 'Zeuxippus Ware') were introduced. Chalcis in Euboea was one of these workshops functioning in or by the mid-13th century and probably carrying on well into the Ottoman period (Skartsi and Vaxevanis 2017).

The first ceramic samples from the excavations of Chalcis in Euboea date back to the 9th century. In the first centuries of the Middle Byzantine period (9th-11th centuries), the samples of the luxurious ceramics with white clay imported from Constantinople, albeit limited in number, reveal the contacts of Chalcis with the capital (Hayes 1992). At the same time, the pottery of these first centuries is similar to that of other urban centers of Greece, for example Thebes and Corinth.

Chalcis seems to have been part of a wider network of economic and commercial contacts during that period, which, apart from Constantinople (Istanbul) itself, included other major regional centers of the neighboring areas of Greece. At the Orionos Street plot, two stages of ceramic production were distinguished. While the lower excavation layers contained artifacts from an older period (about the 10th-11th centuries), the top excavation layers produced pottery (among which was the MBP group) that belonged to the latter phase of use (between the 12th and 13th centuries) (Vroom et. al 2021). The majority of the finds from the excavations of Chalcis as the excavation at Orionos street belong to the next period (12th and early 13th centuries) (Figures 8,9) (Skartsi and Vaxevanis 2017). The quality, the variety and the large quantity of this decorated pottery also confirm the great demographic and economic development of the city from the 12th century, giving it a prominent place in the commercial network of this period, given that the ceramics of these workshops were traded across the eastern Mediterranean and the Black Sea. From the comparison of the pottery of Chalcis in Euboea with that of other large urban centers of central Greece, the pottery of Thebes stands out as it is closely related to that of Chalcis throughout the Middle Byzantine period (Koilakou 2013).

After 1204, despite all the major changes in the political, economic and social conditions the Latin conquest brought about, there is an unbroken continuity in the production and use of the same types of ceramics like incised ceramics in the Middle Byzantine period, which continues for a long time during the 13th century. This fact, as well as the coexistence of a ceramic Byzantine tradition with pottery imported from the West, implies, on the one hand, the smooth adaptation of the city to the new political conditions and, on the other, its integration into the market network of its sovereigns. The import of ceramics from Italy in the second half of the 13th century onwards is connected with the gradual dominance of the Venetians over Euboea and the integration of the harbor of Chalcis in Euboea into the commercial Venetian network (Skartsi and Vaxevanis 2017). The overseas trade of the Serenissima is also considered to be the main factor for the circulation of ceramic products by Italian laboratories in the eastern Mediterranean (Jacoby 2001).

In general, the imported ceramics during the years of the Latin occupation, with their variety due to their origin, add their own testimony to the important position of Chalcis in Euboea in the Mediterranean trade network and its important role as one of the largest transit ports in Venice, confirming at the same time the city's contacts with the major shopping centers of the time: from Thessaloniki and Serres to the north, Cyprus and Syria to the east, to Spain and the various regions of the Italian peninsula to the west (Papanikola-Bakirtzis 1999; 1992; Vroom 2003). The presence of a few pottery samples from Spain, and mainly from the Islamic East and Cyprus, is certainly not a strong indication of systematic trade with these regions (Papanikola-Bakirtzis 1999; François 1997b; Skartsi and Vaxevanis 2017). The richness and variety of pottery that has come to light during the earlier and more recent years from excavations in Chalcis reflects the economic prosperity of the city and its contacts with large centers of the Byzantine Empire, and from the 13th century onwards, the contact with the East and the West (Skartsi and Vaxevanis 2017).

2.3 ATHENS IN THE MEDIEVAL AND POST-MEDIEVAL PERIODS

Athens dominates the Attica region, as it is the capital and the largest city of Greece, and is one of the world's oldest settlements, with the earliest human presence around the 11th–7th millennium BC and with its recorded history spanning around 4000 years (Figure 1). Throughout the Late Antique period Athens, despite its relatively small size, continued to bear a glorious name and some of the most important philosophic schools, distinguishing it among many other provincial towns of the Empire.

During period 582-700 AD Athens, and its surrounding Attica, was one of the few parts of southern Greece which was not under the control of Slavs, and inhabitants of some of the neighboring areas may have resorted there as refugees as well as on the islands (Frantz 1988). Athens is not often mentioned in the texts of the dark times (7th-9th centuries), because the empire suffered from frequent attacks by enemies from land and sea as well as of pestilence and earthquakes. The Bulgarian attack on Attica in the 9th century, the fall of Crete to the Arabs in 823 and the piracy which emerged thereof, contributed to the Aegean becoming dangerous for sailing and to Athens losing its geographical importance. The fact is that the Aegean shores and islands suffered continuously not only from the raids of Syrian and Cretan Arabs throughout the entire 9th century, but also from the pirate raids of the African and Silician Arabs (Setton 1975). During these dark times the administrative and economic center of Greece was Thebes, an inland and therefore safer town, where headquarters of the governor of the Helladic province lay (Koder et al. 1976; Chatzidakis 1981). By the middle of the 9th century the condition of Athens is slightly better, because the stronger Macedonian dynasty (867-1056), came on the throne in Constantinople and Athens became the seat of a bishop. The churches and monasteries of the 11th and 12th centuries prove the wealth and glamour of the new era although Athens suffered from plagues (1084), from savage attacks by the Bulgarians and the Normans of Sicily (1147) (Figure 10) (Chatzidakis 1981).

Athens was attacked by the Slavs in 585 AD. These are layers of destruction in various parts of the Agora where coins and pottery were found. In general, land communications that were in use during Medieval times did not deviate far from the road network of antiquity. In the middle of the 10th century Arabs settled in Athens (Kontogeorgopoulou 2016). From the 6th century BC until the 6th century AD, the area of the Agora was a focal point for Athens, being at the same the administrative/political center of the city, a venue for public performances, a repository for collective memory, a commercial hub, and an educational institution (Camp 2009). Vroom and Tzavella designed a map of the Athenian Agora in Attica with Ottoman contexts in order to help define the functions of the site during the various phases of the Ottoman empire in 2019 (Figure 11).

2.3.1 MEDIEVAL POTTERY IN THE ATHENIAN AGORA IN ATTICA

The Athenian Agora in Attica is an amazing source of archaeological information not only for classical antiquity, but also for the early Byzantine period as well as the so-called “Dark Ages” of Byzantium (8th-10th c.). Unfortunately, in terms of pottery, it is not always easy to distinguish sherds dated to the late 7th, 8th and 9th centuries, due to the fact that they resemble pretty much

their Late Roman prototypes. In fact, it is almost certain that a certain number of sherds had indeed been mistaken for Late Roman in the past, as in this period we know that the Agora area flourished, as attested by the remains of buildings, burial sites and coins (Figure 12) (Vroom 2013, pp. 97-104).

In the Athenian Agora in Attica, pottery was found in a well that represents three consecutive periods of occupation in this part of the Agora: 'Late Roman-Early Byzantine' (c. early to mid-7th century), 'Early Byzantine' (c. late 7th/8th to 9th centuries) and 'Middle Byzantine' (c. 10th to 11th centuries) (Vroom and Kondyli 2015, pp. 323- 325, fig. 24). The early phase of the well's use, namely the Late Roman period is an era when the Agora area apparently formed part of an expanded trade network, spreading from the Levant to the coast of Western Turkey (Asia Minor), over the Aegean and as far west as Southern Italy, based at least on the pottery sherds' finds (Vroom and Kondyli 2015, fig. 21 right). In the Early to Middle Byzantine period pottery finds become sparser and more limited in geographical range, originating mainly from the Aegean, despite the fact that Southern Italy and North Africa continued to constitute commercial destinations (Vroom and Kondyli 2015, fig. 21 centre). Finally, in the Middle Byzantine period, the last period of the well's usage, it seems that the local production becomes predominant whereas imports from the Aegean islands and Constantinople (Istanbul) are few and far between (Vroom and Kondyli 2015, fig. 21 left).

The production of Byzantine pottery that took place in the Athenian Agora is mainly proven by the finds of closed deposits or of refuse dumps of pottery, the contents of cisterns, pits or pithoi, filled up either all at one time, or (as evidence of stratification) by degrees over a period of years. Five such groups, ranging between the 10th or early 11th century and the 13th century, have been selected. These groups represent the variety of Byzantine pottery found in the Agora, and the finds are consistent with those offered by other Agora material (Frantz 1938). Among these are: Plain Glazed Ware in a red and Grey Fabric, Plain Glazed Ware in a White Fabric/ Glazed White Ware II-V, Polychrome Ware, Green and Brown Painted Ware, Slip-Painted Ware, Red Slip Ware and Incised Sgraffito Ware.

2.3.2 POST-MEDIEVAL POTTERY IN THE ATHENIAN AGORA IN ATTICA

Towards the end of the 15th century and during the 16th, a range of new ceramic products appeared in Athens, of which the most notable are tin-glazed Maiolica from Italy and Iznik ware from present-day Turkey. In the Athenian Agora in Attica the Ottoman wells have yielded products originating from western Europe, apparently bought from travelling peddlers or in periodic fairs (Vroom 2003, pp. 255-257; Vroom 2019, p. 183). Vessels show such there were imports from present-day Turkey in the Ottoman contexts of the Agora excavations such as Iznik Ware but also Kütahya Ware.

In Athens, the appearance of these Italian and Turkish imports instigated the manufacture of local pottery types (such as Greek imitation Maiolica), to the new pottery shapes, colours, and painted decorating styles, as well as to incised decorative styles of previous traditions (Vroom 2005, p. 175-177; Vroom 2007, pp. 323-324). In the Agora, this type of locally made Maiolica was found near three Ottoman kilns during an excavation and Alison Frantz was the first to study and describe them as 'blue and white painted ware' (Frantz 1942, p. 1; MacKay 2015, pp. 273-277; Vroom

2019, p. 185). This really charming style features a ground of white slip against which patterns are painted in blue, usually with an outline, occasionally with some surfaces filled in. Details appear in red or yellow, sometimes also in green. The most frequent decorative motives are birds, rosettes, and cross-hatchings surrounded by a floral border. The clay is local, Attic, medium coarse and of a pinkish shade. (Frantz 1942, p. 1). The publication by Alison Frantz of the Agora material appeared in 1942; she supported the view that the material all came from two kilns under the church of Vlassarou. (Frantz 1942, p. 2; Kardis 2014, fig. II.19; Vroom 2019, p. 185). The first half of the 17th century appears to have been the last period of use of this type of ware.

Apart from locally made imitation Maiolica with painted designs, we can also distinguish a later variant of sgraffito ware that was made locally in Athens in Early Ottoman times (Papanikola-Bakirtzi 1999, pp. 100-101,115-116; Vroom 2019, p. 185). The polychrome decorated wares of this period have exterior as well as interior designs, often based on spirals and winding lines. The 'visual performance' value of the colourful designs must have been significant (Mills 1999, pp. 112-113). The repertoire of domestic pottery used in Ottoman Athens differed in significant ways from its Late Byzantine/Frankish predecessors, as, for instance, the replacement of thin-walled, unglazed cooking pots by lead-glazed types (Vroom and Tzavella 2017).

A variety of ceramics can be observed in the Ottoman period from the Agora excavations as Polychrome Sgraffito Ware, Local Polychrome Sgraffito Ware, Maiolica from Italy, Imitation Maiolica from Athens, Iznik Ware, Kütahya Ware and Tobacco Pipes (Frantz 1988; 1942; Vroom 2005; 2019). A new type of tableware appeared in Greece in the late Ottoman period (18th century). It is a thin type of ware of small cups made of buff-coloured clay, probably manufactured in Kütahya. The designs are polychrome, bearing blue, green, red, purple and yellow colours. The patterns are geometric, floral or figural. This tableware was influenced by Chinese porcelain, rather a cheap substitute of the expensive prototype. Usually, it came in forms such as coffee cups and saucers (Lane 1957, p. 65; Vroom 2019, p. 190).

2.4 MYTILENE IN LESVOS IN THE MEDIEVAL AND POST-MEDIEVAL PERIODS

The principal city of the eastern Aegean island of Lesvos, Mytilene, is located on the island's southeaster shore, 12 miles from the northeast coast of Western Turkey (Asia Minor) (Figure 1). Mytilene in Lesvos was a prosperous Greek seaport, connecting East and West (Figures 13,14). Its position was of great importance since Mytilene took advantage of its proximity to the west coast of the Gulf of Adramyttion and its domination of the straits between Lesvos and Western Turkey (Asia Minor). The ancient city was built on an islet separated from the mainland opposite a narrow sea channel called Euripos. This channel provided the city with a perfect natural defense which was strengthened with the construction of a fortification wall along the island side of Euripos. The small island near the coast made it possible to create harbours on both sides, protecting ships from both north and south. Today in the place of the islet there is a hilly peninsula, penetrating deep into the sea, which was formed as a result of the gradual silting up of the Euripos during the Middle Ages (Acheilara 1999, p.6).

During antiquity, the activity of the Lesvians in Western Turkey (Asia Minor) became obvious in the following ways: a) by establishing or participating in the establishment of colonies, b) by warlike actions to satisfy expansive aspirations outside the island, c) by exercising control in a series of "citizens" cities, which held key positions on the coast of Western Turkey (Asia Minor),

especially at the Dardanelle's mouth, aiming, of course, to control the maritime space towards the Hellespont and the North countries; d) with the direct exploitation of the arable land, which directly served the political aspirations of the Lesbian nobles (Anagnostou 2007). Lesvos will play a key role in the current dispute over demography and settlement expansion in Late Antiquity (Caraher 2008). During the Hellenistic, Roman and Medieval periods, as well as in the early modern and modern periods until 1922 the communication between Lesvos and Western Turkey (Asia Minor) shores was frequent (Anagnostou 2007).

As far as the Byzantine imperial administration of Lesvos is concerned, the history of the island is unclear for the troubled years of the late 7th and 8th centuries. Although Arabs raided the Aegean extensively in the 7th to the 9th centuries, Lesvos was a target only in the ninth. Mytilene in Lesvos seems to have been a naval base of great importance since it was used in 821 by Thomas the Slav in his attack on the Byzantine capital as well as by many Byzantine admirals of the 10th century, especially in their attacks against the Arabs of Crete (Kaldellis et al. 2010). As the Komnenos dynasty lasted for less than a century before being overtaken by the disturbances at the end of the 12th century and, ultimately, the Fourth Crusade. In this period, Aegean islands including Lesvos suffered from raids by Italian fleets probably because of the intermittent warfare among the Italians and between them and the Byzantines (Kaldellis et al. 2010). In 1462 Lesvos was conquered by the Turks.

During the Byzantine period Lesvos was surrounded by great cities (in Greece, Thrace and Western Turkey) that continued to prosper. Moreover, other "capitals" such as Antioch and Alexandria were equally developed as the new capital at an educational and economic level. The island retained its commercial links with Egypt and the Near East dating back to ancient times, and as a result its wine and famous blue marble became well known throughout the eastern Mediterranean. The history of Lesvos is completely interwoven with that of the Aegean Sea, and the eastern Mediterranean in general (Kaldellis 2002).

2.4.1 THE CASTLE OF MYTILENE IN LESVOS

The Castle of Mytilene in Lesvos lies on the north-west part of the peninsula, from the north harbour of the town to the summit of the hill. Its plan is the shape of a rough rectangle. It is about 300m long from south-east to north-west and about 150-270 m, wide from north-west to south-west (Figures 14,15,16,17). The oldest confirmed phase of its construction was in the 6th century during the kingdom of Ioustinianos A'. It was the nature of the terrain that determined the style of construction and fortification of the Kastro to make it resistant to enemy attack during Byzantine times and the period of Genoese rule (Acheilara 1999, pp.10-30).

Due to a devastating earthquake in 1384, a part of the Kastro was destroyed, but the two last rulers of Mytilene in Lesvos, Domenico (1445-1458) and Niccolo Gattelusi (1458-1462) took on the reparation project. The Turkish threat and the use of gunpowder led the locals to further strengthen the defense works of the Kastro in 1460, shortly before it was captured by the Turks, as it is clear from an inscription incorporated in the fortifications. During the siege and capture of Mytilene in Lesvos by sultan Mehmed II (1451-1512) and his vizier Mahmut pasha, the Kastro was larger than its preserved form and there were numerous bastions that have not survived, as well as some free-standing towers (Acheilara 1999, pp.10-30).

The Kastro was not only important in times of war, but it was used during the period of Genoese rule (1355-1462) as the residence of the Gattelusi, in the Great Enclosure, and as that of the Catholic Archbishop and the few Genoese who lived on Mytilene in Lesvos until 1462 when they finally ceded it to the Ottomans. Political activity starts with the granting of Lesvos to Francesco Gattelusi as dowry upon his marriage to Maria Palaeologina, sister of the new Byzantine emperor John V Palaiologos. The role of Francesco was crucial for creating a remarkable new power in the politics of the Late Byzantine Empire. The building of the castle itself in Mytilene was completed in 1373 and remained the focus of power in the city until the early 20th century. There was undoubtedly an earlier fortified centre at the castle's location, but its extent is still not entirely clear (Williams 2009, p. 110; see also http://www.archaeological.org/fieldnotes/resources?type=databases).

After the capture of Mytilene in Lesvos in 1462, the Ottomans kept the Kastro both for defensive and residential use, and preserved it until 1912. The Kastro was further strengthened with the addition of a new fortification wall outside the old one. In 1501, the Kato Kastro (Lower Castle) was also constructed. During the final years of the Ottoman domination, the Epano Kastro was used as soldiers' barracks, the Mesaio Kastro as a prison for those awaiting trial while the Kato Kastro (where is the chapel of the Virgin Galousa), was used by the Turks citizens. In Epano Kastro there were many cannons, which were used to defy alien warships attempting attack (Acheilara 1999, pp.10-30). The Kastro was partly destroyed in 1922, when refugees from Western Turkey (Asia Minor) swarmed to the island and there was want of building material for constructing new houses at Epano Skala. After the liberation of the island, Epano Kastro was used as lodges for the Greek army, Mesaio Kastro was used as a residential area for poor Greeks, and Kato Kastro was inhabited by poor Ottoman citizens (Acheilara 1999, pp.10-30).

2.4.2 MEDIEVAL POTTERY IN MYTILENE IN LESVOS

The Byzantine period of Lesvos lasted for over 1000 years. There is some evidence of activity in Early and Middle Byzantine times in Lesvos, and indeed in its capital Mytilene. As far as the pottery finds are concerned, there are no evident eastern imports among the Medieval pottery remains; the fine wares consisted of fragments of Sgraffito Ware with Byzantine influences (Williams 2009).

2.4.3 POST-MEDIEVAL POTTERY IN THE CASTLE OF MYTILENE IN LESVOS

The four hundred and fifty years (1462-1912) of Ottoman rule left numerous traces in the castle and town of Mytilene in Lesvos. The most important discoveries of materials from the Ottoman period include very large quantities of pottery as well as many tobacco pipes. The enormous quantities of pottery make up more than 70% of all the ceramic material from the site. There is also a considerable amount of faunal material, including forbidden materials for a Muslim diet (Humphrey 2009, p. 121).

The Ottoman period yielded a rich collection of different ceramic wares from the 16th to the 19th century. From the early years of the occupation fragments of coffee cups were found, including at least one that can be attributed to the early production of the Iznik industry, known as 'Abraham

of Kütahya' (dated to 1480-1530). Finds of the 16th century include small quantities of Italian Montelupo Ware, while in the 18th century the imports of Chinese blue-on-white ceramics started (as well as their Turkish copies). A striking ware, perhaps of the 18th century, is made of a dark green unglazed clay with incised decoration; the shapes are of water jugs and appear to have forms based on metal prototypes. Other imports of the late 18th to early 19th century include Monochrome Green Glazed Ware from Chios, Didymoteichon Ware from Northern Greece with its characteristic variegated marbled surface, and a small quantity of Canakkale Ware from the Dardanelles (Korre-Zografou 1995a; Vroom 2003; Williams 2009; Vroom et al. 2021).

The bulk of the Mytilene pottery, however, comes from the 19th century and originates from the last occupation phase in this part of the castle, evidently destroyed in the major earthquake of 1867. The 'fine' wares tend to be crudely made glazed vessels covered with a green or brown glaze, with added decoration in lighter shades of green or beige. The presence of several kiln supports (such as tripod stilts with glaze on top) clearly indicates that the production was local, although its provenance is not exactly known yet. It is likely, however, that present centres of production on the island like Mantamados and Agiassos were active in the last century as well (Williams 2009).

The modern ceramics of Lesvos, from the middle of the 19th century onwards, show a heavy impact exercised by Çanakkale pottery, which is natural due to the proximity of the areas and to the constant commuting of their inhabitants. Western Turkey (Asia Minor) construction practices have spread into Lesvos, and glazing and decorative themes can also be found not only in the Western Turkey (Asia Minor) refugees' establishment on the island, but also in the presence of authentic and decorative purposes of authentic ceramics belonging to the production of Çanakkale (Dardanelles). The products of Çanakkale in the first phase of these ceramics (1670-1800), although located in various parts of the Greek world, have not been found in Lesvos, as opposed to late phase (1800/1830-1922) when such ceramics abound in the eastern Aegean islands (mainly in Lesvos and Chios) as well as in the Dodecanese. Up to this day, this material affects the island's production, directly and indirectly (Korre-Zografou 2007).

2.5 TYPES OF KILNS IN THE MEDIEVAL AND POST-MEDIEVAL PERIODS

The spatial planning of the workshops is subject to certain rules that have always been followed by the potters in order to facilitate movement within it and the more efficient use of their spaces.

A typical pottery workshop of the late Roman or Early Byzantine period should have seven spaces, more or less distinct and in particular:
-a spacious open space for the storage of fuel, and especially for the preparation of clay, which in the newer pottery is called 'caroutes or limpes'. These were tanks where they placed the soil together with the water, and then they stamped it on foot until the wasteful admixtures came up to the surface and the clear clay settled down to the bottom. In the same tanks, it is mixed with as many impurities as necessary to increase certain properties of the clay (plasticity, resistance to high temperatures, etc.).
- an enclosed space to store ready-to-use clay
- another, also roofed, space to make objects on the wheel, in molds or with 'macaroni', and to decorate them
- another room for ceramics to dry

- space for installation of kilns
- a roofed or semi-open area to store pots for cooking which are to be sold
- and finally, natural or artificial pits for the disposal of the damaged ceramics (Petridis 2013).

Typology of kilns used in Greece in the early Byzantine period consist of two distinct levels separated by a perforated floor. In the lower chamber or combustion chamber was placed the fuel, which could be wood, oil trees materials or other materials. This chamber was usually underground, at least in the larger constructions, and had thick walls made of dry stone wall and bricks and covered with layers of clay. The upper chamber or firing chamber was used to fire pots arranged in stacks and separated by pottery sherds or wedge-shaped handmade objects called firing supports. This chamber was usually at the height of the man who made the ceramics, and its walls, thinner than those of the combustion chamber, were usually built of bricks. The upper part of a kiln could be stable and have openings to be filled with pots or it could be destroyable after every firing and rebuilt next time in order to facilitate the placement of the ceramics (Petridis 2013). The perforated grill allowed warm air to circulate in the firing chamber, without putting the ceramics at risk because of the flames, and served at the same time as the surface of the lower row of ceramics. In kilns with bars in the Middle Byzantine period, the grill is probably abolished. Perforated floor supported arcs, especially in the case of a central pillar or pilasters, that touched the walls of the combustion chamber. Of course, the combination of pilasters and arcs is not excluded. These supports were usually built of small stones and bricks. The ingenuity of potters is impressive in some cases: in smaller furnaces, for example, they used part of the neck of pithos to create the arcs supporting the grill. We generally find two types of furnaces in all periods: circular or elliptical and rectangular or square. In the period we are examining the rectangles seem to be more than the circular ones. However, the total number of kilns found is so small in relation to the number of kilns that would have been operating in the Greek area over the centuries, so any generalization about the most widespread type would be frightening (Petridis 2013).

Based on their particular characteristics (internal arrangement, grill support), we can distinguish them in subcategories:
The rectangular (or rarely square) kilns are distinguished in:
- those with central pillars, built in the middle of the combustion chamber, from which arcs start to support the grill (Figure 18)
- those with a narrow space covered by arcs resting on the side walls and supporting the grill (Figure 19)
- those with two or three parallel corridors in the combustion chamber separated by a wall (Figure 20), from which arcs also start supporting the grill, and finally
- those with a central wide corridor in the entrance of the combustion chamber and secondary narrower corridors opening vertically to the first and separated by a wall that in turn supports the grill. The depth of these secondary corridors varies according to the size of the furnace (Figure 21).

Circular (or sometimes elliptical) kilns can respectively be divided into:
- those with a central, circular building which supports the grill with the help of arcs that open radially from the combustion chamber to perimeter wall (Figure 22), and
- those with a central wide corridor on the entrance shaft and secondary narrow corridors, perpendicular to the first one, separated by walls that rests on the perimeter wall and supports the grill (Figure 23) (Petridis 2013).

Sometimes, in the same area, the city, or even the same group of laboratories, different types of kilns may coexist (Petridis 2013). The permanent kilns known from sites in Greece, Cyprus, the Balkans and the Crimea did not changed considerably the fifth to the twelfth centuries. They are mostly domed cylindrical structures with fire-pits beneath the chamber, although there were also rectangular kilns whose superstructure was arched, while it was domed in the curvilinear examples. For these kilns the method used was the 'updraft method' where unfired vessels were placed on a perforated clay floor within the kiln and wood added through an opening below the floor to provide fuel (Dark 2001) (Appendix I).

2.5.1 POTTERY KILNS IN ATHENS

In addition to the blue- and red-on-white painted ware that Frantz published, the kilns yielded a glaze-painted plain or sgraffito ware predominantly yellow, green, and brown. Frantz assumes that both fineware date to the 16th century. They are the prevailing types of locally made glazed wares extant in Athens in that period; they have also been found in Boeotia, both in urban and rural settings, gathered during excavations or survey. The three Athenian kilns, excavated in 1935 and 1936, were located in the area of the Agora just to the west of the Panathenaic Way and the Stoa of Attalos. There was no associated contemporary architecture (Figure 24) (Frantz 1942; MacKay 2015).

The kilns were of standard updraft type, round, originally with domed tops, provided with stoking chamber, combustion chamber, perforated floor, and firing chamber (Papadopoulos 2003). Bowls in all three kilns were separated with small, hand-formed clay tripods; this was a standard method from the 13th century onwards (Papanikola-Bakirtzi 1987; Papadopoulos 1992). Glazed -handled pitchers were also extant. A waster of a two-handled water jar or amphora (a shape that does not appear in glazed form) from Kiln 3 indicates that these kilns were also used for firing coarse ware. The dating of the kiln is tentatic since, unfortunately, no coins were found to help with the dating process. Frantz was, however, able to establish a terminus ante quem—the church of Panagia Vlassarou, which was demolished in 1935, was built directly over the kilns and was standing in 1676, when Jacob Spon visited Athens (Frantz 1942). Since Kilns 2 and 3 must predate this church, the 16th century date assigned to the pottery following Frantz's article is likely to be correct.

Kiln 1, Excavated April 9, 1935

One meter, roughly, below the surface one can see the top of a small potter’s oven of the Ottoman period. The top is broken, hence currently there is no roof. Its diameter is about 1.20 meters. The walls are made of pieces of brick and pot-sherds, using, as bonding material, a kind of reddish-brown clay, with a fired yellowish colour at the inner edge. It is preserved to a height of ca. 0.50–0.60. Below they rest on a layer of stones. To the north is a doorway 0.45 wide. In the doorway and in the front of the chamber there was a layer of burning. At the back, and rising sharply over a fill of brown earth lay some of the fallen bricks and plaster of the wall. Kiln 1 yielded bowls and jugs from various stages of the firing process, including glazed and unglazed wasters of glaze-painted sgraffito and plain bowls, and tripod stilts (MacKay 2015).

Kiln 2 Excavated 22 February, 1936.
This is one of the two kilns underneath the floor of the church of Panagia Vlassarou.
Its mouth is paved with blackened marble slabs at level -0.98 m. A bottle-neck made of red soft bricks ends up at a floor at level -1.50 m. The main kiln, 1.20 m. in diameter, corresponded exactly to the well at 12:ΛΑ, and its sides of bricks, almost unrecognizable, actually line it at this level. Its eastern edge was interrupted by the foundations of the church. The remaining debris does not allow a secure answer to whether or not it had a ribbed dome. In the neck were found more late Turkish sherds, and some already slipped but without glaze. Saved from Kiln 2 were pieces of a large coarseware basin, some blue, red, and white wares, glaze-painted sgraffito wares, and lamps (Frantz 1942; MacKay 2015).

Kiln 3, Excavated 30 January, 1936.
This is the second of the two kilns mentioned by Frantz (Frantz 1942).
The floor of the kiln was reached at level 58.4 m. It was marked by a northward slope and consisted of hard-packed lime and earth. Coarse sherds, many of them burned quite black—one with green glaze of good Turkish type- were embedded in this floor. The walls consisted of little pieces of tiles, in second use after being broken- intentionally or unintentionally. In the 'neck' they curved over to form a vault and showed heavy evidence of burning. In the central chamber they rose vertically for 0.70 m, then curved in to form vault segments between. The ribs, composed of three arches of brick were intersecting at the centre. The bricks have been badly worn out and are preserved in situ for the lowest 3 rows. They measured l. 0.27 w. 0.135, h. 0.035, poorly made. The kiln was lined with a thick brown plaster-cement, rather hard and coarse. The same substance was also used to set the bricks. In the 'neck' were found sherds, mostly coarse, but including also some pieces of better-quality pottery, such as green glazed and painted Turkish wares. Saved from Kiln 3 were coarse wares, including a waster of a water jar, many bowls in various stages of the firing process (plain, slipped but not glazed, and misfired), and tripods. There were also a number of lamps. Like Kiln 2, this kiln contained blue, red, and white pottery, and also the same types of glaze-painted plain and sgraffito bowls that were made in Kilns 1 and 2 (Frantz 1942; MacKay 2015).

Angeliki Charitonidou in her inventory of local pottery production in Medieval and Post-Medieval Athens has noticed that there is no substantial change in the location or type of kilns in Athens throughout the medieval period (Charitonidou 1982). The pottery produced in the Agora kilns varies in style from the pottery of earlier periods, but the difference is colour, shape, and decoration (Tite 2009).

2.5.2 POTTERY KILNS IN MYTILENE IN LESVOS

Until after World War II, the area of the Eastern Mediterranean is full of traditional pottery centers. Some of them remained local, while some others grew more, generating surpluses and making their products available outside the community. The products made for “export” were usually of a superior quality than those made for the local clientele. The number of workshops that are now abandoned in the coastal areas, leaves no doubt about the extent of production at some point: Skidia, Pedi, Aspropotamos, Koulostasi, Agios Stefanos, Kalafatis, Myriandri, Palios, Anoichtos and Mantamado still retain the unmistakable marks of a long-term activity: the workshops with

the stone-built 'kilns'. In Mantamado there should be at least 20 workshops and in coastal areas 44, which are now preserved more or less (Giannopoulou and Demesticha 1998).

There are not exact details for the beginning of pottery activity in the region. Pottery technology, developed from antiquity, does not itself allow the chronological placement of the simple constructions that survive. Oral testimonies, for example, mention that people of Mantamado learnt the art of pottery from the potters of Çanakkale in the 19_{th} century. It is characteristic that even today the circular floor of pottery kilns in this region is called 'Turkish'. From the middle of the 19th century onwards, the construction and sale of ceramic objects was not an occasional employment for the craftsmen who initially covered only the local needs. For example, in 1908, the trade union of "tsoukalades" appeared, "tsoukali" or "tsikali" being the local name for pottery cooking vessels and other pottery objects. The type of workshops is largely unified in all areas, on the coast and in the villages. Population growth, economic growth and the opening of sea trade in Lesvos in the second half of the last century could see that pottery flourishes at this time and that workshops, especially in coastal settlements, are on the rise. More than half of the recorded workshops are built until 1920. The art of pottery passed on from father to son at an early age (Giannopoulou and Demesticha 1998). Moreover, due to the large ceramics' production, many problems arose with the extraction of the soil and the procurement of fuel, as mentioned in relevant documents. The mining of the soil was mainly done by the 'merades' in the open (communal) estates. The course of pottery began to decline in the 1940s when migrants left for America. World War II and Occupation were the beginning of the end (Giannopoulou and Demesticha 1998).

The origin of the architectural type of the ceramic kiln in Lesvos, whose local name is "oven", has not been ascertained by the research. These kilns, which are part of the larger category of upward combustion, are designed to fire at a low temperature (up to 1200 °C). Moreover, they are suitable for the firing of secondary clays, which are also the most usual clays in Greece (Giannopoulou and Demesticha 1998). All the surviving kilns of the area belong to the same architectural style: cylindrical, open at the top, bipartite buildings made of sun-dried bricks interior and stone exterior. The lower part of the kiln was built inside the ground, and an arched entrance for fuel was opened. The thickness of the walls was quite large (about 60 cm), while the support of the upper floor was achieved internally by the construction of brick arches that were adjacent to the side walls, and a central cylindrical pillar also made of bricks. On the upper floor, the so-called "kazani", the ground, "tabani", was constructed with sun-dried bricks, "noumedes", and within a regular distance hole and a central rectangular entrance were opened. The kiln always had in its inner surface a layer of clay mixed with straw, which was renewed after some combustion. On the back or beside the kilns a stone stair was built, leading to the top of them, where the placement of the pots in the higher stages was completed (Giannopoulou and Demesticha 1998).

Their orientation always depended on the usual direction of wind, which mainly determined the orientation of the opening in the chamber where the fuel was put. The furnaces in the area show three tiers, which correspond to the upper floor configuration in steps. The existence of three tiers does not seem to be proportionate to the capacity. Most of the tiers used to better protect the furnace, when it was installed in an air-conditioned position. The height of the kilns varies from about 2.70 to about 3.70 m. The number of floor holes is proportional to the other dimensions of the kiln. The holes with an average opening of 15cm are arranged in series parallel to one another. The capacity of the 'ovens' ranged from 600 to 1000 pottery wares about 3 litters capacity each

one. In one case, a kiln with the lower part inscribed into a rectangular tier (4x4.20 m), probably for better adhesion of the building to the “kamini” and in three others the laboratory had two ceramic kilns, one for the glazed ceramics and the other for non-glazed ones. An important stage in the whole process of making a ceramic object is the "cooking", the correct placement of the dry objects inside the kiln. There had to be gaps between the objects, both from each other and from the side walls of the furnace so that the hot air was circulated among them. The central entrance of the furnace was blocked by building it with sun-dried bricks and an external coating (Giannopoulou and Demesticha 1998).

The basic fuel was, as in most of the workshops in Greece, thin branches, shrubs, kermes oaks, but also in Lesvos they used local plants like heather and lavender. The burning of a kiln of approximately 1000 objects required about 1000-1300 kg of thin woods. The firing process started always after sunset and in days without air. Initially the feed was slow because the dry clay objects are not resistant to sudden temperature change. The reason for the gradual rise in temperature is that ceramics around 500-600 ^{o}C are particularly vulnerable because of the Quartz change, contained in all the secondary quartz, from Quartz A to Quartz B. The firing atmosphere in the kilns was alternately reducing and oxidizing. Reducing atmosphere was inevitable when they burned fuel. The overall process is estimated to last between 6 and 8 hours.

Lesvos was a commercial hub in the Aegean from the ancient times. Its proximity to Western Turkey (Asia Minor), as well as its position on the sea routes to Constantinople (Istanbul) and the Black Sea, it always gave the locals the opportunity to be engaged in intense commercial activity on the island. In later years (18th c.), after a decline during the Ottoman occupation, the trade of Lesvos improved. The implementation of the routes increases trade both in the Aegean Sea and the rest of the Mediterranean. After the liberation of Lesvos, the markets of Greece opened, but those of the Western Turkey (Asia Minor) coastline became limited. For the main commercial destinations, however, the oral testimonies agree: Mytilene, Smyrna, Ayvalik, Alexandroupolis, Thessaloniki, Constantinople, Piraeus and Alexandria (Giannopoulou and Demesticha 1998).

Figure 3 Map of the Byzantine Empire during the 12th century (Laiou 2008, p. 281).

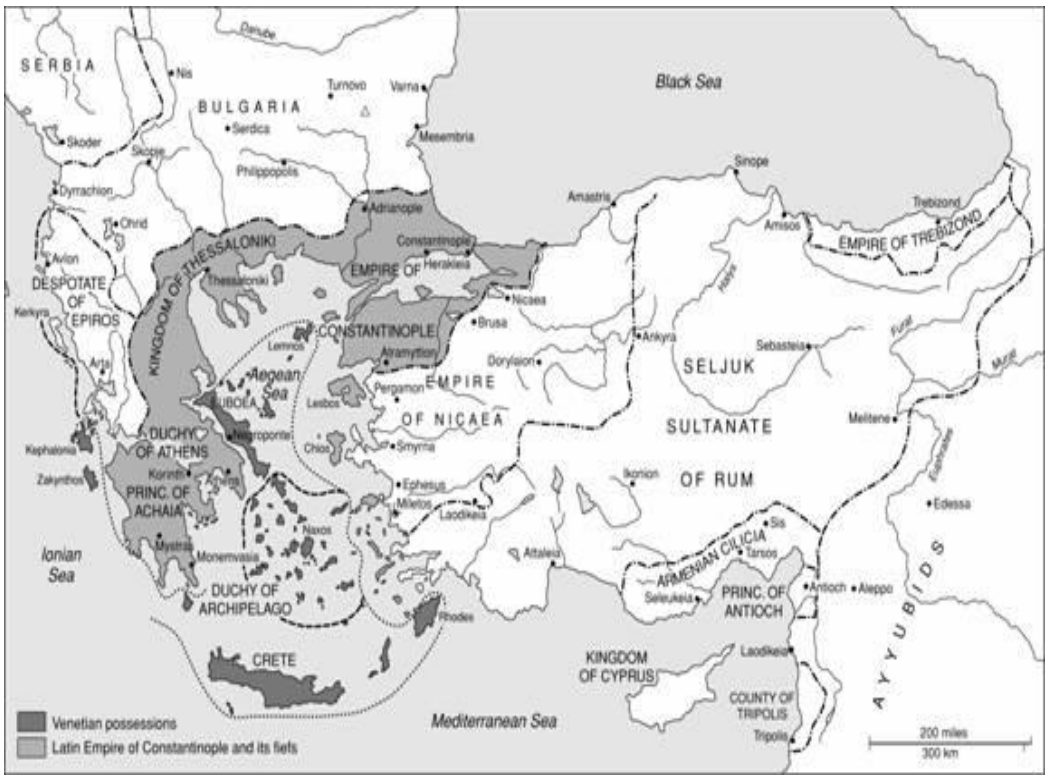


Figure 4 Map of the Byzantine Empire after 1204 (Gregory 2010, p. 331).

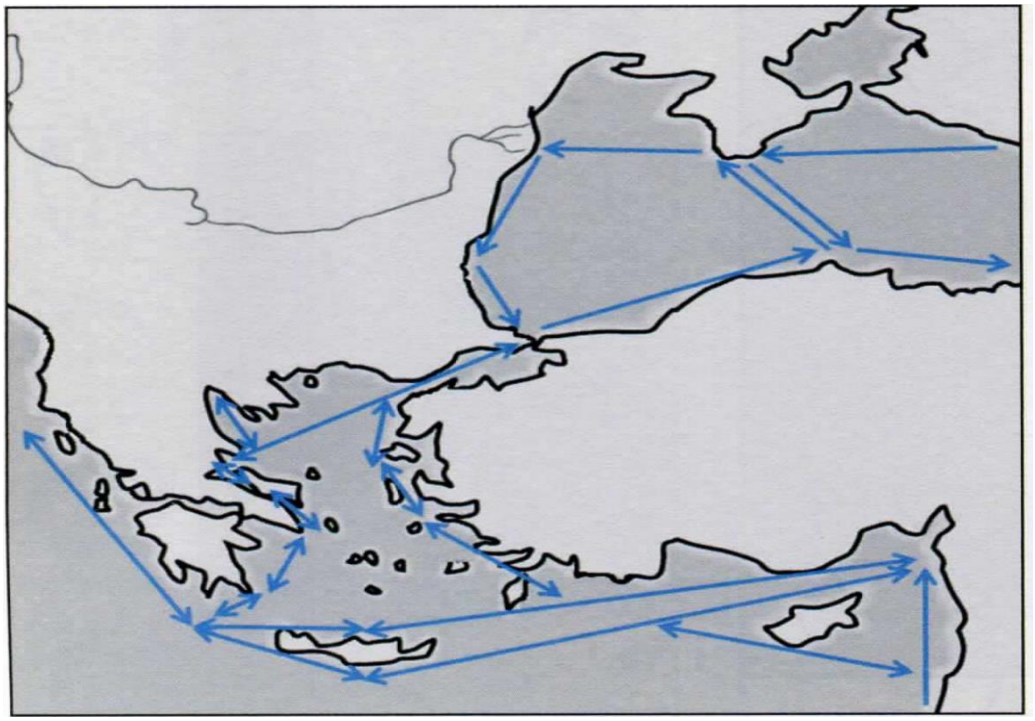
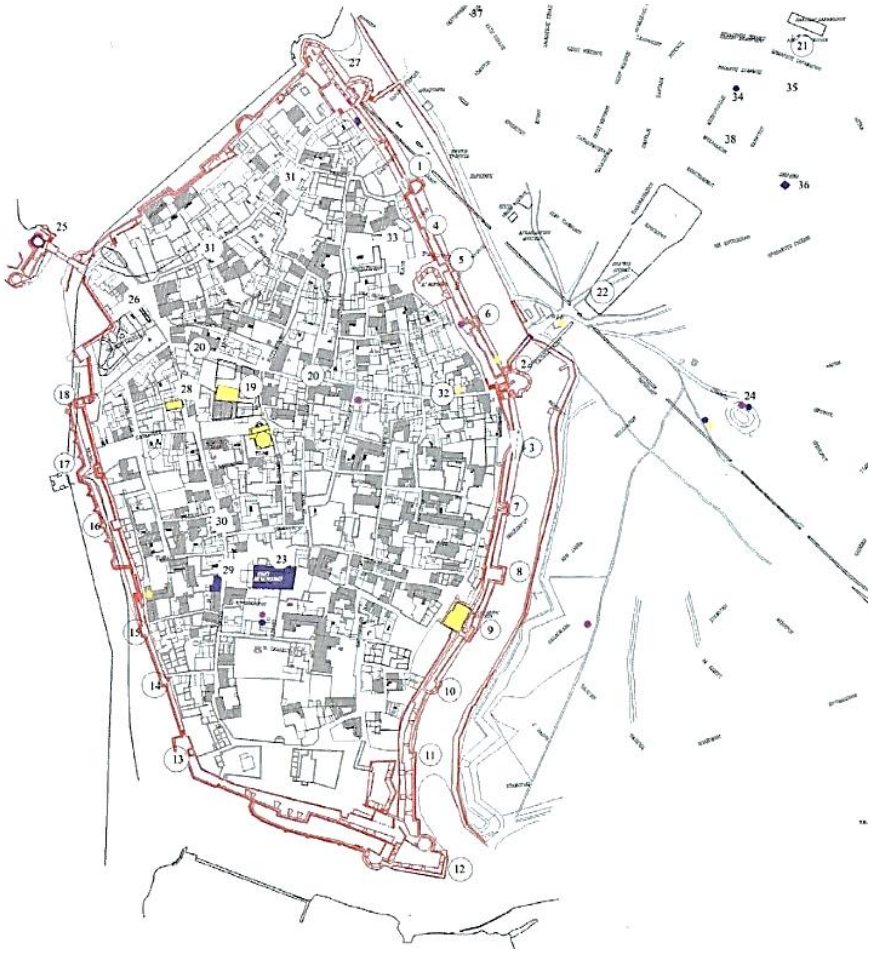


Figure 5 Distribution map of important sea lanes in the eastern Mediterranean (Vroom 2016, p. 174).

Figure 6 Chalcis in Euboea. Engraving depicting the siege of 1688 (I. Karakostas collection) (Kontogiannis 2012, p. 64).



Legend Eleutheriou Venizelou street, walls found during rescue excavations Porta di Cristo, Upper Gate, Papanastasiou street Mardochaiou Frizi street, walls and tower found during rescue excavation 4-8, 10-11, 13-18. Towers. 9. Tower and Folk-art Museum 12. Rivellino di Burco 19. Pesonton Opliton square with Emir Zade mosque and underground cistern 20. Kotsou street	21. Agios Demetrios 22. Market square 23. Agia Paraskevi 24. Orionos street, rescue excavation 25. Fort of Euripos Bridge 26. Athanaton square with Porta di Marina and Rivellino di Mollini 27. Rivellino and Lower Gate 28. Paidon street, Ottoman mansion 29. Building known as 'House of the Bailo' 30. Stamati street	31. Ageli Goviou street 32. Kotsou Steet, Synagogue and Sultana Negrin plot 33. Isaiou and Trapezountiou streets, rescue exvation 34. Mitropoleos street, rescue excavation 35. Ottoman hamam 36. The Seirina Tower 37. Agios Nikolaos 38. Balalaion street, rescue excavation

Figure 7 Plan of Chalcis in Euboea combining the 1840 topographic plan and the modern settlement grid with the locations mentioned in the text (Kontogiannis 2012, p. 57).

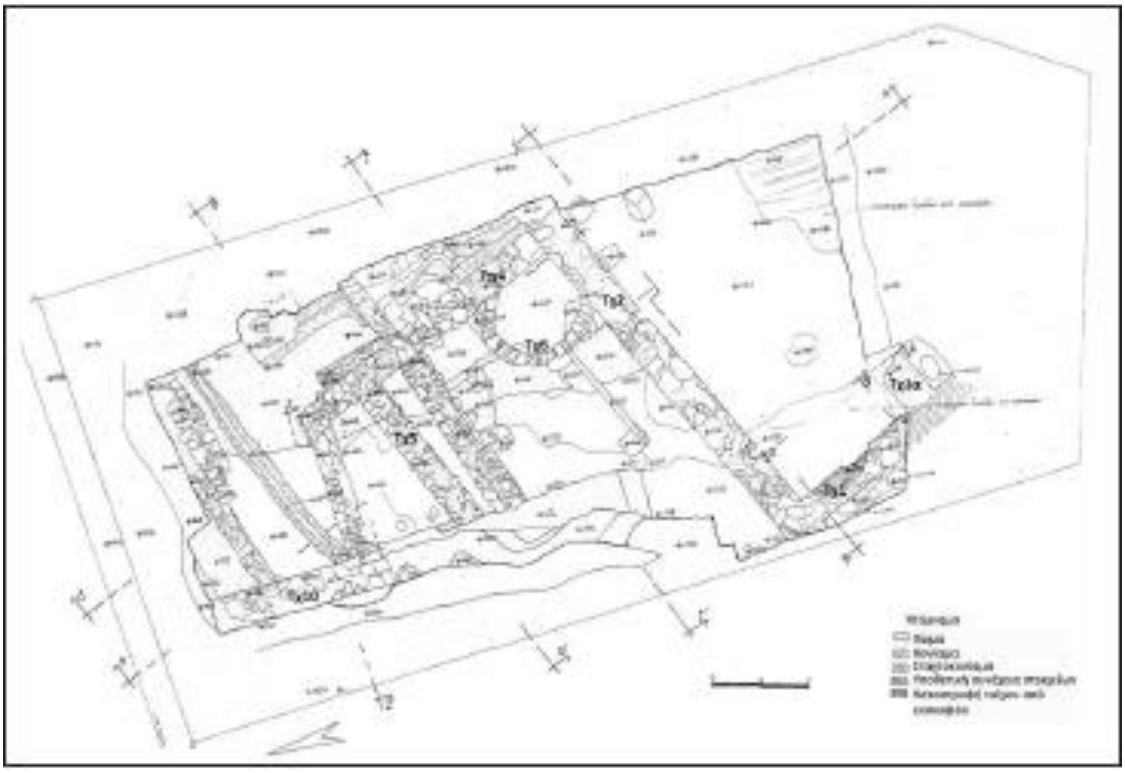


Figure 8 Map from the rescue excavation at Orionos Street 10 in Chalcis in Euboea (Αρχαιολογικόν δελτίον 62, 2007, pp. 590-620).

Figure 9 Rescue excavations in the city, Delivorias plot, Orionos street (Αρχαιολογικόν δελτίον 62, 2007, pp. 590-620).

Figure 10 Byzantine Athens (Chatzidakis 1981).

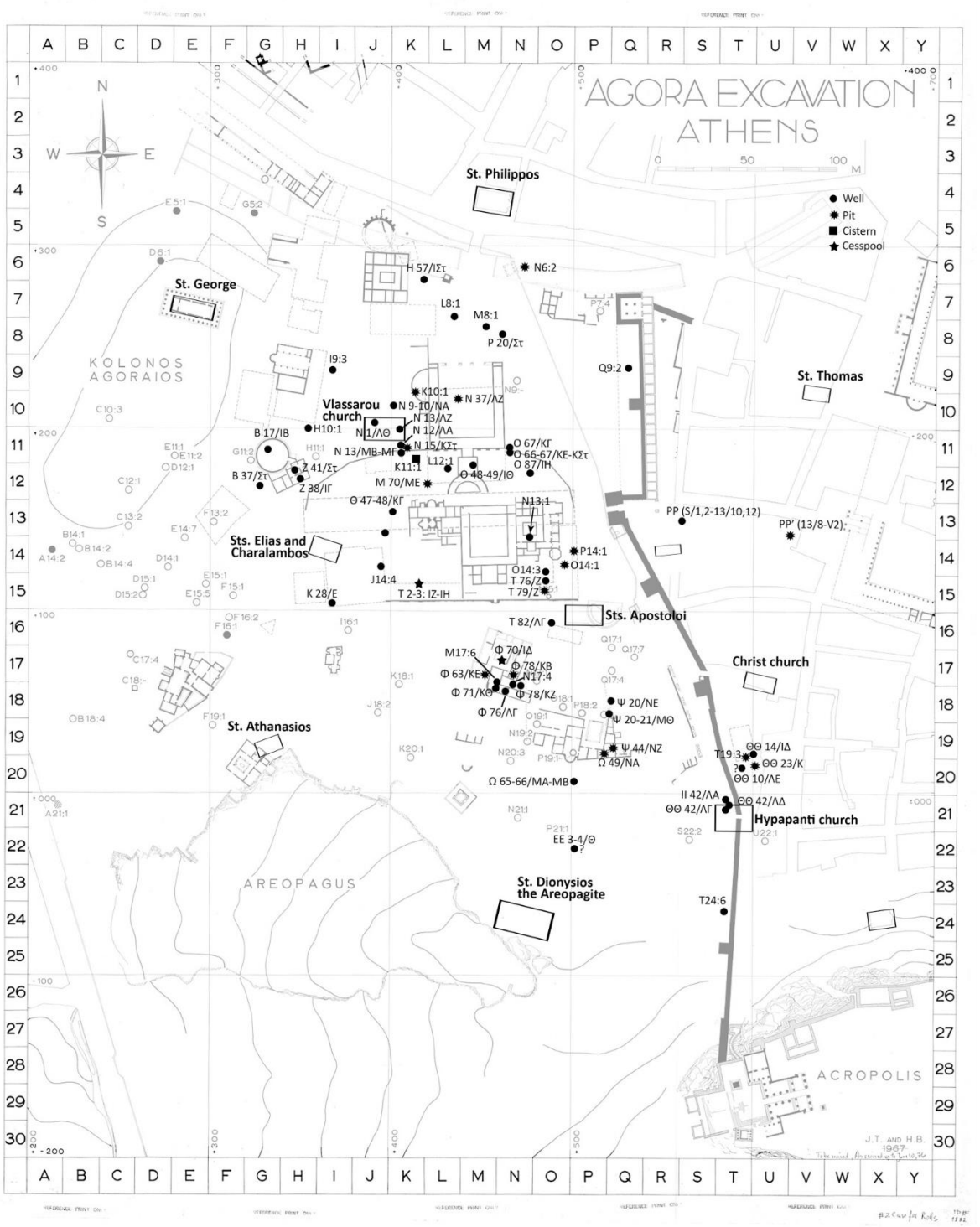
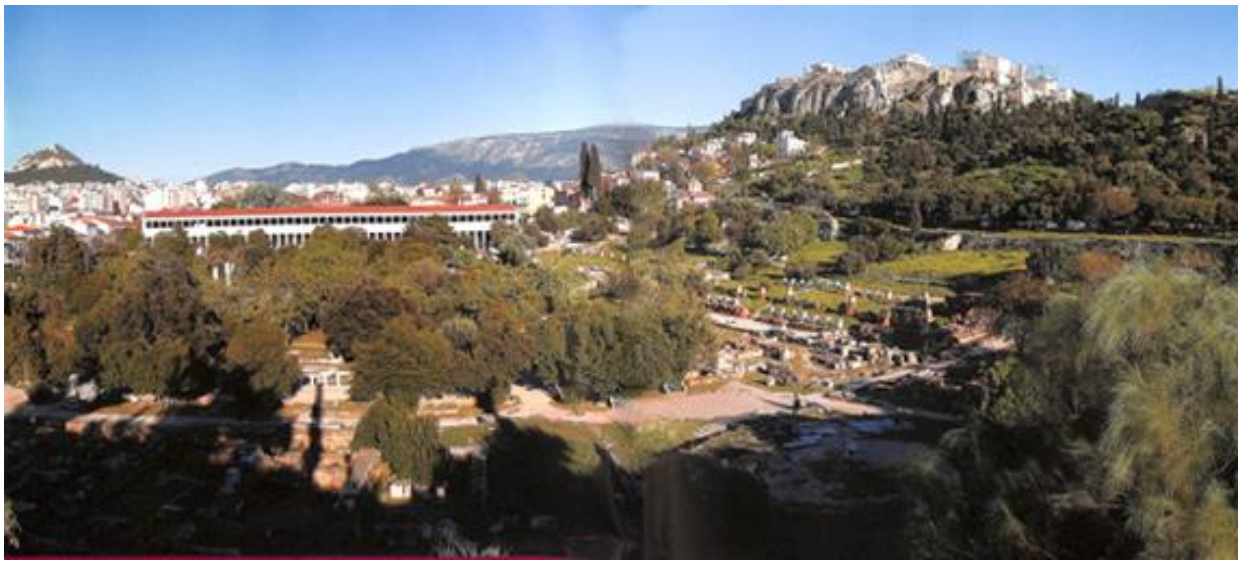
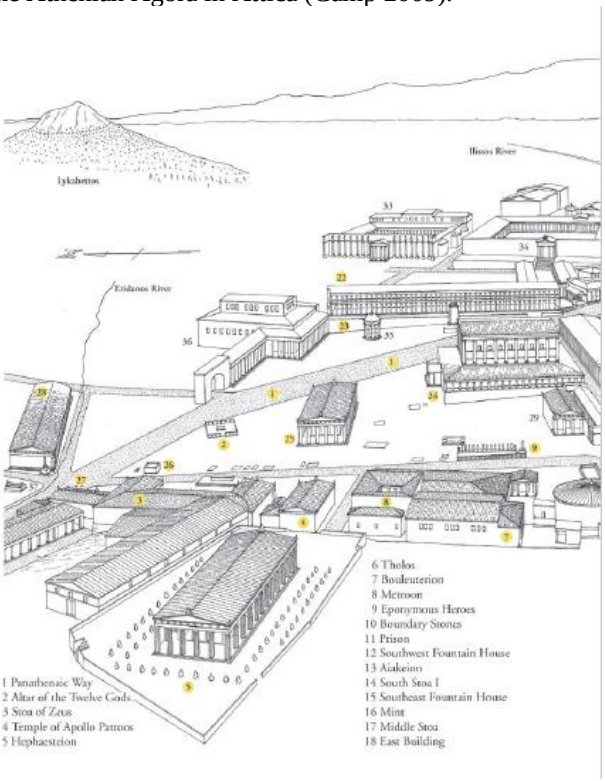
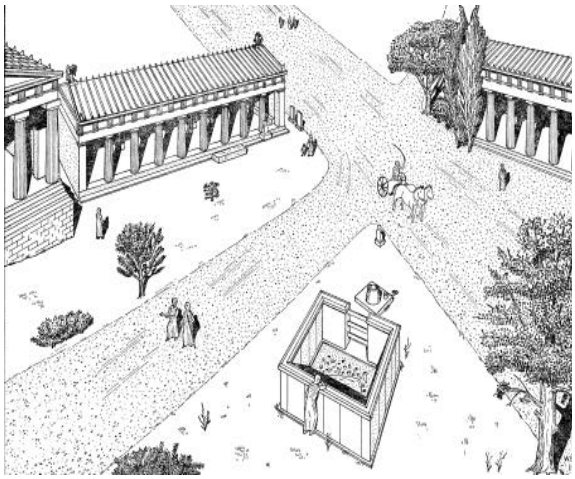


Figure 11 Map of the Athenian Agora in Attica with Ottoman contexts. Drawing J. Vroom and E. Tzavella. American School of Classical Studies at Athens, Agora Excavations (Vroom 2019, p. 182).



The Athenian Agora in Attica (Camp 2009).





Left: The Athenian Agora in Attica (Camp 2003, p.25). Right: Perpective View of Nortwest Corner of Agora, from Southeast (Camp 2003, p. 39).

Figure 12 The Athenian Agora in Attica (Camp 2003, p. 39).

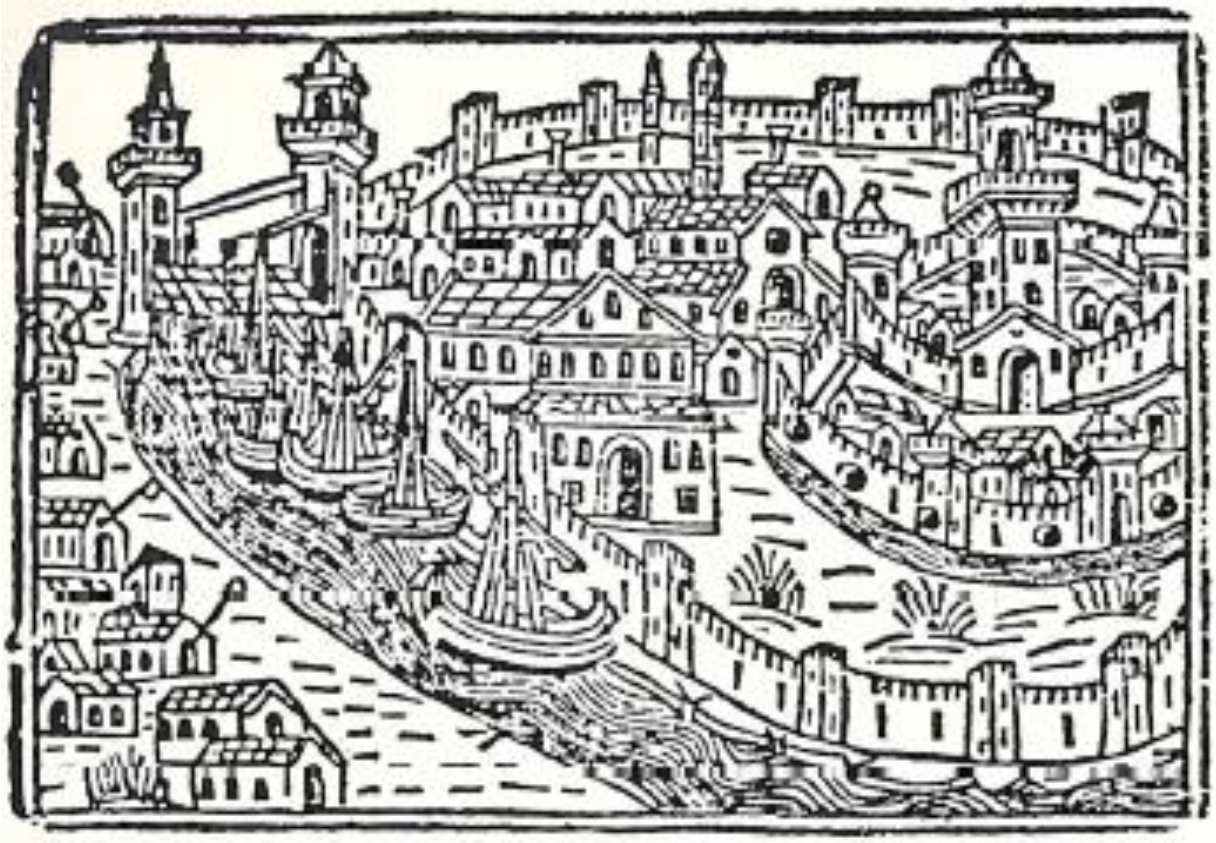


Figure 13 Depiction of the Medieval town of Mytilene in Lesvos. Engraving by Giacobo-Filippo da Bergamo about 1540 (Acheilara 1999, p. 13).

Figure 14 RAF aerial photograph (1916): the Castle of Mytilene in Lesvos and its surroundings (Williams 2009, p. 110).

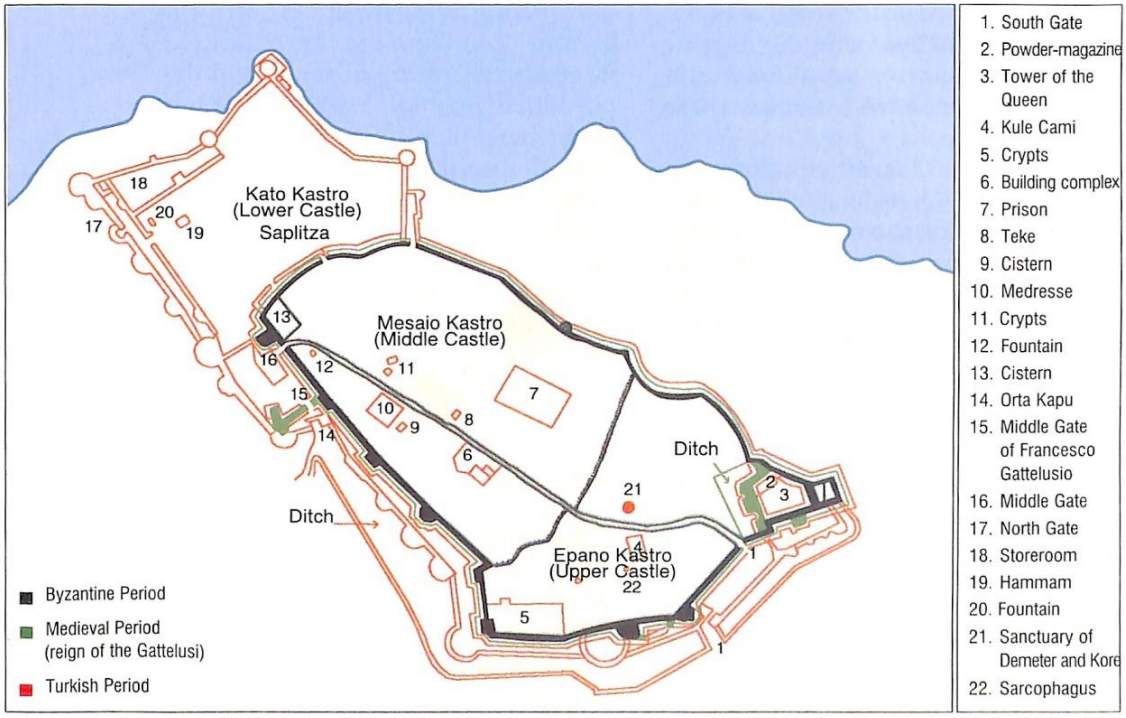
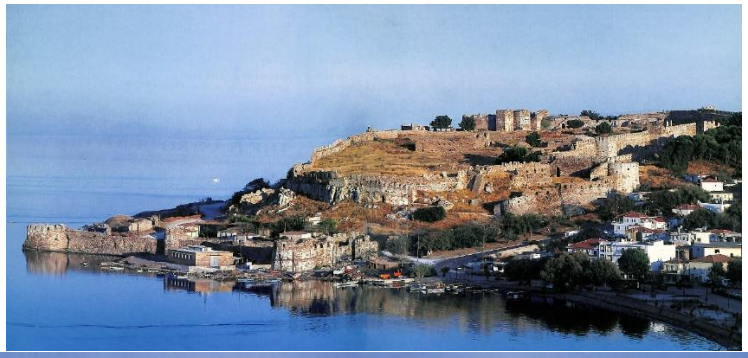


Figure 15 Map from the Castle of Mytilene in Lesvos (Williams 2009, p. 107).

View of the Kastro from the north-west in 1908 (Acheilara 1999, p. 7).

View of the Kastro from the south-west in 1908 (Acheilara 1999, p. 11).

Figure 16 The Castle of Mytilene in Lesvos, Greece.



View of the interior of the north-west side of the Mesaio Kastro, showing the gate communicating with the Kato Kastro.

Part of the Byzantine kernel of the Kastro with the earlier Middle Gate.

Turkish wall added to strengthen the south-west side of the Kastro.

View of the Kato Kastro from the north-east, showing the North Gate, the Turkish baths, and the Turkish fountain.

Left: Founder's inscription dating from 1373 in the Middle Gate. Right: Emblems of the Gattelusi and a Turkish inscription built into the South Gate of the Kastro.

Figure 17 The Castle of Mytilene in Lesvos, Greece (Acheilara 1999, pp. 15, 19, 23, 27, 31).

Figure 18 Rectangular kiln with a central pillar (Petridis 2013, p. 207).

Figure 19 Single-spaced rectangular kiln covered by arches. Delphi, workshops of the Southeastern Mansion (Petridis 2013, p. 208).

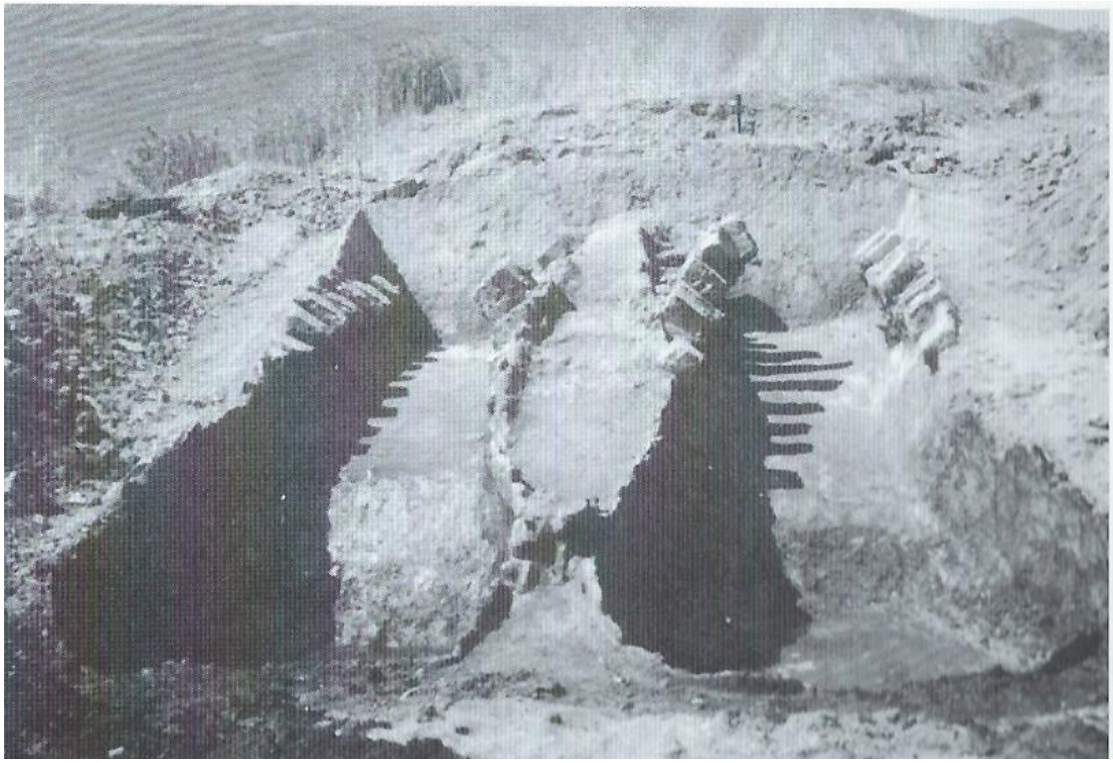


Figure 20 Rectangular kiln with parallel corridors divided by low walls. Kato Vassiliki, Aetolia (Petridis 2013, p. 208).

Figure 21 Rectangular kiln with a central and secondary corridor, Evropos, Kilkis (Petridis 2013, p. 209).

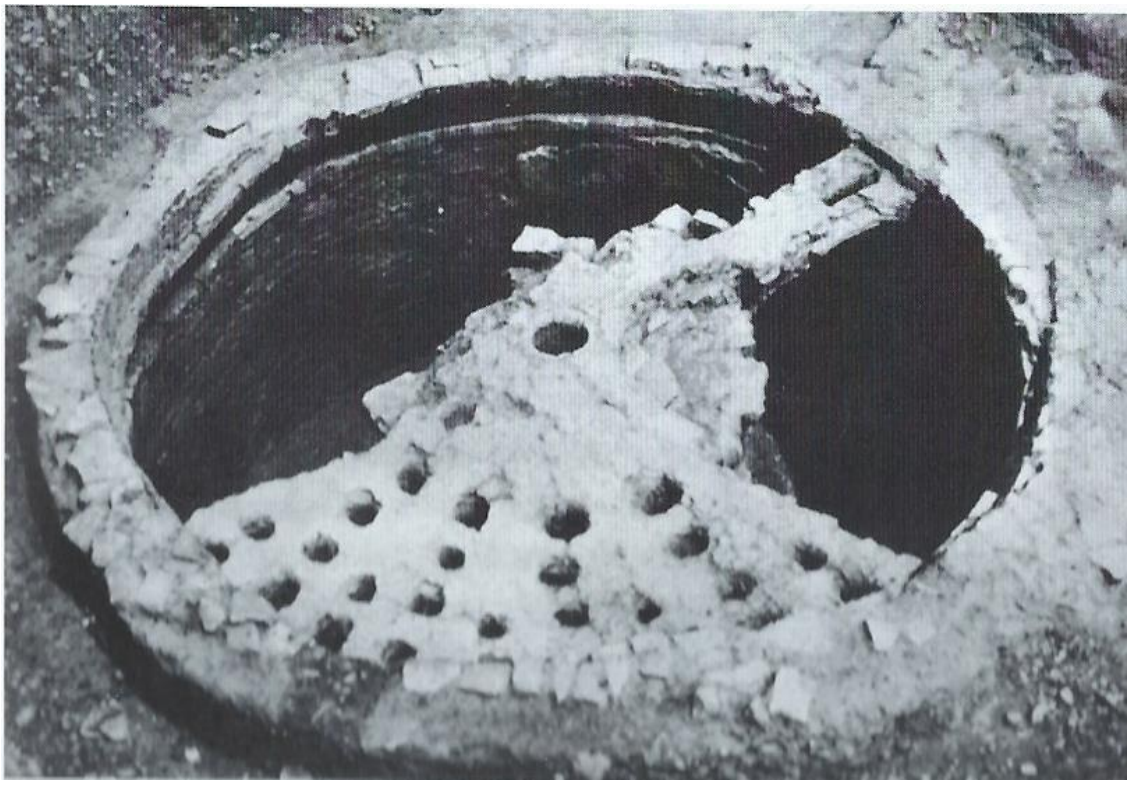


Figure 22 Round kiln with a central built prop. Elis, Western Peloponnese (Petridis 2013, p. 209).

Figure 23 Round kiln with a central built prop (Petridis 2013, p. 210).

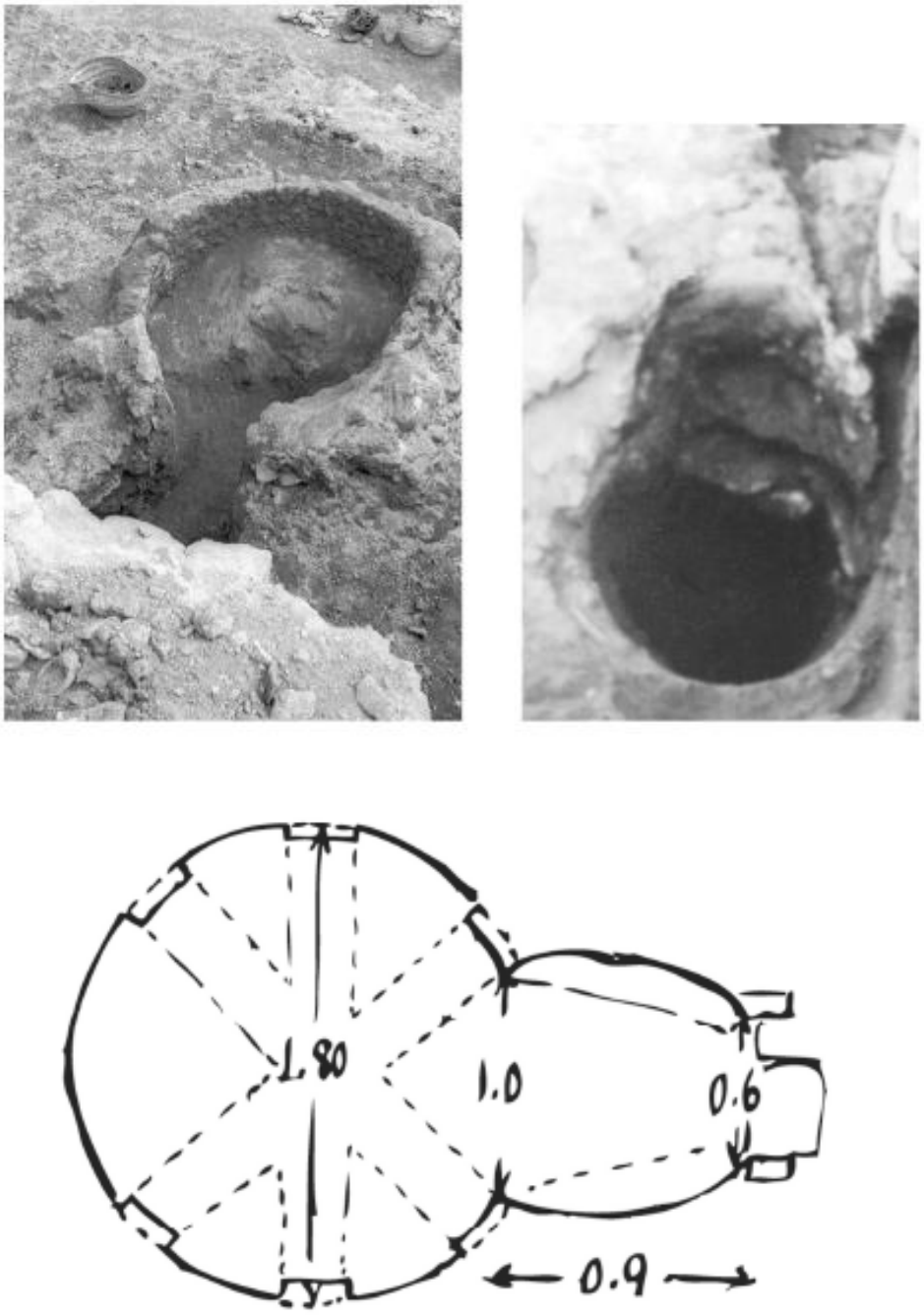


Figure 24 a, Kiln 1, looking southwest (photo from excavation notebook, section O, p. 393. April 9, 1935); b, Kiln 2, from above, looking north (photo from excavation notebook, section N, p. 792, February 22, 1936); c, Kiln 3 (after drawing from the excavation notebook in the Agora Excavation Archives, section N, p. 662). Photos Agora Excavations (MacKay 2015, p. 12)