Two Middle Bronze Age Pottery Kilns at Plasi, Marathon

Polina Kapsali

National and Kapodistrian University of Athens
polinakap20@hotmail.com

ABSTRACT

This paper publishes two pottery kilns excavated at Plasi in Marathon (Attica) in 2016-17 as part of the excavations of the Department of History and Archaeology, of the National and Kapodistrian University of Athens. The morphological and technological traits of these structures are discussed in detail and their relative dating is considered. A comparative examination of kiln construction technology is included with the aim of placing the kilns within the broader context of the late Middle Bronze Age. Special emphasis is given on the study of 'technological choices'. Integrated in their archaeological context, these choices are then discussed within the framework of broader societal changes, particularly in relation to the introduction and spread of new know-how at Plasi. It is argued that certain technological choices associated with one of the two kilns may relate to the interest of certain individuals in the Middle Bronze Age to produce and make use of distinctive pottery, at a time when material culture appears to become an increasingly important element of social discourse.

1. INTRODUCTION[1]

In 2016-17 two Middle Bronze Age pottery kilns were excavated at Plasi, Marathon, on the east coast of Attica, about 250m from the modern coastline. The site occupies a low hill between two streams which cross the Marathon plain and end up into the sea (**Fig. 1**).[2] The first excavations were conducted in 1969 by the Greek Archaeological Service, under the direction of Spyridon Marinatos and Efthimios Mastrokostas.[3] After a long period of abandonment, excavations at the site resumed in 2014, by the Department of History and Archaeology of the National and Kapodistrian University of Athens.

The prehistoric occupation at Plasi dates from the Final Neolithic to the end of the LBA. The earliest architectural remains at the site date to EH II and most likely belong to a settlement that existed there.[4] In the MBA, and especially in MH II, Plasi probably had grown into an extensive coastal fortified settlement. At least one large building of the 'megaron' type[5] was also in use in MH II. Because of its size, being the third largest known on mainland Greece during

1 Abbreviations used in this text: EH = Early Helladic; MBA = Middle Bronze Age; MH = Middle Helladic; LBA = Late Bronze Age; LH = Late Helladic.
2 Polychronakou-Sgouritsa *et al.* 2016, 305.
3 Marinatos 1970a, 5-6; 1970b, 153-55; 1970c, 349; Mastrokostas 1970, 14-21.
4 Polychronakou-Sgouritsa *et al.* 2016, 306; Information provided by Y. Papadatos.
5 For the problematic use of the term 'megaron' see Jung 2000. The term is, therefore, used in quotation marks.

Fig. 1. Map of Marathon: Plasi (1), Vranas (2), Arnos (3), Tsepi (4), Mound of the Athenians (5), Klopa (6). The streambeds are indicated with blue line.

Fig. 2. General view of the kilns and the surrounding structures: Kiln 1 (1), Kiln 2 (2), the MH 'megaron' (3), and cist tombs of the MH III-LH I cemetery (4-6). With dotted line is marked the trench of the kilns (Trench 008).

this period, it was described by Marinatos as a 'palace' (**Fig. 2:3**). Smaller buildings, dating also to the MBA, were located nearby.[6]

At the end of the MBA and the beginning of the LBA, the area of the 'megaron', and an extensive part of the settlement around it, were used as a cemetery as indicated by the presence of a number of tombs, mostly cist and built chamber tombs[7] (more on the cist tombs below) (**Fig. 2:4-6**). A settlement was re-established at the site in the LH IIIA-B phase, and the area became once more a cemetery in the Protogeometric period.[8]

2. EXCAVATION

Kiln 1 was first identified in 1969, but it was not fully excavated. The excavation appears to have reached only the upper part of Kiln 1, particularly the first approximately 0.10m of the combustion chamber (**Fig. 3b**).[9] We unfortunately do not possess any substantial information regarding the documentation and finds of the older excavations.

Re-discovered in 2014, excavation work resumed two years later with the removal of the fill around Kiln 1. Full excavation of both kilns took place in 2017 by the author, with the help of undergraduate students of the NKUA and workers. The recording of our excavation was based on stratigraphic units (SUs) which correspond to deposits, parts of deposits, and cuts. An SU number was not assigned to features discovered during the excavation (they are simply described as features). The SUs were used for the identification of strata, which in the post-excavation analysis were attributed to particular phases of use of the kilns and their wider area.

The main aims of the excavation were to understand the form, structure, technology and function of the kilns, date them, investigate their relationship to the neighbouring 'megaron', and establish a stratigraphic sequence in this area of the excavation. Dry sieving was employed extensively to recover small artefacts. Flotation samples were also taken with the aim of recovering organic materials. Following the completion of the excavation, the author studied the kilns as part of her Masters dissertation at NKUA. This article stems from this research.

3. KILN 1

3.1. KILN 1: EXCAVATION AND STRATIGRAPHY

In the course of our excavation, a number of contexts, namely deposits and cuts (with SU numbers) were identified. These contexts are associated with particular strata that appear to relate to specific 'phases' during and after the use of Kiln 1. The post-excavation analysis suggests the existence of five strata, which are described below in order of excavation.

Stratum I: post-destruction

This stratum is associated with SUs 0080101-05 and SU 0080108, namely a thick homogeneous layer that covered the area around the kilns (layer's thickness: ca. 0.35-0.45m). It covered the area south, east and north of Kiln 1, extending from the preserved upper part of the walls to

6 Polychronakou-Sgouritsa *et al.* 2016, 306-10.
7 Polychronakou-Sgouritsa *et al.* 2016, 310-1.
8 Polychronakou-Sgouritsa *et al.* 2016, 312-3; Theocharaki 1979, 90.
9 Marinatos 1970a, 5; 1970b, 154; Mastrokostas 1970, 17-8.

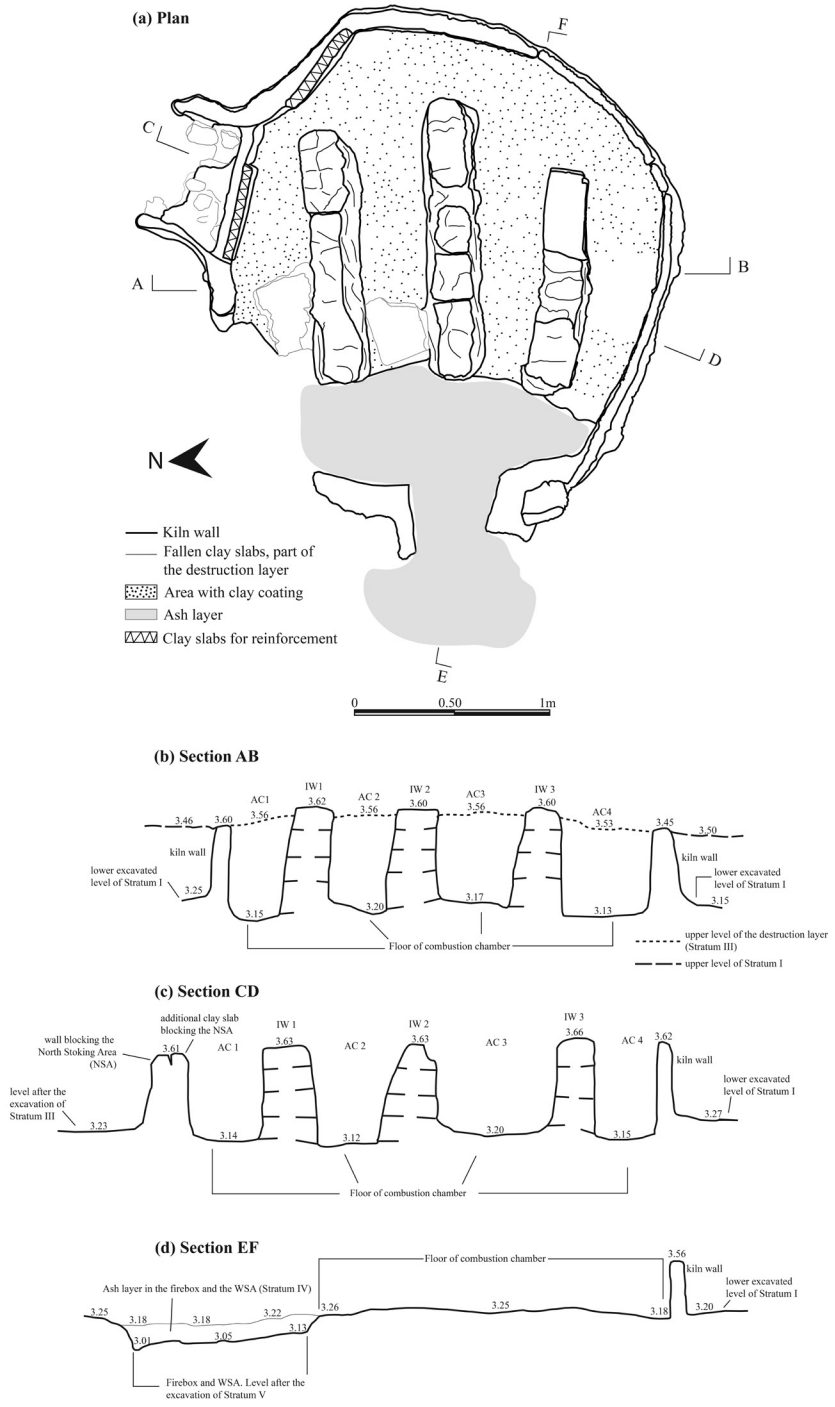

Fig. 3. Kiln 1 at Plasi. Plan and sections. Abbreviations: AC: airway corridor; IW: internal wall; WSA: west stoking area. Levels are measured in meters above mean sea level.

the bottom level of our excavation around this structure (**Fig. 3b**). The soil was brown-grey (Munsell 10 YR 5/3) mixed with stones of different sizes (0.10-0.20m) and sparsely attested. A great number of potsherds, some 25kg, were found in the south, east and north part of the layer (SUs 0080101-05) (**Table 1**). The diagnostic sherds here range from EH II to LH I. Moreover, the excavation of SUs 0080101-05 yielded animal bones, obsidian flakes and blades, seashells, two spindle whorls, an unidentified object made of spondylus gaederopus, an obsidian core and a stone mortar.

Table 1. Number and weight of non diagnostic and diagnostic sherds from the excavation of the kilns (Trench 008), arranged by Stratum, SU and date.

Stratum	SU	Non diagnostic	EH	MH-LH I	Post LH I
I	0080101	270 (1.88 kg)	30 (0.36 kg)	11 (0.63 kg)	
I	0080102	641 (6.27 kg)	59 (0.56 kg)	79 (0.86 kg)	
I	0080103	911 (7.36 kg)	77 (0.72 kg)	53 (0.81 kg)	
I	0080104-5	340 (3.87 kg)	53 (0.71 kg)	38 (1.85 kg)	
I	0080108	598 (5.95 kg)	51 (0.20 kg)	39 (0.8 kg)	3 (0.02 kg)
II	0080207	1 (0.02 kg)			
II	0080208	11 (0.1 kg)	2 (0.01 kg)		
III	0080107	7 (0.19 kg)			
III	0080109	23 (0.24 kg)	11 (0.08 kg)	3 (0.02 kg)	
III	0080110	40 (0.53 kg)	8 (0.14 kg)	7 (0.03 kg)	
III	0080111	7 (0.02 kg)	1 (0.01)	1 (0.01 kg)	
III	0080201	146 (0.84 kg)	26 (0.69 kg)	33 (0.18 kg)	
III	0080202	28 (0.17 kg)	10 (0.08 kg)	1 (0.01 kg)	
III	0080203	25 (0.23 kg)	3 (0.01 kg)	2 (0.04 kg)	
III	0080204	18 (0.11 kg)	11 (0.05 kg)	1 (0.01 kg)	
III	0080205	66 (0.35 kg)	11 (0.1 kg)	6 (0.03 kg)	
III	0080206	32 (0.21 kg)	7 (0.03 kg)	8 (0.03 kg)	
III	0080209	8 (0.04 kg)		2 (0.06 kg)	
IV	0080210	10 (0.04 kg)	1 (0.01 kg)		
IV	0080211	7 (0.03 kg)	3 (0.02)		
V	0080212	66 (0.64 kg)	25 (0.29 kg)	2 (0.02 kg)	
V	0080213	21 (0.30 kg)	10 (0.05 kg)	1 (0.05 kg)	
VI	0080301	46 (0.23 kg)	6 (0.01 kg)	1 (0.01 kg)	
VI	0080302	2 (0.01 kg)	1 (0.02 kg)	1 (0.01 kg)	
VI	0080303	4 (0.03 kg)	1 (0.01 kg)		
VI	0080304	9 (0.13 kg)	4 (0.02 kg)		
VI	0080305	10 (0.13 kg)	7 (0.04 kg)	2 (0.09 kg)	

Fig. 4. Kiln 1 after the removal of the destruction layer. Red arrow indicates the ash layer (Stratum IV) which covered the firebox and the West Stoking Area.

This layer continued west of the kiln, covering part of the West Stoking Area (WSA). In this area the layer was excavated as a separate unit, SU 0080108, which yielded a large number of pot-sherds (7kg) ranging from EH II to LH I (**Table 1**), but also some archaic sherds and animal bones.

It is not clear at present what might have caused the formation of this thick homogeneous layer, and its dating is uncertain. However, the presence of LH I sherds (as the archaic material could have also been intrusive) appears to provide us with a terminus post quem at least for the formation of this layer.

Stratum II: burial

A single burial was found inside Kiln 1. A cut (SU 0080207-8) was made in the destruction layer of the kiln, in its southeast part, in order to create space for the burial (find number: 00802071). The skeleton was found lying partly on the lower row of mudbricks of Internal Wall 3, and partly on a layer of mudbricks and clay lumps (SU 0080208) (**Fig. 4**). The excavation of SUs 0080207-8 produced twelve EH II and two MH sherds, dated on the basis of their surface treatment (**Table 1**).

The cut destroyed the eastern part of the internal wall. The fallen clay slabs and soil that covered the burial appear to be reused material from the original cutting of the destruction level. This interpretation is reinforced by the fact that the soil of the pit was not different, in terms of colour and texture, from the rest of the destruction layer of the kiln.

The burial can be dated after the destruction of the kiln (Stratum III). Given a LH I terminus ante quem for the formation of the destruction layer (more details below), the burial either belongs to this period or dates shortly thereafter.

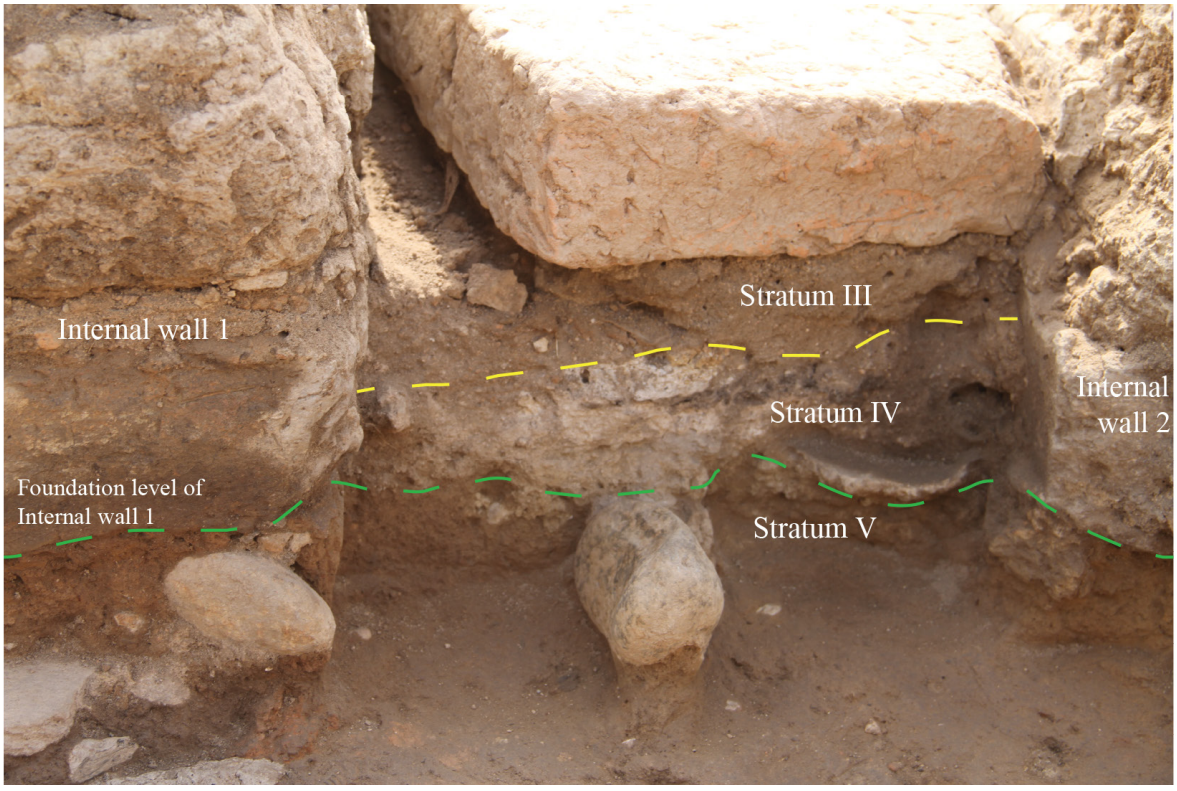

Fig. 5. Strata III, IV and V in the west part of Kiln 1, as seen from the firebox and the WSA.

Stratum III: destruction

This stratum is associated with the destruction of Kiln 1, namely the partial collapse of its structure. It constitutes, therefore, the terminus ante quem for the end of the use of the kiln. The destruction layer was excavated in several SUs (0080107, 0080109-11, 0080201-06, and 0080209).

The destruction layer covered the combustion chamber of the kiln: from the level where our excavation started, i.e. almost the uppermost point of preservation of the chamber walls to the clay floor (SUs 0080201-06) (**Fig. 3b**). It also covered the firebox and the West Stoking Area (WSA) (SUs 0080109-11). Part of this layer was also found in the North Stoking Area (NSA) (SUs 0080107 and 0080209). The soil was brown-orange (Munsell 7.5 YR 4/6) mixed with intact and broken clay mudbricks and lumps of clay.

The destruction layer consisted of material originating from the collapse of Kiln 1, i.e. the WSA, the chamber walls/superstructure, and possibly also the firing floor which would have separated the combustion from the firing chamber. The clay lumps and mudbricks preserve a length of 0.05-0.38m and a thickness of 0.04-0.10m. The excavation of this layer yielded mixed pottery, dating from EH II to LH I (**Table 1**), obsidian flakes and blades, and a small number of seashells. Animal bones also came to light with a larger concentration around the burial, in the southeast part of the kiln (more below).

The destruction of Kiln 1 should be dated before the burial of Stratum II. The latest pottery from the destruction layer, which is dated to LH I, provides a firm terminus ante quem for the destruction of the kiln.

Fig. 6. Kiln 1: combustion chamber (1), firebox (2), internal wall 1 (3), internal wall 2 (4), internal wall 3 (5), airway corridor 1 (6), airway corridor 2 (7), airway corridor 3 (8), and airway corridor 4 (9).

Stratum IV: Kiln 1, second phase of use

This stratum represents the second phase of construction and use of Kiln 1. An extensive layer of Stratum IV is a layer of ash covering the WSA and west firebox (SUs 0080210-11) (**Fig. 3a**: grey area). This ash layer was found under the kiln's destruction layer (Stratum III). Apart from the WSA and west firebox, it also covered a small area to the west of the WSA (**Fig. 3a:** grey area). The ash layer was thicker in the area west of Airway Corridor 3 and in the area of the WSA. It lied above the foundation level of the combustion chamber's internal walls (**Fig. 5**) and is, therefore, considered later than their construction. The excavation of this ash layer yielded EH II sherds (**Table 1**) and a few animal bones and seashells. Small lumps of clay were also discovered, probably intrusive from the kiln's destruction layer.

Stratum V: Kiln 1, the refurbishment

In the area of the firebox and in the WSA, under the ash layer, another layer (excavated as SUs 0080212-13) was identified (**Fig. 5**). This layer was very different in terms of colour and texture, since it had brown-yellowish colour (Munsell 7.5 YR 3/4) and contained relatively large pebbles in sparse distribution. It possibly extends in the eastern part of the kiln, below the clay floor of the combustion chamber, while the three internal walls seem to have been established on the top of this layer (**Fig. 5**). This is an important layer, as it reached the foundation level of the west part of the kiln's wall and of the two 'jambs' that form the WSA. It, therefore, appears to form a 'fill' associated with the kiln's refurbishment. This 'fill' formed a level upon which the refurbished parts of the kiln were founded (more details below). The excavation did not reach the bottom level of this layer (approximately 0.10m of this layer were excavated) (**Fig. 3d**), but

Fig. 7. Kiln 1. Internal wall 1 made of successive rows of horizontally placed mudbricks.

it yielded some animal bones, seashells and obsidian blades and flakes. The pottery from SUs 0080212-13 (**Table 1**), to which I return below, is important for the dating of the kiln's refurbishment and the second period of is use. It dates from EH II to MH III or MH III/LH I.

The above stratigraphical evidence clearly suggests the existence of an earlier phase of use, prior to the refurbishment of Kiln 1. However, the excavation failed to identify any deposits related to this earlier phase. More on the date of the construction and the earlier phase of use of Kiln 1 will be discussed below.

3.2. KILN 1: MORPHOLOGICAL CHARACTERISTICS, CONSTRUCTION TECHNIQUES AND PHASES OF USE

Kiln 1 is located ca. 5m southwest of the 'megaron' (**Fig. 2:1**). It consists of a roughly circular chamber, 2.30m in diameter (**Fig. 3**). The chamber is constructed by clay slabs placed vertically (**Fig. 6:1**), ca. 0.30-0.40m in width, ca. 0.60m preserved height and with an average thickness of 0.10m. The thinness of the slabs would not have been able to support the kiln's superstructure. It is more probable, therefore, that the chamber of the kiln had been dug in the earth and the clay slabs lined the walls of the pit.

The clay slabs are resistant to high temperatures,[10] but additional protection was offered by a coat of clay which covered the surface of the slabs facing the chamber. This coating was an important element in making the function of the kiln more effective. It operated as a heat

10 Prillwitz and Hein 2015, 354.

insulator, allowing for the good circulation of the air. It also filled in the gaps between the clay slabs and reinforced further the integrity of the chamber walls.[11]

The kiln is preserved at a height of 0.60m and consists of two parts, the combustion chamber to the east and the firebox to the west (**Fig. 6:2**). The combustion chamber has three roughly parallel internal walls oriented east-west (**Fig. 6:3-5**), which create four airway corridors (**Fig. 6:6-9**). The width of these corridors ranges from 0.25 to 0.40m and their length from 1.40 to 1.85m. The central internal wall (Internal Wall 2) is the longest (1.44m), while the other two are slightly shorter (Internal Wall 1: 1.24m; Internal Wall 3: 1.11m) (**Fig. 3a**). These internal walls are preserved up to ca. 0.50m in height and they are built of successive rows of mudbricks (**Fig. 7**). Some of these mudbricks as well as of those that might have originally been part of the superstructure contain potsherds,[12] i.e. non-plastic inclusions used to make them more resistant to thermal shock.[13]

All the surfaces of the combustion chamber, i.e. the internal walls, the floor and the outer wall, are covered by a yellowish clay coating (Munsell 7.5 YR 7/4). The floor is not entirely flat, bearing a gentle slope from the west to the east side of the combustion chamber (**Fig. 3d**).

The firebox in the west part of the kiln is the area where the lit-up fuel was placed in order to provide the combustion chamber with the needed thermal energy (**Fig. 6:2**). As already noted, this part was covered with an ash layer (**Figs. 3a, 3d** and **4**), which in turn was covered by the kiln's destruction layer. To the west of the firebox area, and particularly west of Airway Corridors 2 and 3, the outer wall of the kiln has an opening. At that point, two clay slabs, functioning as 'jambs' were set vertically to the wall of the kiln (**Figs. 3** and **6**). The north 'jamb', with a maximum length of 0.31m and thickness of 0.10m, is better preserved, while the south 'jamb' has been almost completely destroyed. This stomion-like formation was the West Stoking Area of the kiln (WSA), namely the area where the fuelling material was placed and lit up.

The WSA was covered by a thick layer of ash, which was a continuation of the ash layer found in the area of the firebox (**Figs. 3a and 3d**). After the fuel was introduced through the stoking area and lit up, it should have been pushed to the east into the firebox.

The clay floor of the combustion chamber did not continue in the firebox and the stoking area. The excavation underneath the ash layer of the firebox revealed a layer of brown-yellowish colour (Stratum V), containing relatively large pebbles (**Fig. 5**). This layer probably extended in the eastern part of the kiln, below the clay floor of the combustion chamber. It was tentatively interpreted as a fill originating from the refurbishment of the kiln sometime in MH III or MH III/LH I.

In the northern part of the kiln, a second stoking area was found (NSA) (**Fig. 3a**), 0.65m long and 0.30m high, quite similar to the WSA. It was also equipped with two vertically placed clay slabs functioning as 'jambs', approximately 0.28-0.33m long, placed in the middle of the north part of the kiln's wall. This stoking area, however, unlike its western counterpart, did not communicate with the inner part of the combustion chamber, but was built with wide clay slabs blocking the communication channel between the two parts (**Figs. 3a** and **3c**). It is interesting to note that this area was not only blocked by a single row of clay slabs, but by two since an additional clay slab (almost 0.40m wide and 0.50m long) had been placed in front of the former (**Figs. 3a** and **3c**). Besides, a second clay slab of the same size had been placed on the inner surface of the northeast part of the kiln (**Fig. 3a**). Both may have had a retaining function.

---

11 Prillwitz and Hein 2015, 358.

12 Most of the potsherds are non-diagnostic. Those that are diagnostic (e.g. from a saucer) are of an EH date and provide a terminus post quem for the dating of the construction of the slabs and the kiln (post-EH II).

13 Prillwitz and Hein 2015, 354.

Fig. 8. The North Stoking Area of Kiln 1, as seen from the north. Four mudbricks block the stoking area.

Fig. 9. Kiln 1 at the start of the excavation. A row of stones is visible on the northeastern part of the kiln.

Inside the NSA, four mudbricks, three placed horizontally in the west part and one placed vertically in the east part (**Fig. 8**) were covering its full length. Compared to the mudbricks that form the kiln's internal walls, they are crumblier and have a more intense orange colour. These mudbricks were possibly placed there, in order to support the NSA during the refurbishment of the kiln and to prevent the also refurbished kiln's superstructure from collapse.

The lack of any opening or communication channel between the combustion chamber and the NSA suggests that the latter had gone out of use when the WSA was formed. This is further corroborated by the orientation of the airway corridors, which are vertical to the mouth of the NSA (**Fig. 3a**), and they would have blocked the hot air if this was coming from the NSA. The above evidence suggests that the NSA had been the original stoking area of the kiln, which had gone out of use at a later phase.

Outside the northeast part of the kiln a row of stones was placed in such a way as to form a 'wall' surrounding the exterior of the kiln (**Fig. 9**). This feature, which is 2.10m. long x 0.20m wide x 0.10m high was probably the remnants of a stone socle that surrounded the entire kiln at ground level, in order to provide a firmer support to its superstructure.

On the basis of the above evidence, Kiln 1 appears to have had two phases of use. The first phase involves the construction of the kiln's wall (**Fig. 10**). During our excavation it was not possible to identify different construction phases concerning this wall.[14]

The NSA (**Fig. 10**) appears to be the area where the fuel was placed and lit up during the first phase of use of the kiln. There is no evidence regarding the form of the combustion chamber's interior during this phase of use.

As the kiln was refurbished (second phase of use), the original stoking area (NSA) was blocked and a new one was created to the west (WSA). The west part of the kiln's wall was partly destroyed in order to create a new opening and accommodate the WSA (**Fig. 10**). The original floor of the combustion chamber was removed, a fill of soil and pebbles (Stratum V) was laid and three new internal walls were founded on the top of that 'fill'. For obvious reasons, related to the circulation of the hot air, the internal walls were built parallel to the orientation of the new firebox, i.e. following a west-east axis. The final operation of this refurbishing activity was the formation of a new clay floor inside the combustion chamber. Its upper surface was formed on a higher level than both the foundation level of the internal walls and the wall of the kiln[15] (**Figs. 3b** and **3c**), clearly suggesting that the clay floor was the last part of this refurbishing activity. The new floor covered the entire combustion chamber, but it did not cover the west part of the kiln, i.e. the area of the WSA and the firebox, where the layer of soil and pebbles (Stratum V) was not covered by clay.

The use of the WSA and the firebox during that phase is indicated by the ash layer (Stratum IV: SUs 0080210-11) (**Fig. 10**) which was found on top of the aforementioned fill and under the kiln's destruction layer. The ash layer laid on a higher level than the foundation level of the internal walls and, therefore, was formed after their construction.

In the north part of the kiln, the NSA was abandoned and blocked. The clay slabs of the new wall blocked the communication channel between the NSA and the combustion chamber of the kiln. Further support was achieved by (a) placing two wide clay slabs on the inner surface of the blocking, creating a kind of double wall (**Fig. 10**), and (b) placing four large mudbricks in the NSA (**Fig. 8**).

---

14 It is possible that the wall of Kiln 1 might have been more angular in the first phase and similar to that of Kiln 2. The angle preserved in its northeast part, which belongs to the first phase, reinforces this idea (Fig. 10).

15 Our excavation did not reach the foundation level of the kiln wall or of the internal walls and the lower level of the floor in the combustion chamber.

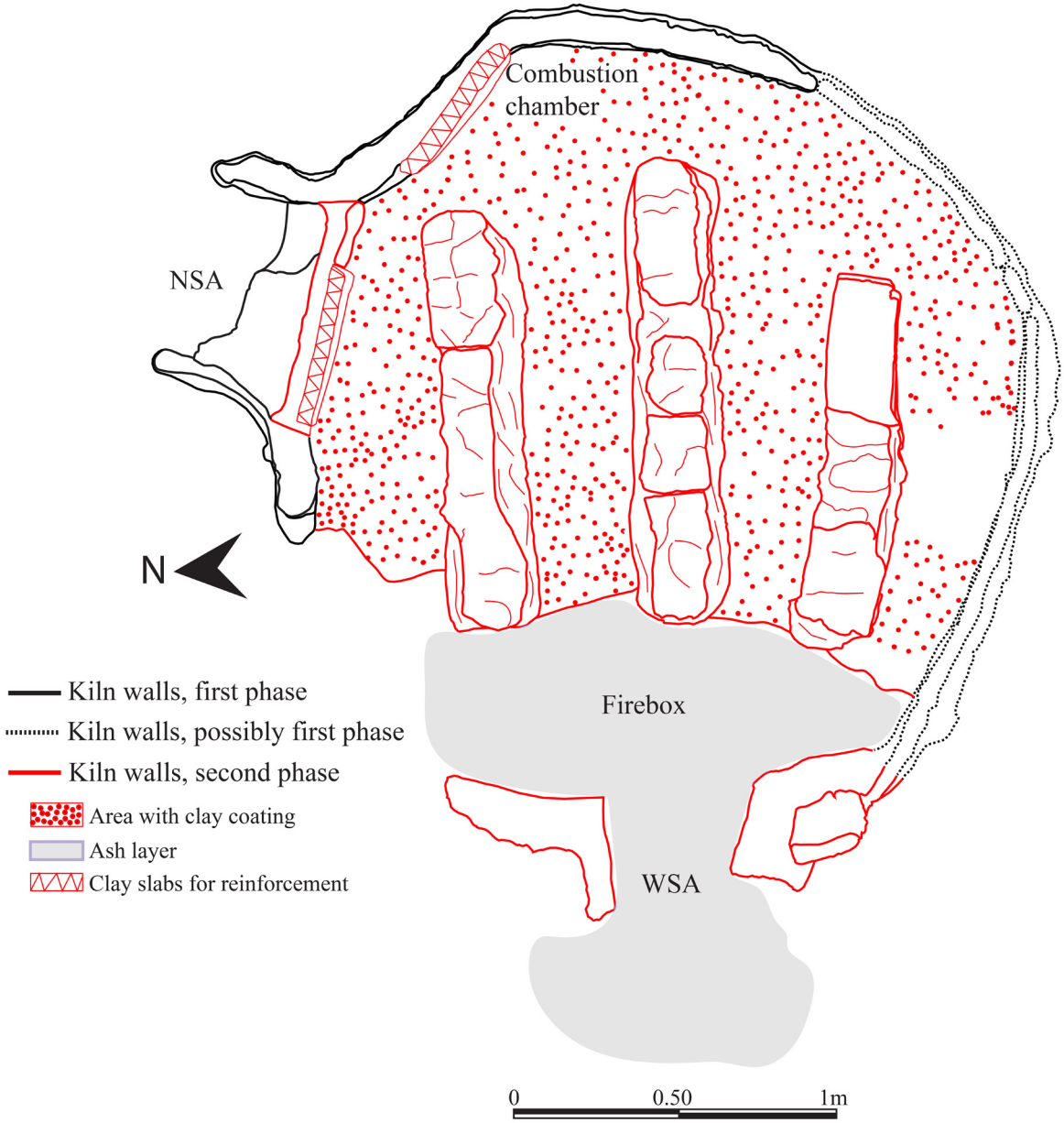

Fig. 10. Kiln 1. Phases of use.

The excavation of the kiln did not produce any remains of a perforated firing floor. The function of such firing floors is twofold; first, to divide the combustion chamber from the firing chamber and at the same time connect the two by allowing the circulation of hot air from the firebox through the combustion area to the firing chamber;[16] second, to function as a floor on top of which the unfired pots were placed. On this basis, the lack of remains of a perforated floor does not mean that Kiln 1 did not have a firing floor originally. The presence of internal walls actually presents strong evidence in support of the existence of some kind of a firing floor.[17] Besides, the presence of a firing floor of some sort is a reasonable hypothesis, because, if the pots had been placed on the floor of the combustion chamber, they would have been ex-

16 Whitbread and Dawson 2015, 335.

17 Examples where internal walls exist alongside a perforated floor in MBA kilns are listed below in the discussion.

posed to highly variable and extreme firing temperatures which would have resulted in uneven firing, misfiring or even breakage of pots, particularly those placed closer to the WSA.

If the kiln had a firing floor, it would have been destroyed first, as the materials fallen from the superstructure of the kiln would have damaged it. Therefore, part of the fallen material found in the combustion chamber may actually come from a firing floor. Any firing floor may have also been disturbed by the burial, which was made in the destruction layer of the combustion chamber after the abandonment of the kiln (more on the burial below). Yet, we were unable to observe any perforations in the extant fragments. It is, however, possible that the firing floor of the kiln may have consisted of a different form, with large clay slabs/mudbricks placed horizontally, one on top of the other, and in such a way so as to allow the formation of open spaces of quadrilateral shape.[18] Two large, largely intact, mudbricks, which were found almost on the floor of the combustion chamber, may come from the firing floor of the kiln (see e.g. **Fig. 3a**). The first, lying on Airway Corridor 1, preserves a maximum length of 0.38m, a maximum width of 0.28m and a thickness of 0.9-0.10m, while the other slab, found on Airway Corridor 2, preserves a maximum length of 0.32m, a maximum width of 0.26m and a thickness of 0.8m. These mudbricks could therefore have been used to span the internal walls over the airway corridors and create a flat floor for the placement of the pots. A final alternative explanation is that the kiln was equipped with a temporary firing floor, which was re-built before every firing episode. For that reason, artisans could use parts of large pots, clay or stone slabs, large clay plates or large clay rings, which were removed after the end of the firing process. These materials could not only span the internal walls, but also leave openings for the circulation of air, if placed in an appropriate way. Some of the clay slabs found inside the chambers of the kiln could have been part of a temporary firing floor.

Although there is no direct evidence regarding the kiln's superstructure, namely its roof, a considerable part of the fallen material found in the destruction layer may actually belong to it. Whitbread and Dawson mention two types of kiln superstructures. In the first case, the chamber of the kiln is a cylinder, which is covered by a temporary cover, usually made of clay. In the second case, kilns have a domed roof. On the upper part of the roof there are holes which allow the circulation and control of air.[19] In Kiln 1 at Plasi, a gentle inwards inclination can be observed on the chamber wall which could indicate the presence of such a domed roof. Unfortunately, the poor state of preservation of this part of the kiln does not allow us to reach any safe conclusions.

3.3. KILN 1: THE BURIAL

During the excavation of the destruction layer in the east part of Airway Corridors 3 and 4, in the southeast part of the combustion chamber of the kiln, an inhumation was found in contracted position, lying on the left side (**Figs. 4** and **11**).[20] The skull was to the south and the legs to the north. To perform the burial, a pit (Stratum II) had been dug in the destruction layer of the kiln's chamber (Stratum III). The skeleton was found lying partly on the slabs of Internal Wall 3 and partly on fallen clay slabs originating from the kiln's destruction layer (SU 0080208) (**Fig. 11**). The digging of the burial pit had destroyed the eastern part of the internal wall (**Figs. 4** and **11**). As mentioned above, the burial postdates the abandonment of the kiln and its (at least partial) collapse.

18 See e.g. Swan 1984, 64, 69, fig. IX, 80, fig. XX, fig. XXI.

19 Whitbread and Dawson 2015, 335.

20 The skeletal remains are currently studied by Dr Eleanna Prevedorou and will be published elsewhere.

Fig. 11. The burial in Kiln 1.

Fig. 12. Clay spindle whorl found in close proximity to the burial of Kiln 1.

On the top of the skull of the skeleton, an animal's long bone was found (**Fig. 11**),[21] perhaps originating from the destruction layer that was covering the burial. In the area of the arms, but not in direct contact with the skeleton, a clay spindle whorl was found (**Fig. 12**). Although it may also have originated from the destruction layer, the fact that it was found surrounded by 4-5 limpets may suggest an intentional deposition of offerings associated with the burial. The spindle has a conical shape and is 4.1cm high (diam. 1.5-4 cm; diameter of perforation: 1cm). No other finds were found in direct association with the burial. The skeleton was covered by material of the kiln's destruction layer, which appears to have been reused for the purposes of covering the burial once the funeral was over.

21 The animal bones are currently studied by Dimitris Filioglou and will be published elsewhere.

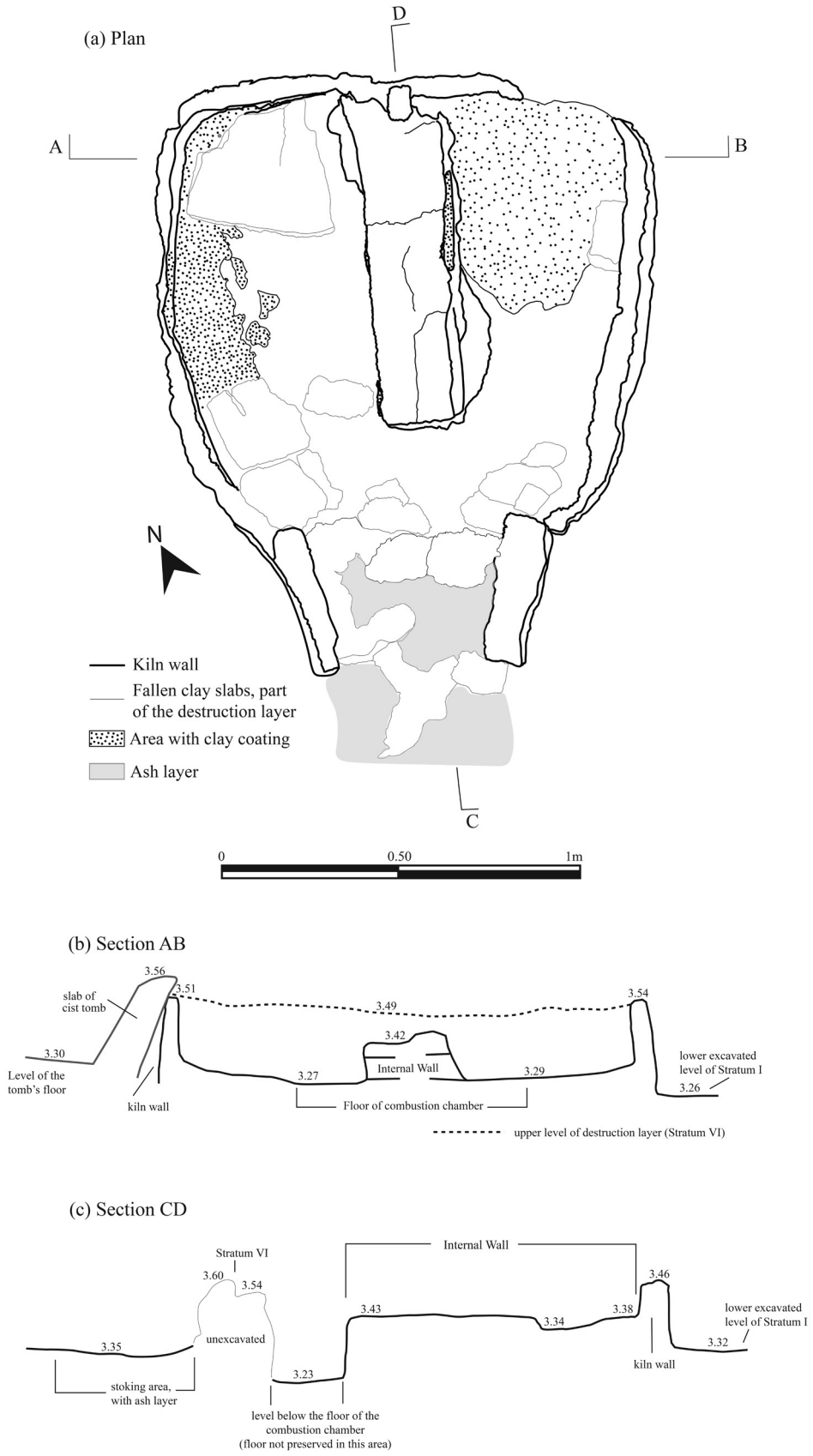

Fig. 13. Kiln 2. Plan and sections. Levels are measured in meters above mean sea level.

4. KILN 2

4.1. KILN 2: EXCAVATION AND STRATIGRAPHY

A number of contexts, namely deposits (with SU numbers) were identified in the excavation of Kiln 2. These contexts are associated with particular strata that relate to specific 'phases' during and after the use of Kiln 2. The post-excavation analysis suggests the existence of three strata, which are described below in order of excavation.

Stratum I: post-destruction

Stratum I was the same as the one observed in the excavation of Kiln 1. It is associated with SUs 0080101-05 and 0080108. This post-destruction layer covered the area around the kiln, extending from the preserved upper part of the walls to the bottom level of our excavation around this structure. The soil was brown-grey (Munsell 10 YR 5/3), mixed with stones of different sizes in sparse distribution (for a description of the finds, an interpretation and dating of this stratum, see Kiln 1 above).

Stratum VI: destruction

Stratum VI is associated with the destruction of Kiln 2, namely the collapse of its structure and is, therefore, later than the use of the kiln. The destruction layer was represented in the course of our excavations by SUs 0080301-05.

The destruction layer covered the kiln's combustion chamber, from the uppermost preserved part of the chamber wall (also the upper level of our excavation) down to its clay floor (**Fig. 13b**). It also covered the stoking area and the area immediately to the south (**Fig. 13a**). The soil was brown-orange (Munsell 7.5 YR 4/6) and contained intact and broken clay mudbricks and lumps of clay. The mudbricks have a length up to 0.37m and a thickness up to 0.10m.

Stratum VI is associated with the collapsed parts of Kiln 2. However, it also contained some finds that may have been discarded in the kiln, possibly during or soon after its collapse. These finds include an obsidian core with evidence of knapping for the production of blades and traces of reuse on one side (in SU 0080302),[22] a stone pestle, a mortar and a murex shell (in SU 0080305). Another stone mortar was found in the southeast area of the kiln, inside the destruction layer that covered the area outside the kiln (in SU 0080305).

The potsherds discovered in this layer are dated between EH II and MH II-III (**Table 1**). A small amount of animal bones, seashells, obsidian flakes and blades were also discovered in this layer. Given the evidence above and the existence of MH III/LH I tombs in close proximity to the kiln (more below),[23] it is possible that Kiln 2 also went out of use some time in MH III or MH III/LH I.

Stratum VII: phase of use

The use of the kiln is associated with an ash layer that covered the firebox at the southern part of the kiln (**Figs. 13a** and **13c**), in and around the stoking area, and under the destruction layer of Kiln 2 (Stratum VI). The ash layer was not excavated. Although there are no potsherds which

22 One of its sides appears to have later been used as a pestle.

23 Polychronakou-Sgouritsa *et al.* 2016, 310-1.

can date this phase of the kiln, a MH III or MH III/LH I terminus ante quem for the construction and use of Kiln 2 is considered possible, given its possible destruction in the aforementioned time range.

4.2. KILN 2: MORPHOLOGICAL CHARACTERISTICS, CONSTRUCTION TECHNIQUES AND USE

Kiln 2 (**Fig. 13a**) is located 1.50m to the south of Kiln 1 (**Fig. 2:2**). The two kilns present similarities in their construction. The wall of the combustion chamber consists of vertically placed wide clay slabs, as in the case of Kiln 1 (**Fig. 14**). These slabs are 0.30-0.40m wide and have a thickness of 0.08m. The entire length of the wall is preserved, apart from a small missing segment in the northeast. The chamber has a trapezoidal plan with rounded corners (1.30m x 1.20m) (**Fig. 13a**). The rounded corners of the kiln help with the effective circulation of the hot gases inside the chamber.[24] The inner surface of the wall is coated with clay, which, as in the case of Kiln 1, would contribute to the stabilization of the clay slabs and their protection from high temperatures.[25]

As in the case of Kiln 1, it is possible that the chamber of Kiln 2 was constructed inside an earthen pit, as evidenced by the thin walls, which would require extra support in order to keep the weight of the superstructure in place.

In the centre of the combustion chamber there is an internal wall, 0.84m long (**Fig. 13a**). This wall is built of rows of horizontally placed mudbricks, of which only two rows are preserved. Unlike the free-standing internal walls of Kiln 1, in Kiln 2 the internal wall abuts the kiln's north wall (**Fig. 13a**). Similar to the internal walls in Kiln 1, this feature is also covered with clay coating. The coating extends beyond the preserved part of the internal wall suggesting that this feature originally consisted of more rows of bricks (**Fig. 14**).

The floor of the combustion chamber is also clay coated (**Fig. 13a**). This coating appears to have been made in a similar manner to that found on the floor of the combustion chamber in Kiln 1. The partial collapse of the north part of the kiln's wall indicates a thickness of 0.05m for this clay coating. The upper surface of the chamber's floor is set at a higher level than the foundation level of the kiln's wall (which our excavation did not reach) (**Fig. 13b**). The eastern part of the floor, i.e. to the east of the internal wall, has a more even surface as opposed to the slightly uneven surface of the western part (**Fig. 13b**). The clay coating that covers the floor also continues on the chamber wall.

The partial collapse of the north part of the wall allowed for the identification of a second clay surface lying underneath the combustion chamber's clay floor which is about 0.07m thick. This clay surface probably represents a sub-layer, on which the clay slabs of the kiln's wall had been founded.

The stoking area was at the southern side of the kiln (**Figs. 13a** and **15**). It consisted of two vertically-set clay slabs. The excavation inside and around the stoking area revealed the kiln's destruction layer (Stratum VI). This fallen material probably originates from the upper walls of the stoking area as well as from the kiln's parts that have collapsed. Under this layer of collapsed material, and further to the south of the stoking area, there was the ash layer of the firebox (Stratum VII), which was not excavated.

24 Prillwitz and Hein 2015, 354.
25 Prillwitz and Hein 2015, 358.

Fig. 14. The eastern part of Kiln 2 during the excavation of the destruction layer (Stratum VI). The black arrow indicates the clay coating covering the surface of the internal wall.

Fig. 15. Kiln 2 after the excavation of the destruction layer.

An air/communication channel existed between the stoking area and the combustion chamber of the kiln, facilitating the circulation of the air from the former to the latter. During the excavation, however, it was not possible to remove the fallen clay slabs that blocked the opening (**Figs. 13a** and **13c**), because this could cause the collapse of the lintel. The above suggests that, as in Kiln 1, the firebox was separated from the combustion chamber area, something reinforced by the complete absence of ash on the floor of the combustion chamber.

As in Kiln 1, there is no evidence for a perforated floor, and none of the clay slabs found in the destruction layer bear any traces of holes. As already suggested for Kiln 1, a firing floor, possibly temporary, might have been used, consisting of slabs or other types of clay artefacts. One large clay slab that can probably be part of a firing floor was found lying on the floor of the kiln's combustion chamber. This slab preserves a maximum length of 0.37m, a maximum width of 0.31m, a thickness of 0.10m, and was abutting the northwest part of the kiln's wall (**Fig. 13a**).

As in the case of Kiln 1, there is no clear evidence for the superstructure. However, part of the destruction layer probably originates from its superstructure, which seems to have been made of clay and mudbricks.

5. THE POTTERY FROM THE KILNS AND THE SURROUNDING AREA

Among the pottery excavated from the area, 104 fragments were chronologically diagnostic in terms of both surface treatment and shape. The diagnostic sherds were divided in two categories: (1) in terms of both surface treatment and shape and (2) in terms of surface treatment only. The latter sherds were dated in broad chronological horizons, and only the sherds of the former category were dated more accurately, due to the combined information by both the surface treatment and the shape. The following analysis aims to present briefly the different chronological phases identified in the material found inside and around the kilns. Detailed descriptions of the selected diagnostic sherds can be found in the appendix, while drawings and photos are in Figures 18-20.

5.1. EARLY HELLADIC II

The earliest pottery dates to EH II and is attested in almost every stratum identified in the trench, namely in the area around the kilns (Stratum I), the cut of the burial (Stratum II), the destruction layer of both Kiln 1 (Stratum III) and Kiln 2 (Stratum VI), the ash layer that relates to the second phase of use of Kiln 1 (Stratum IV) and the fill associated with its refurbishment (Stratum V) (**Table 1**).

The vast majority of the pottery fragments identified originate from open vessels, namely saucers, flat-based as well as ring-based (pedestalled) (**P4, P16**, **P33**), sauceboats (**P1**, **P2, P27**, **P28**), bowls with inturned rims (**P3**, **P29**, **P31**, **P32**), and basins, including those with inturned (**P17**) and often thickened rims (**P5, P26**) (**Tables 2-4**).

The surface treatment of the EH II pottery fragments comprises several different techniques. Usually, surfaces are covered with slip which, after firing, acquire either dark (ranging from red to dark brown) (**P1**, **P2**, **P4**, **P31**), or light colour (ranging from buff to yellow) (**P5**, **P16**, **P28**, **P33**). Burnished (**P17**, **P26**, **P29**, **P32**) as well as plain surfaces (**P3, P27**) are also common. Some fragments that seem to originate from basins preserve plastic decoration (**P3**) (**Tables 2-4**).

Table 2. Diagnostic sherds identified on the basis of surface treatment and shape from the combustion chamber of Kiln 1 (Stratum III: SUs 0080201-6).

Surface treatment	Sherds	Shapes identified
		EH
Dark slipped	5	Saucer, sauceboat, bowl with inturned rim
Light slipped	3	(Pedestalled) saucer, sauceboat
Burnished	6	Saucer, sauceboat, bowl with inturned rim, basin
Plain	2	Basin, bowl with inturned rim
TOTAL	16	
		MH
Dark burnished	6	Carinated bowl, pedestaled bowl, small bowl/cup
Red burnished	1	Carinated bowl
TOTAL	7	
		MH III/LH I & LH I
Light burnished	1	Pedestalled bowl
Bichrome	1	Open vessel (bowl?)
TOTAL	2	

Table 3. Diagnostic sherds identified on the basis of surface treatment and shape from the area around the kilns (Stratum I, SUs 0080101-5 and 0080108).

Surface treatment	Sherds	Shapes identified
		EH
Dark slipped	2	Saucer, sauceboat
Light slipped	5	Bowl with inturned rim, basin
Burnished	3	Bowl with inturned rim, basin
Plain	5	Pedestalled saucer, pyxis (?), basin with inturned rim
Plastic decoration	2	Basin
TOTAL	17	
		MH
Dark burnished	19	Bowl: round; carinated; with loop handle; pedestalled with multiple ribs; with ring-base; with raised flat base
Dark on light painted	6	Kantharos/cup, jug/amphora, pithos
Red burnished	3	Bowl
Incised	1	Open vessel
TOTAL	29	
		MH III/LH I & LH I
Light burnished	1	Pedestalled bowl
Bichrome	1	Open vessel (bowl?)
TOTAL	2	

Table 4. Diagnostic sherds identified on the basis of surface treatment and shape from the combustion chamber of Kiln 2 (Stratum VI, SUs 0080301-5).

Surface treatment	Sherds	Shapes identified
		EH
Dark slipped	2	Bowl with inturned rim
Light slipped	1	(Pedestalled) saucer
Burnished	1	Bowl, basin
Plain	1	Bowl with inturned rim
TOTAL	5	
		MH
Dark on light painted	1	Cup (?)
TOTAL	1	

5.2. MIDDLE HELLADIC (MAINLY MH II AND MH III)

MH pottery was found in almost every stratum, in the area around the kilns (Stratum I), the destruction layer of both Kiln 1 (Stratum III) and Kiln 2 (Stratum VI), the ash layer that relates to the second phase of use of Kiln 1 (Stratum IV) and the fill associated with its refurbishment (Stratum V) (**Table 1**).

The diagnostic MH sherds can be divided into two broad categories in terms of surface treatment: burnished and painted pottery. The dark burnished category is the most prominent (**Tables 2-4**), including the vast majority of the MH diagnostic fragments. The surface colour of the burnished pottery fragments ranges from grey (**P9, P19**, **P22**, **P23**) and brown-grey (**P21**) to dark grey-black (**P7, P20, P30**). Almost all of the burnished fragments originate from bowls of different types, such as carinated bowls with everted, thickened and hollowed rims (**P30**), everted and rounded rims (**P9**), and, also, everted and pointed rims (**P7**). There are also bowls with everted, thickened and moulded rims (**P19, P21**) and inverted, thickened and hollowed rims (**P8**). Pedestalled bowls (**P22**) were found, mostly with multiple-rib bases (**P6**). Plain pedestal bases, single lower rib pedestal bases, raised flat bases, raised ring bases and flat perforated bases are also attested. A small bowl or cup with everted, tapering and pointed rim (**P20**) is also included in this material. Where the handles of pots are preserved, they are mostly of two types: either horizontally attached, circular loop handles (**P7)** or vertically attached strap handles (**P30**). In a few occasions, multiple ribs are observed on the bodies of burnished pots (**P9**). The surfaces of some dark burnished pots are decorated with incised lines. All the diagnostic sherds can be dated to the MH II-III period, but some features (e.g. the multiple-rib pedestals and the everted, thickened and hollowed rims) continue in MH III/LH I.[26]

There are also fragments of burnished pots, which were covered with red slip, but their number is limited to four diagnostic fragments (**Tables 2-3**). These sherds mainly come from bowls: one is carinated (**P18**) and another is a bowl with irregularly incised lines below the rim (**P13**).

Only seven diagnostic painted sherds were identified. The decoration consists of brown bands on a light, mainly buff, background (**P10**, **P11**, **P12**, **P34**) (**Tables 3-4**). Some of them appear to be of the matt-painted category. These potsherds mostly come from closed vessels, namely pithoi, jugs and/or amphoras (**P10**, **P11**, **P34**). Open vessels are also attested, e.g. a kantharos/cup specimen (**P12**). Finally, there is a single example of a sherd decorated with light bands on red background.

5.3. MH III/LH I AND LH I

Pottery of this period was found in the area around the kilns (Stratum I), and in the destruction layer of Kiln 1 (Stratum III) (**Table 1**). The sherds can be divided into two broad categories: burnished and painted. Most of the sherds are burnished, with dark coloured surfaces (grey, brown-grey and dark grey-black) being the most prominent (**Tables 2-3**). These examples come from bowls, with the most characteristic type being the bowl with high everted, thickened and hollowed rim, and with carinated body (**P8, P30**). Apart from the dark burnished pottery, there are also a few fragments (five in total) with light burnished surfaces (e.g. buff, buff-brown, yellow-red) which can be dated to LH I (**Tables 2**-**3**). They belong mainly to bowls with everted, plain rims (**P14**) and to vessels with plain pedestal bases (**P25**).

26 Hale 2016, 276-88.

The amount of painted pottery is very low (**Table 2-3**) and most sherds are diagnostic in terms of surface treatment only. Three sherds have bichrome painted decoration, consisting of bands of both red-brown and brown-black colour on buff surfaces (**P24**). Two more fragments preserve brown-dark decoration on orange-buff surfaces: one is decorated with horizontal thin bands and the 'quirk' motif[27] (**P15**) and the other with thin bands on its surface. All of the aforementioned sherds possibly date to LH I.

5.4. POTTERY POSTDATING LH I

The only pottery that postdates LH I comprises three archaic sherds, diagnostic only in terms of surface treatment, which were found in Stratum I, particularly in the west part of the stratum (SU 0080108).

6. THE CHRONOLOGY OF THE KILNS

6.1. CHRONOLOGYOF KILN 1

Before discussing the chronology of Kiln 1, it is important to emphasise that the lack of wasters or misfired pots clearly suggests that the pottery found in the kiln is not directly associated with its use. Therefore, it does not date the use of the kiln, but provides a useful terminus (ante or post quem) for the formation of the relevant strata. The evidence for dating the construction, use and abandonment of Kiln 1 comes from the pottery found (a) in the ash layer which covered the firebox and the West Stoking Area (Stratum IV: SUs 0080210-11), and (b) in the 'fill' under the ash layer in the firebox area, which was related to the refurbishing of the kiln (Stratum V: SUs 0080212-13). Additional, supporting evidence comes from the relation between the kiln and the surrounding burials.

The ash layer (Stratum IV) associated with the second phase of the kiln's use produced only four diagnostic pottery fragments, all dating to EH II (**Table 1**).[28] The underlying layer (Stratum V), namely the 'fill' found underneath the ash layer and also associated with the refurbishment of the kiln, produced more diagnostic sherds (**Table 1**). Most of these sherds (35 examples) are dated to the EH II (**P26-29**). Three grey burnished sherds, however, are MH in date, and two of them can be dated more precisely. The first is probably MH II, or slightly later, because of the characteristic carination which is typical of the Grey Burnished pottery of the MH II-III period.[29] The second has good parallels from MH III or MH III/LH I contexts (**P30**).[30]

The burial discovered in the combustion chamber of Kiln 1 provides an important terminus ante quem for the abandonment and destruction of the kiln. As mentioned above, the burial was placed in a cut that had been formed in the destruction layer of the kiln. This digging activity damaged a large part of the southernmost internal wall and disturbed the destruction

27 Mountjoy 1986, 10, Figs. 1.9, 4.3.

28 The dating of these four sherds relies on the treatment of the surface, typical of EH II (Cosmopoulos 2014, vol. 1, 198-200; Wiencke 2000).

29 At Eleusis, angular bowls appear, mainly, from the MH II period onwards: Cosmopoulos 2014.1, 273-5. At Mitrou, carinations on Grey Burnished pots appear in Phase 4, dated to MH II Early: Hale 2016, 273.

30 In the publication of the pottery from Kiapha-Thiti, a similar goblet is dated by Maran (1992b, 202-3, Taf. 31. 958) to a later phase of MH III period, during which characteristics typical of LH I pottery are also observed. Another quite similar example from Mitrou is dated by Hale (2016, 282-4, 285, fig. 14.31) to Phase 7, or MH II Final-MH III.

Fig. 16. Trench 008 showing the two kilns (with destruction debris still inside them) and two cist tombs.

layer of this part of the kiln. Therefore, the burial was placed there after the kiln had gone out of use and after its roof had collapsed inside the combustion chamber. Not only was the burial placed on collapsed material, but it was also covered by it, suggesting that the debris from the digging of the pit was used to backfill it. A clay conical spindle whorl (**Fig. 12**) and a few limpets placed around and under the spindle, are the only objects that can be directly associated with the burial, but they do not provide a precise dating. The spindle whorl resembles types 9[31] and V[32] attested at Nichoria and other sites of mainland Greece, such as Eutresis and Eleusis in both MBA and LBA contexts.[33] Type 9 appears in MH II (if not already MH I) and continues until the end of LH IIIB,[34] while type V starts in MH I and is still in use until LH IIA.[35]

A more precise dating of the burial can be argued on the basis of the broader history of the site. More specifically, the burial of Kiln 1 seems to be part of the extensive cemetery of burials made in simple pits, jars, cist and built chamber tombs, which was established among the ruins of the abandoned MH settlement of Plasi.[36] Two cist tombs were actually found in close proximity to the kilns, one just north of Kiln 1(**Figs. 2:4 and 16**), the other in contact with the west part of Kiln 2 (**Figs. 2:5 and 16**). Both tombs were excavated by Marinatos and Mastrokostas in 1969-70, their contents were not recorded, and the only information available is that they date to the MBA.[37] In the course of the new excavations, another cist tomb was discovered, a few meters to the north of the kilns (**Fig. 2:6**).[38] It contained two burials, which were accompanied

31 Carrington-Smith 1992, 678, fig. 11.2-7.
32 Carrington-Smith 1992, 678, fig. 11.1-V.
33 Goldman 1931, 13, fig. 265; Cosmopoulos 2014.1, 440-1.
34 Carrington-Smith 1992, 680, tab. 11-2: Type 9.
35 Carrington-Smith 1992, 679, tab. 11-2: Type V.
36 Polychronakou-Sgouritsa *et al.* 2016, 310-1.
37 Marinatos 1970a, 5-6; 1970b, 153-55; 1970c, 349; Mastrokostas 1970, 14-21.
38 Polychronakou-Sgouritsa *et al.* 2016, 310, fig. 19.7.

by three pots dated to MH III/LH I.[39] More cist and built chamber tombs were found over the last three years, all dated to the MH III/LH I period.[40]

The burial in Kiln 1 was cut into the destruction layer of the kiln (Stratum III), and, therefore, it is dated after the kiln's destruction. The pottery of Stratum III ranges from EH II to LH I (**Table 1** and catalogued sherds **P16-25**), suggesting that LH I is the terminus ante quem for the destruction of the kiln, while the burial either belongs to this period or dates shortly thereafter.[41]

To sum up, the pottery evidence for the construction date of Kiln 1 is inconclusive. Besides, it is not possible to date precisely the two phases of use. However, the presence of MH III or MH III/LH I pottery in Stratum V, underneath the internal walls and the floor of the second phase of use, may suggest that the refurbishment of the kiln occurred sometime in MH III/LH I or in MH III the earliest. On the other hand, the end of the use of the kiln is clearer. As the destruction layer (Stratum III) appears to have a LH I terminus ante quem, the end of the kiln's use can be placed in LH I or shortly before that date. As the entire area of the MH settlement at Plasi was transformed into an extensive cemetery by MH III/LH I, it is reasonable to suggest that it was during this time that the use of Kiln 1 came to an end.

6.2. CHRONOLOGY OF KILN 2

As in the case of Kiln 1, the lack of wasters or misfired pots in Kiln 2 suggests that the pottery found inside and around the structure is not directly associated with its operation, and, therefore, cannot provide a secure dating for the use of the kiln. Nevertheless, it may provide a useful terminus (ante or post quem) for the formation of the relevant deposits. In Kiln 2, the pottery that can provide such evidence comes from the destruction layer (Stratum VI). The majority of the diagnostic sherds found inside the kiln date to the EH II period (19 sherds), while only four fragments date to MH, possibly as late as MH III (**Table 1** and catalogued sherds **P31-34**). Given this evidence, Kiln 2 went out of use possibly some time in MH III period.

Of particular importance for the dating of Kiln 2 is the cist tomb found in contact with its west side (**Figs. 2:5, 13b, 15** and **16**). It is rather improbable that the kiln was used at the same time with the tomb, as its east slab abuts the west side of the kiln. Therefore, it seems likely that the cist was constructed at a time when Kiln 2 was out of use. The tomb was excavated by Marinatos and Mastrokostas, and there is no evidence for its contents and dating.[42] It appears, however, to be part of the extensive cemetery that was established in the area in MH III/LH I.[43] Therefore, MH III/LH I constitutes a terminus ante quem for the abandonment of the kiln.

6.3. CONCLUSIONS

The above evidence, along with the construction similarities between the kilns, seem to suggest that both kilns were built and used contemporaneously. To conclude, a tentative dating

39 Polychronakou-Sgouritsa *et al.* 2016, 311, fig. 19.8.

40 Y. Papadatos and G. Vavouranakis pers. comm.

41 Plasi is not the only example of a MH kiln that received burials after the end of its use. Pits to accommodate burials were also dug inside the two MH kilns found on the Aetos hill below the Menelaion (Catling 2009, 188-90). Similarly, at the Makrygianni plot in Athens, a grave dating between MH and LH II was found very close to the east MH kiln (Venieri 2010, 190).

42 Marinatos 1970a, 5-6; 1970b, 153-5;1970c, 349; Mastrokostas 1970, 14-21.

43 Polychronakou-Sgouritsa *et al.* 2016, 310-1.

based on present evidence suggests a MH III or MH III/LH I date of construction and use for both kilns, which probably went out of use sometime in MH III/LH I, i.e. when the settlement was abandoned and the area was transformed into an extensive cemetery, with tombs placed inside and outside the ruins of the buildings.

7. THE KILNS OF PLASI IN THEIR BROADER HISTORICAL AND SPATIAL CONTEXT

7.1 KILN STUDIES: METHODOLOGICAL ASPECTS

The state of preservation of the MH kilns in the Greek Mainland, the usual lack of wasters, and the incomplete documentation of many of these pottery kilns does not easily allow the classification of the Plasi kilns into a specific 'group' on the basis of certain morphological traits. More importantly, and as argued by Whitbread and Dawson,[44] it is worth noting that understanding only the kilns' form does not imply understanding their function. The same type of kiln can be used for the application of different firing techniques, while in two morphologically different kilns the same firing techniques can be applied. Moreover, the same kiln can be used for firing different wares through the application of different firing techniques. Experimental studies have shown that firing techniques are complicated and complex processes, in which the form of the structure used for the firing is only one of the many parameters which affect the firing process.[45] Additionally, the form of the kiln cannot provide evidence for other important parameters that also have an effect on the firing process, such as the quality of the raw materials used, as well as the techniques applied during the firing processes.[46]

It is also important not to be guided by an evolutionary interpretation according to which there is a continuous effort over time towards improved kiln technology, better firing or more efficient pottery production.[47] Furthermore, it has become clear in scholarship that kiln typologies[48] are not in their own right effective for interpreting kilns in their social settings. Instead, we should examine every kiln as a 'technological equipment' that was used in specific social contexts and under the influence of specific technological traditions.[49] In that case, kilns can be seen as constructions that are related to the acquisition and application of technical know-how and as elements for the study of exchange networks of technical knowledge.[50] For this reason, it is important to examine, in addition to the form, also the technological characteristics of the kiln's construction technology, and, if possible, try to reconstruct the firing techniques applied in the kiln.

The study of these characteristics allows for the identification of 'technological choices', namely the adoption of specific technological traits among others available.[51] Furthermore, in order to understand and interpret the choices made by the potters, it is important to study not only the technological aspects but also the related social and ideological factors.[52] At the same time, the examination of changes in construction technology can help us discern patterns of

44 Whitbread and Dawson 2015, 340. See also Prillwitz and Hein 2015, 352.
45 Gosellain 1992; Livingstone-Smith 2001; Thér 2014.
46 Whitbread and Dawson 2015, 337.
47 Livingstone-Smith 2001, 992, 999.
48 Hasaki 2002; Hansen-Streily 2000; Davaras 1980; Cuomo Di Caprio 1978; Delcroix and Huot 1972, 79-82.
49 Livingstone-Smith 2001, 999.
50 Whitbread and Dawson 2015; Prillwitz and Hein 2015.
51 Lemonnier 1993, 2.
52 Lemonnier 1993, 2-6.

adoption or rejection of new techniques, which will then have to be interpreted within the social settings where these kilns were made.[53]

Kilns can also provide valuable evidence for the organization of production, when studied within their archaeological context.[54] Such integrated studies should include the examination of the kilns in association with other archaeological remains, such as the position of the kilns in the settlements and their relation with specific buildings or special districts which can shed light on contexts of production.[55] The presence, near the kilns, of other technical processes that relate to the same or different craft activities can allow the examination of the production's intensity, namely the amount of time producers spend in these activities.[56] It is within this theoretical framework that the two kilns at Plasi are discussed in the present study.

It should be noted that, a complete study of kiln technology and its integration into a wider social context presupposes a thorough reconstruction of the firing techniques, which is possible only through the parallel study of the firing techniques on the finished products,[57] i.e. the pots fired in the kilns. However, in this case that was not possible not only because it was beyond the scope of this study, but also because the excavation did not produce any wasters or clay vases that could be clearly associated with the use of the kilns.

7.2 THE PLASI KILNS IN THE BROADER CONTEXT OF MH KILN TECHNOLOGY

The two kilns at Plasi appear to belong to the two-chamber[58] updraft type,[59] which is the most commonly attested type in this period in mainland Greece. Its main characteristic is the separation of the combustion chamber from the firing chamber by a firing floor. The separation of these two spaces leads to more effective control of the hot gases, which is also achieved through the effective management of the fuel and the use of the kiln's air vents.[60]

Open fires, pit fires, and kilns with single chambers may, when good know-how is available, allow the potter to achieve a similar control over firing conditions as a two-chamber kiln.[61] What differentiates them, however, is that the updraft kiln provides a more homogeneous air distribution system, while its use presupposes the adoption of special methods of control over the firing conditions, over the intensity of the temperature rise, and over the preservation of the maximum temperature.[62] Therefore, the adoption of the two-chamber updraft type can be connected with the production of pots that are submitted to less differentiated firing conditions and, for that reason, demonstrate more uniformity and standardization as far as their final appearance is concerned.

From the 19 MBA kilns known to date (**Fig. 17**), the two-chamber updraft type is more widely attested from MH II onwards, as examples from Kolonna,[63] the Makrygianni plot,[64] and Lerna[65]

53 Dobres and Hoffman 1999, 3.
54 Costin 1991.
55 Costin 1991, 11-5.
56 Costin 1991, 30-2.
57 Costin 1991, 43-4.
58 Thér 2014, 80, fig. 2.Tk
59 Whitbread and Dawson 2015, 334-7; Rye 1981, 100.
60 Thér 2014, 88; Whitbread and Dawson 2015, 334.
61 Gosellain 1992; Livingstone-Smith 2001.
62 Thér 2014, 78-9.
63 Kolonna kiln: Sporn *et al.* 2017, 90-2; Walter 2004, 127.
64 Makrygianni plot east and west kilns: Venieri 2010, 188-9.
65 Lerna kiln 3: Caskey 1956, 159.

suggest.[66] Although there are updraft kilns in use prior to MH II,[67] most of the earlier kilns are equipped with one chamber, as e.g. the EBA kilns at Proskynas in Lokris[68] and at Polychrono in Chalkidiki.[69] The wider adoption of updraft kilns in MH II may be connected with an increased need during this period to better control the firing processes and, therefore, the appearance of the finished products.

An important characteristic of the MH two-chamber kilns, which is also present at Plasi, is the existence of underground or semi-underground combustion chambers. Where evidence exists, it appears that a pit was first dug in the shape of the kiln which was then lined with stones or clay slabs.[70] This technological choice is important, as the formation of underground or semi-underground chambers contributes to better preservation of the temperature and also facilitates the development of high temperatures.[71]

Another characteristic that MH kilns have in common is the existence of a firebox that is separated from the combustion chamber. This feature shows a concern to remove the vessels from direct contact with the fuel, indicating the choice of the potters to protect their products from thermal shock and to achieve a better distribution of the hot gases. Two of the kilns discussed here, Plasi Kiln 1 and Aetos Kiln 1, demonstrate special characteristics in connection to this. In Plasi Kiln 1, the stoking area is located approximately 0.50m away from the combustion chamber, allowing a relatively large space for the firebox. The existence of this firebox, which is also 1.5m wide, resulted in a better distribution of the hot gases before they reached the combustion and the firing chamber. In the Aetos kiln, the firebox is very spacious (1.55x1m) by comparison to the combustion chamber (0.54m in diameter), a fact that possibly indicates the special care taken to place the pottery as far as possible from the fuel area and the gases with the highest temperature.[72]

Despite, however, general similarities in typology and construction, two-chamber updraft kilns bear also some differences as far as construction technology is concerned. The first difference relates to the existence of a permanent or a temporary firing floor. In some MH kilns there are traces of a permanent perforated firing floor placed on internal walls in the combustion chamber.[73] In other examples, however, no traces of such a feature are preserved, though its existence can be speculated on the presence of internal walls (e.g. the two Plasi kilns discussed

66 For some of the kilns noted on the map (Fig. 17), there is only a brief mention: e.g. Mycenae (Wace 1949, 47), Petromagoula Zarkou (Hasaki 2002, 409, appendix 1, no. 107), Lousika (Filis 2016, 29), and the two kilns at Chania Gavrolimnis (*Archaeology in Greece Online*, ID2396). Only the kilns with sufficient published information are discussed in this paper. The MH III-LH I kiln at Mitrou, east Lokris, is only noted on the map, as its publication is forthcoming: I am grateful to Dr Aleydis Van de Moortel for the information provided. For kiln 3 at Kirrha: although it is dated by Skorda (2010, 659-60) to LH I, it is included in this discussion as it clearly relates to Kirrha kilns 1 and 2 (Skorda 2010, 653-5) and provides a good case study for the long history of use of this area of the settlement as a 'pottery workshop'.

67 E.g. the Eretria kiln (Krause and Tuor 1981, 83-4; Touchais 1982, 597; Tuor 1981, 83-4) and, probably, the Aetos kilns (Catling 1982, 35; 2009, 186-7), if early MH. For the dating of the Aetos kilns see Catling 2009, 186-7, 189-91, 194-7.

68 Zachou 2004, 1270.

69 Pappa 1990a, 317-18; 1990b, 389-91.

70 E.g. Eretria (Krause and Tuor 1981, 83-4; Touchais 1982, 597; Tuor 1981, 83-4), Kirrha (Skorda 2010, 653-8), and, possibly, Aetos (Catling 1982, 35; 2009, 186-7).

71 Whitbread at al. 2015, 335.

72 Catling 1982, 35; 2009, 186.

73 E.g. at Eretria (Krause and Tuor 1981, 83-4; Touchais 1982, 597; Tuor 1981, 83-4), Kolonna (Sporn *et al.* 2017, 90-2; Walter 2004, 127), Lerna (Caskey 1956, 159 [kin 3]), and Aetos kiln 2 (Catling 1982, 35; 2009, 186-7). Aetos kiln 1, based on its similarity with kiln 2, may also have been equipped with such a feature (Catling 1982, 35; 2009, 186).

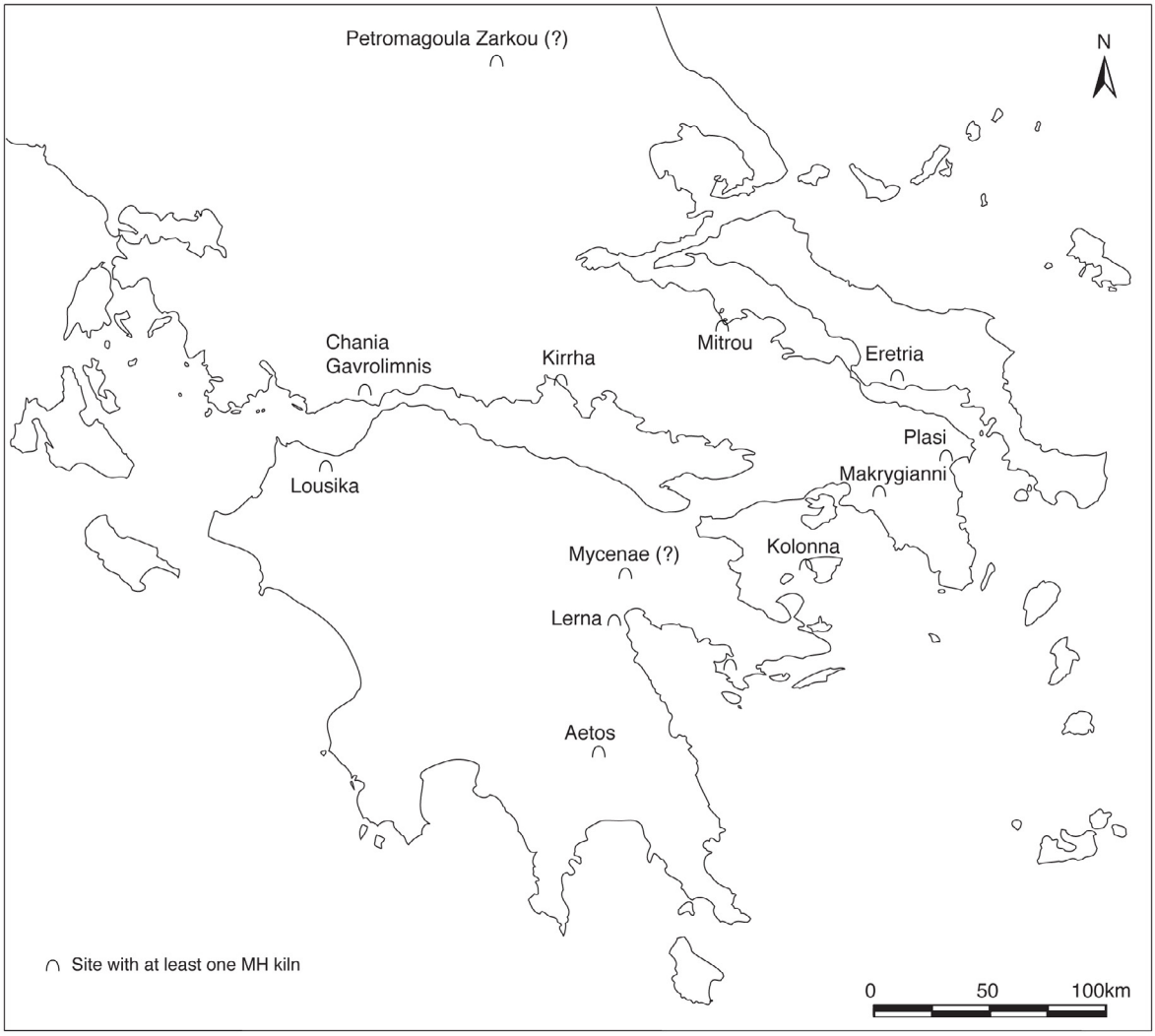

Fig. 17. Map showing sites with MH kilns.

here).[74] The kilns, where no such traces are preserved, are equipped with long internal walls, an element that may have offered good support to a temporary firing floor (see also above).

The size of the kiln is an important parameter, because it is associated with the maximum quantity of pottery that can be fired in every firing episode, the size of vessels that can be fired, and the quantity of fuel required to achieve the effective firing of the pottery. Most of the MH kilns have a maximum length of 1.75m or a maximum diameter of 1.40m. On this basis, Plasi Kiln 1 with an internal diameter of 2.30m is one of the largest MH kilns, comparable only to kiln 3 at Kirrha, which dates in LH I.[75] Plasi Kiln 2, on the other hand, measuring 1.30m by 1.40m, is of average size.

The type and number of internal walls in MH kilns also varies. Some are equipped with short cylindrical or quadrilateral internal walls,[76] while others have longer internal walls (e.g. the kilns

74 Also at the Makrygianni plot east kiln (Venieri 2010, 188-89), Lerna kilns 1-3 (Caskey 1956, 158-9), and Kirrha kilns 1 and 2 (Skorda 2010, 653-5).

75 Skorda 2010, 656-8.

76 E.g. Eretria (Krause and Tuor 1981, 83-4; Touchais 1982, 597; Tuor 1981, 83-4), Makrygianni east kiln (Venieri

at Plasi, Lerna,[77] and Kirrha[78]). Although most examples feature one internal wall, Plasi 1 and Kirrha 3 are equipped with three internal walls.

In terms of materials used in the construction of MBA kilns further variations can be noted. The combustion chambers and fireboxes were built of stones[79] or clay slabs.[80] The Kolonna kiln is exceptional in that the wall of a building was used as the wall of the chamber that was subsequently lined up with clay slabs to form the interior of the kiln.[81] The use of stones or clay slabs does not influence the thermal insulation of the kilns. Clay slabs should simply be fired prior to the use of the kiln in order to become more resistant to high temperatures. A technique which increases the resistance of the clay slabs in high temperature and which was also applied in the case of the Plasi kilns is the addition of non-plastic inclusions in their fabric (e.g. small stones, pottery fragments or sand).[82]

In those examples where sufficient evidence is preserved, a clay coating can be observed covering the inside of the kiln (i.e. the wall and floor of the combustion chamber and the internal walls). Both kilns at Plasi preserve a coating of buff-orange colour which covers the inner surfaces of the clay slabs forming the kilns' walls, the floors of their combustions chambers and the surfaces of the internal walls. Exceptional is the case of the Aetos kilns, where the pisé technique was employed for the coating of the inner surfaces of the kilns' walls.[83] The use of a material prepared with mud and organic inclusions insulates the kiln and reduces the thermal energy affecting the surfaces of the kiln.[84]

In the case of the Kolonna kiln, this coating contained a calcium-rich material, probably limestone/calcite.[85] The use of a calcareous lining contributes, according to Prillwitz and Hein, to the reduction of the thermal energy transferred from the fuel to the walls of the kiln. At the same time, the decomposition of the calcite between 800 and 900°C consumes more energy and causes a more reducing atmosphere by the release of CO_2.[86] This process was in some cases desirable, especially when the potter wanted to fire the wares in a reducing atmosphere. In addition, the calcareous clays develop a stable microstructure within 850 and 1050°C,[87] which contributes to the formation of a sealed lined surface. The potters who probably had the know-how in relation to the firing of calcareous clays probably were using this expertise in the construction and thermal insulation of the kiln walls.[88]

From the short discussion made above on MBA kiln technology, it appears that the two-chamber updraft kiln formed the prevailing type in that period, and especially from the MH II phase onwards. Certain similarities exist among those MH kilns, as do differences in their construction. A clear 'tradition' in practice cannot yet be identified, not least as there are still

---

2010, 188-9), and Kolonna (Sporn *et al.* 2017, 90-2; Walter 2004, 127).

77 Caskey 1956, 158-59 (kilns 1-3).

78 Skorda 2010, 653-58 (kilns 1-3).

79 E.g. Eretria (Krause and Tuor 1981, 83-4; Touchais 1982, 597; Tuor 1981, 83-4), Makrygianni plot (Venieri 2010, 188-89, the east kiln and possibly also the west kiln), Lerna (Caskey 1956, 159, [kiln 3]).

80 E.g. Plasi 1-2, Aetos 1-2 (Catling 1982, 35; 2009, 186-87), Lerna 1-2 (Caskey 1956, 158-59) and Kirrha 1-3 (Skorda 2010, 653-8).

81 Walter 2004, 127.

82 Prillwitz and Hein 2015, 354.

83 Catling 1982, 35; 2009, 186-7.

84 Prillwitz and Hein 2015, 354.

85 Prillwitz and Hein 2015, 358.

86 Prillwitz and Hein 2015, 358.

87 Maniatis and Tite 1981, 66.

88 Prillwitz and Hein 2015, 359.

few fully published examples of MH kilns and we are hampered further by the poor preservation of most extant cases. Nevertheless, there appears to be a series of technological choices that the makers of these structures made and which had an impact on their finished products. The Plasi kilns belong to this standard type of the two-chamber updraft kiln, and they present all the basic characteristics of this type, such as the existence of an underground combustion chamber and the clear separation of the combustion chamber from the firebox. However, Kiln 1 presents distinctive characteristics with respect to the unusually large size of its combustion chamber, the existence of multiple internal walls and the presence of a large firebox allowing for a better control of the circulation of the hot gases.

7.3. KILNS AS INDICATORS OF POTTERY WORKSHOPS AND EVIDENCE FOR PRODUCTION ORGANIZATION

Like all known MH kilns, the two kilns at Plasi have been found in a settlement context.[89] Some of these kilns, such as the kiln at Kolonna[90] and kilns 1 and 2 at Kirrha,[91] were clearly connected with a specific building, a feature that could indicate that pottery production was 'household'-controlled (though admittedly the function of these buildings is not always clear). In other instances, however, as at Eretria, Makrygianni, Lerna and Kirrha (kiln 3), it is not possible to assess the relationship of the pottery kilns with specific buildings or the settlement as a whole. In the case of Plasi, the two kilns are located in direct proximity to the MH 'megaron'.[92] However, the chronological resolution of both the kilns and the 'megaron' does not permit any safe conclusions concerning their temporal relation. The 'megaron' is generally considered MH II in date,[93] but it probably continued into MH III.[94] If the latter proved to be the case, then a relationship between the kilns and this building would indeed be possible.

As in the case of Plasi, MH kilns more or less contemporary in date of construction and/or use often appear in pairs in the same area of other settlements, as well.[95] In these cases, the pairs demonstrate similar morphological and technological traits, a point that seems to indicate that they were constructed following similar know-how principles and belonged to the same or comparable technological traditions.[96] Yet, similar morphological and technological traits do not necessarily indicate that the pairs were used for the application of the same firing techniques.[97] Due to the lack of relevant evidence, e.g. wasters or misfired ceramic products,

89 E.g. Eretria (Touchais 1981, 847; Krause and Tuor 1981, 83); Aetos: Catling (2009, 194) mentions that MH pottery has been found in the wider area of the kilns, a fact that indicates the existence of MH layers. He also states that "there was active MH occupation on the Aetos"; Makrygianni plot (Venieri 2010, 187-94); Lerna (Caskey 1956 158-59); Kolonna (Sporn *et al.* 2017, 90-2; Walter 2004, 113-29); Kirrha (Skorda 2010, 654, 658).

90 Sporn *et al.* 2017, 90-2; Walter 2004, 127.

91 Skorda 2010, 654.

92 Concerning the elevation correlation between the kilns and the MH building, it should be noted that the northeast corner of the floor of the 'megaron' is ca. 0.35-0.40m higher than the upper level of the preserved part of the kiln's wall. However, the foundations of the walls of the building are approximately at the same level as the upper preserved parts of the kiln's wall (information provided by Y. Papadatos).

93 Polychronakou-Sgouritsa *et al.* 2016, 307-10.

94 Balitsari *et al.* 2019.

95 See e.g. Aetos: according to Catling (2009, 187), the kilns constitute the earlier architectural remains on the site and may be contemporary. In Makrygianni plot both kilns date to MH II (Venieri 2010, 188-9), possibly also Lerna: according to Caskey (1956, 159), kilns 1 and 2 date to one or two phases later than phase Lerna V.C.

96 Yet similar morphological and technological traits do not necessarily indicate that the pairs were used for the application of the same firing techniques: Whitbread and Dawson 2015, 347.

97 Whitbread and Dawson 2015, 347.

it is impossible to know the types of vases or wares produced in these kilns. Also, it is possible that other pottery manufacturing processes took place in the immediate area of the kilns as suggested by evidence from Kolonna and possibly from the Makrygianni plot.[98]

Furthermore, the areas where MH kilns were built appear in a number of cases to have a long history of use as 'workshops' for pottery production and especially for firing pots, as suggested by the construction of later kilns close to the earlier ones. Changes in the form of the kilns over time are important, as the adoption of new techniques in kiln construction may relate to economic and socio-political changes.[99] At Plasi, Kiln 1 was refurbished some time in MH III or MH III/LH I. The construction of a new firebox, by increasing its size and placing the fuel further away from the combustion chamber,[100] could indicate the application of new firing techniques aimed at better controlling the firing processes.

Evidence for continuity in the use of an area for firing pottery is seen also at Kirrha. The damage of Kiln 1 led in MH III/LH I to the construction nearby of a new structure (Kiln 2) with very similar morphological and technological traits.[101] In LH I, Kiln 3 was constructed about 20m to the west of the aforementioned kilns, featuring differences to Kilns 1-2 in terms of technology of construction, size and spatial arrangement. Unlike Kilns 1-2, Kiln 3 was built in an open area. This arrangement allowed for the better handling and collecting of waste generated by the kiln's use. Moreover, the existence of a significantly larger firing chamber suggests a need to increase the amount of pots fired in a single episode. The different formation of the combustion chamber (with three internal walls), the construction of a permanent perforated floor, and of a system that stabilized both the perforated floor and the superstructure of the kiln, appear to indicate further changes in kiln technology at LH I Kirrha. According to the excavator, the changes observed in the construction of Kiln 3 may best be understood within the framework of the development of new techniques and increased production needs at a time of intensified contacts and ceramic exchange.[102]

8. CONCLUSIONS

The discovery of two MBA pottery kilns at Plasi, possibly contemporary in their construction and use, holds important information for the organization of pottery production in the settlement. The two kilns display a number of similarities but also have notable differences in their construction and morphology. Probably built by people sharing the same or similar technological traditions, they may have served different purposes: e.g. Kiln 1 has a capacity to fire more or larger pots than Kiln 2. Furthermore, their contemporary construction and use may indicate that they were involved in the production of different wares or pots of different sizes. It is also possible that they were used in rotation, depending on the size or the number of pots that had to be fired each time. Their type indicates that the people who used them were following

98 A clay disk from a wheel was found very close to the Kolonna kiln and in connection with architectural remains of Kolonna IX: Sporn *et al.* 2017, 90-2; Gauß 2006, 441. At Makrygianni, a circular carving in the rock to the northeast of the kilns is interpreted by Venieri as a support for the potter's wheel: Venieri 2010, 189.

99 Whitbread and Dawson 2015, 347.

100 For a relevant case of gradual increase of the distance between the firebox and the combustion chamber see Tsetlin 2002, 88, 93, fig. 7.

101 This seems to be the case as well at Lerna, where kilns 1 and 2 and kiln 3 occupied successive settlement layers of the same area. The similarities of these three kilns both in the plan and the size are important. However, the lack of evidence does not allow a comparative study of their construction.

102 Skorda 2010, 664.

the wider trend, observed from MH II onwards, of using two-chamber updraft kilns, a choice which appears to be associated with an effort to achieve better control over firing conditions and, consequently, a greater uniformity in the produced pots. The parallel use of two kilns of different size may also suggest an efficient system for the organization of production, a deliberate effort to economize fuel and manpower, and, consequently, an increased degree of craft specialization.

At some point in MH III or MH III/LH I, Kiln 1 was remodelled and equipped with a more advanced air circulation system thanks to the construction of a larger firebox and the increase of the distance between the combustible fuel and the pots. This development, through which better distribution of hot gases was achieved, was a deliberate technological choice that reveals an interest for even better control of the firing process. It may have resulted from experimentation[103] as well as demand for greater standardization of the pottery. The remodelled kiln would have been an innovative structure, but it is impossible to say whether the kiln-builders/potters at Plasi were pioneers or simply adopted these new techniques from somewhere else.[104] Yet, new construction and firing techniques are processes that cannot be transmitted only by observing the final products, namely the kilns and the pots, but need to be learned through apprenticeship relations.[105] The remodelling of Kiln 1 at Plasi could have been originally conceived at the site, as a result of the experimentation of local potters, or could also be the development of apprenticeship relations between potters at Plasi and non-local counterparts. Whatever the case, Plasi Kiln 1 is at present the only MH kiln with such features, which are attested in the slightly later LH I kiln 3 at Kirrha.

Why the need then to remodel the kiln, and develop better controlled firing techniques? The kilns at Plasi, as many of the known MH kilns (**Fig. 17**) are located in northeast Peloponnese, Attica and the Saronic Gulf, an area where extensive social networking was taking place in MH II-MH III/LH I period.[106] The existence of these networks encouraged the exchange of technical know-how, most likely through apprenticeship relationships with non-local kiln builders and potters.[107] At the same time, the use of the updraft type and the improvements to its air circulation system allowed an increased standardization in the appearance of the ceramic products. The adoption of this advanced know-how at Plasi, which is evidenced first by the adoption of the two-chamber updraft kiln type and later by the remodelling of Kiln 1, can, therefore, be connected with a shift towards fulfilling demands for greater standardization.

The direct proximity of the kilns to the MH 'megaron' could suggest that the people associated with the operation of these two structures were also connected with this building. It should be noted that the 'megaron' seems to be the largest building in the settlement of Plasi, and one of the largest 'megaron'-type buildings in MH southern Aegean, possibly suggesting a special status within the local community. Furthermore, the proximity of the kilns with the 'megaron', may suggest the special importance of ceramic production for the MH settlement of Plasi. The study of the MH 'megaron', the technological study of its pottery and its association with the kilns' technology, as well as the continuation of the excavations at Plasi will hopefully

103 Lemonnier 1993, 21.

104 Lemonnier 1993, 21.

105 Whitbread and Dawson 2015, 344-5; Gauß *et al.* 2015, 8.

106 The distribution of Aeginetan Matt-Painted pottery in NE Peloponnese, Attica, central Greece, and Thessaly offers good evidence for the existence of these networks: Gauß and Kiriatzi 2011, 242-3; Maran 2007; Philippa-Touchais 2007, 99-112; Sarri 2007; Touchais 2007; Lindblom 2001, 40-2; Cosmopoulos *et al.* 1999, 134-6; 2014, 210-15.

107 See Dobres and Hoffman 1994, 247; for a relevant case: Gorogianni *et al.* 2016.

shed further light on the social fabric of this important settlement on the east coast of Attica and clarify its position in the dynamic social networks of the MBA in this part of the Aegean. The present study is only a very small, first step towards this direction.

ACKNOWLEDGEMENTS

I am very grateful to Dr Yiannis Papadatos and Dr Giorgos Vavouranakis for giving me the opportunity to excavate and study the two kilns and for their invaluable and constant support during my study. This article was much improved by comments made by two reviewers, to whom I extend my heartfelt thanks. I would also like to thank Dr Platon Petridis, director of the Museum of Archaeology and History of Art of the Department of History and Archaeology (NKUA), and Michel Roggenbucke and Christos Tragoudaras for facilitating my study at the Museum. I am indebted to the students of the NKUA and the workers of the excavation for their important contribution. My colleagues, Dr Anthi Balitsari and Dr Panagiotis Michalopoulos, offered me support and help with the pottery, and Dr Yannis Galanakis made numerous useful suggestions on various drafts of this article – I am grateful to them all. Any omissions or errors remain with the author.

FIGURES©

APPENDIX

CATALOGUE OF SELECTED DIAGNOSTIC SHERDS

(all dimensions given here are maximum)

P1. (**Figs. 18 and 20**). Stratum I, SU 0080101. Base and lower body from a sauceboat or a pedestalled saucer; ring-base (diam. 5cm; h. 0.15cm; th. 0.2cm); surf. treat: solidly covered with brown slip; fabric: fine; EH II. Comparanda: Wiencke 2000, 584-88, 586, Fig. II.92 (Types 1 and 4); 604-5, Fig. II.96; Berger 2004, Taf. 6.27.

P2. (**Fig. 18**). Stratum I, SU 0080101. Rim, with handle attached, from a sauceboat; plain tapered, straight rim (diam. 16cm; h. 2.8cm; th. 0.4cm) and horizontally attached handle of oval section (diam. 0.8cm); surf. treat: solidly covered with red-brown slip; fabric: fine; EH II. Comparanda: Wiencke 2000, 584-8, 586, Fig. II.92 (Types 1 and 4).

P3. (**Figs. 18 and 20**). Stratum I, SU 0080102. Rim and upper body from an incurved bowl; incurved, thickened rim (diam. 45cm; th. 1.9cm); surf. treat: plastic; fabric: coarse; EH II. Comparanda: Wiencke 2000, 337, 336, Fig. II.4 (P57-P59), 341-3, 342, Fig. II.6 (P96-P99); Berger 2004, Taf. 6.21.

P4. (**Fig. 18**). Stratum I, SU 0080103. Base and lower body from pedestalled saucer or a sauceboat; flaring ring-base (diam. 4cm; h. 1cm; th. 0.5cm); surf. treat: solidly covered with brown slip; fabric: semi-fine; EH II. Comparanda: Wiencke 2000, 584-8, 586, Fig. II.92 (Type 3); 592-7, 596, Fig. II.93 (pedestalled types); Berger 2004, Taf. 6.19.

P5. (**Figs. 18 and 20**). Stratum I, SU 0080103. Rim and upper body, with lug attached, from a basin; inturned, flat T-rim (diam. 42cm; th. 1.8cm); crescent, pointed lug; surf. treat: solidly covered with slip of light (buff-orange) colour on orange surface; fabric: coarse; EH II. Comparanda: Wiencke 2000, 338 (P68), 339; 394 (P524), 396; Berger 2004, Taf. 6.17.

P6. (**Figs. 18 and 20**). Stratum I, SU 0080102. Base from a pedestalled bowl; Pedestal multi-ribbed base (diam. 11cm; h. 4.5 cm; th. 1.1cm); surf. treat: burnished (dark grey surface); fabric: fine; from MH II to MH III/LH I. Comparanda: multiple-ribbed pedestal bases are produced at Mitrou from Phase 5 (middle MH II) until Phase 7 (MH III/LH I): Hale 2016, 276-88; Gauß and Smetana 2007, 74, Fig. 6:XXXV-4.

P7. (**Figs. 18 and 20**). Stratum I, SU 0080102. Rim and upper body, with handle attached, from a carinated bowl; Everted, slightly pointed rim (diam. 20cm; h. 1.1cm; th. 0.5cm), carinated body (h. 1.9cm; th. 0.7cm); horizontally attached, circular loop handle (diam. 0.8cm; h. 3.5cm); surf. treat: burnished (grey-black surface); fabric: fine; late MH I-MH II. Comparanda: horizontally attached circular loop handles, attached on bodysherds belonging to short-shouldered carinated bowls, make their first appearance at Mitrou in Phase 3 (later MH I) and continue until Phase 4 (early MH II): Hale 2016, 271, 273, Fig. 12.12; Gauß and Smetana 2007, 74, Fig. 6:XXXV-4, XXXV-5; 75, Fig. 7:12a/11-1.

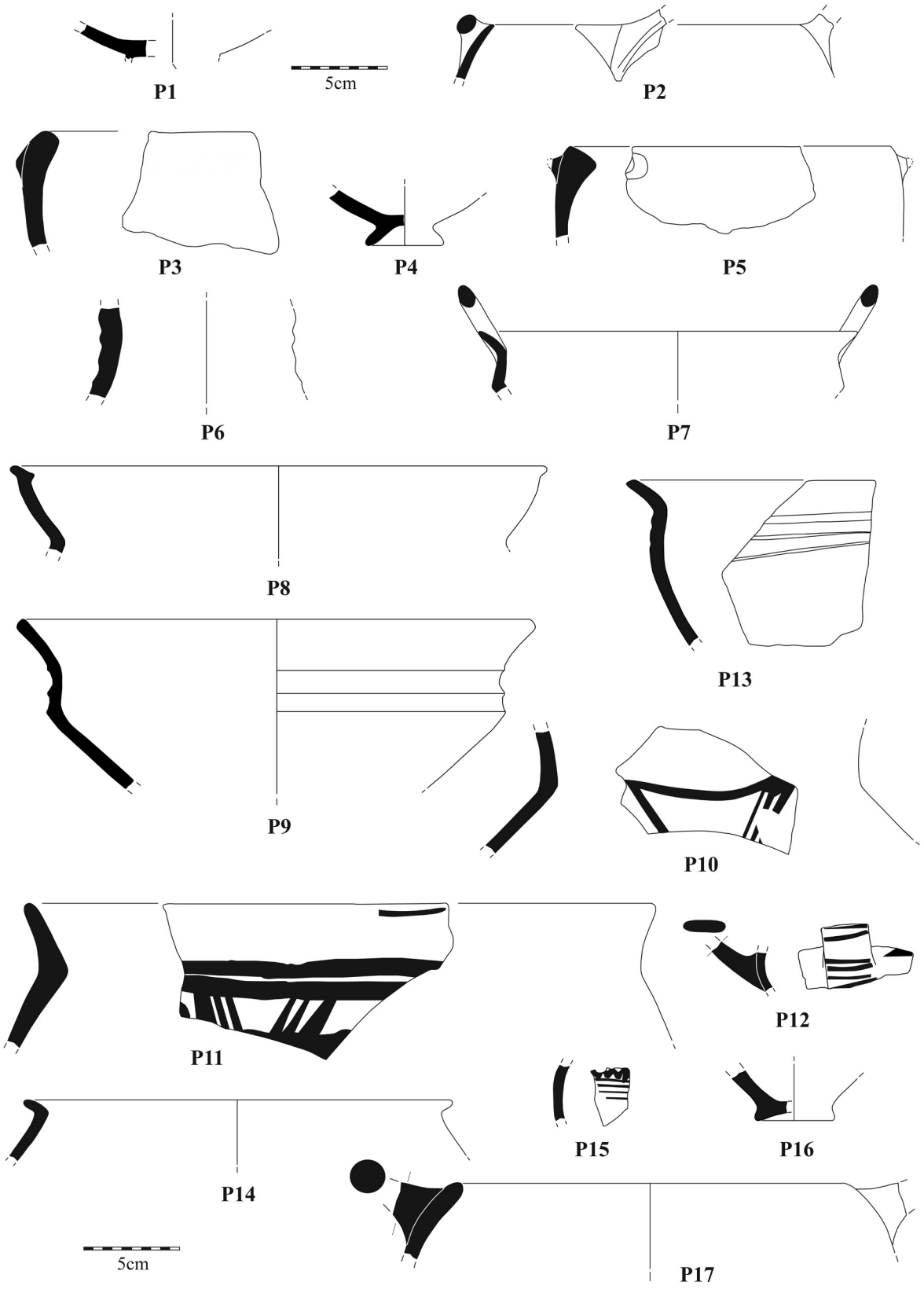

Fig. 18. Pottery from the kilns. Drawings.

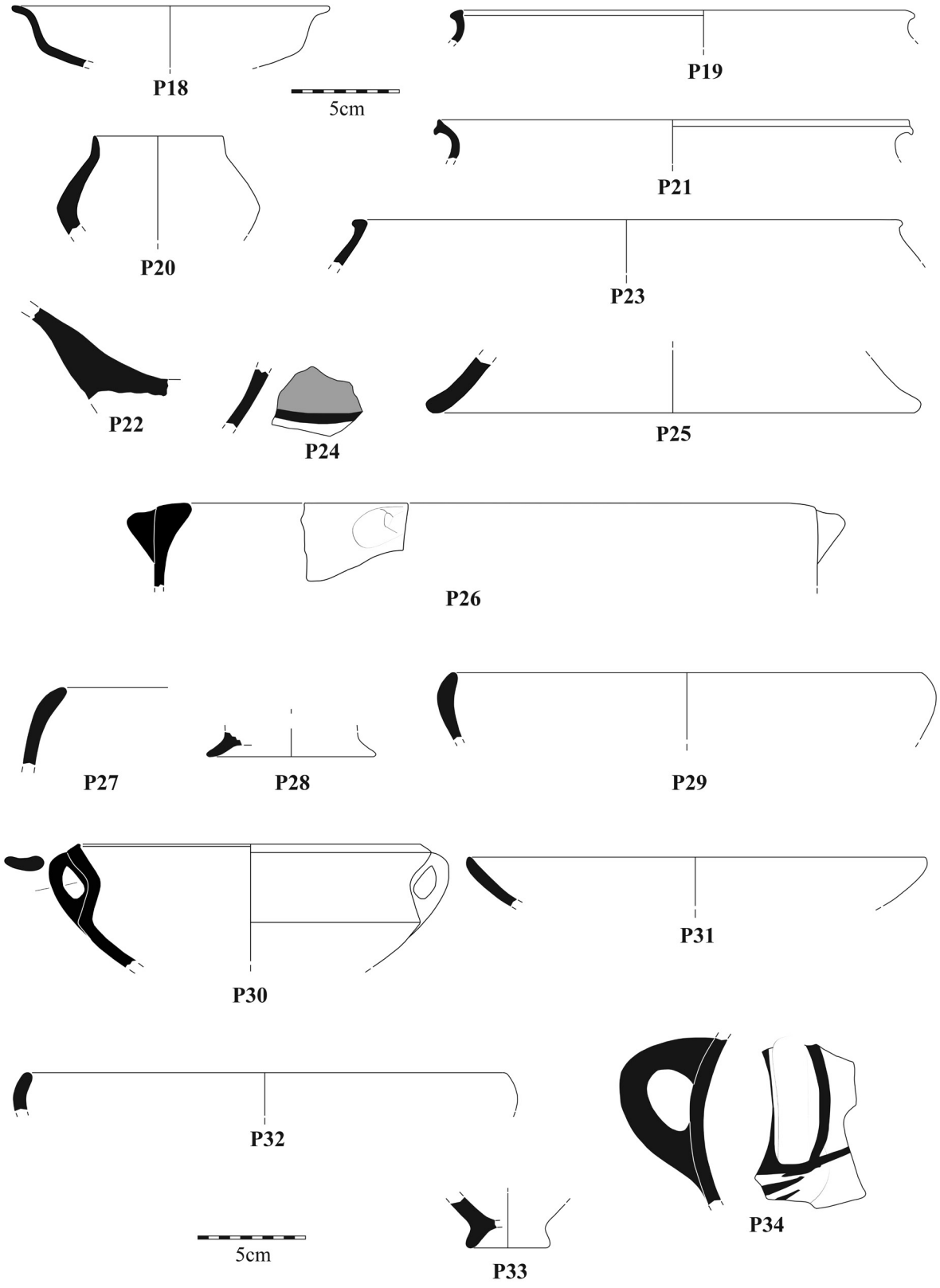

Fig. 19. Pottery from the kilns. Drawings.

P8. (**Figure 18**). Stratum I, SU 0080102. Rim from a bowl; everted, thickened, and hollowed rim (diam. 27cm; h. 3.8cm; th. 1.2cm); surf. treat: harsh burnished (grey-brown surface); fabric: fine; from MH III to MH III/LH I. Comparanda: for the dating of the above described type of rim see Hale 2016, 284, 287, Fig. 15.36; Gauß and Smetana 2007, 78, Fig. 10:Q3/86-1.

P9. (**Figure 18**). Stratum I, SU 0080103. Rim and upper body from a carinated bowl; everted, rounded rim (diam. 27cm; th. 0.6cm); carinated body (th. 0.7cm); surf. treat: burnished (grey surface) and ribbed; fabric: fine; MH II-III. Comparanda: Hale 2016, 275, Fig. 12.8, 12; Cosmopoulos 2014, Vol.2, Figs. 17.401, 18.433.

P10. (**Figures 18 and 20**). Stratum I, SU 0080103. Neck and upper body from a closed vessel, amphora or jug; concave neck (diam. 16cm; h. 3.1cm; th. 0.9cm) and convex body (h. 3.5cm; th. 0.6cm); surf. treat: painted decoration, consisting of brown bands on buff-orange burnished surface; fabric: fine; MH II-III. Comparanda: Siedentopf 1991, Taf. 44. 189, 190; Taf. 67. 330, 331; Taf. 68.337.

P11. (**Figures 18 and 20**). Stratum I, SU 0080103. Rim and upper body from a pithos; everted, slightly pointed rim (diam. 31cm; th.1.2cm); funnel-neck (th. 1.5cm); surf. treat: painted decoration, consisting of brown bands on buff-greenish surface; fabric: fine; MH II. Comparanda: Siedentopf 1991, Taf. 12.115; Taf. 27.117.

P12. (**Figures 18 and 20**). Stratum I, SU 0080105. Body fragment, with handle attached, from a kantharos or a cup; convex body (h. 2cm; th. 0.4cm); vertically attached, high swung strap handle; surf. treat: painted decoration, consisting of brown bands on plain orange-red surface; fabric: fine; MH II-III. Comparanda: Gauß and Smetana 2007, 74, Fig. 6:XXXV-8; 75, Fig. 7:Pr 199 (12a/11-6); 78, Fig. 10:XXXVIII-5; Siedentopf 1991, Taf. 102.627, Taf. 116.769.

P13. (**Figures 18 and 20**). Stratum I, SU 0080108. Rim and upper body, from a round bowl; everted, flattened rim (h. 2cm; th. 0.7cm); convex body (h. 6.6cm; th. 0.8cm); surf. treat: harsh burnished (red-orange surface); fabric: semi-coarse; MH II (?). Comparanda: Gauß and Smetana 2007, 63, 76, Fig. 8:Q3/86-11.

P14. (**Figure 18**). Stratum I, SU 0080102. Rim from an open vessel; everted, rounded rim (diam. 23cm; h. 0.6cm; th. 0.7cm); straight body (h. 2.6cm; th. 0.6cm); surf. treat: burnished (orange-red surface); fabric: semi-fine; LH I. Comparanda: Maran 1992b, 180-84, Taf. 5.163-64, 15.514.

P15. (**Figures 18 and 20**). Stratum I, SU 0080102. Body fragment; convex body (h. 3.1cm; th. 0.5cm); surf. treat: painted decoration, consisting of brown-black bands on orange-buff burnished surface; fabric: fine; LH I. Comparanda: Mountjoy 1986, 10, Figs. 1.9 (Quirk), 4.3.

P16. (**Figure 18**). Stratum III, SU 0080201. Base and lower body from a pedestalled saucer or a sauceboat; flaring, hollowed ring-base (diam. 4m; h. 1cm; th. 0.7cm); surf. treat: covered with light slip; fabric: semi-fine; EH II. Comparanda: Wiencke 2000, 584-88, 586, Fig. II.92 (Type 4); 592-97, 596, Fig. II.93 (pedestalled types); Berger 2004, Taf. 6.27.

Fig. 20. Pottery from the kilns. Photographs.

P17. (**Figure 18**). Stratum III, SU 0080205. Rim, with handle attached, from a bowl or a basin; incurved rim (diam. 25cm; h. 3.8cm; th. 0.9cm); handle of cylindrical section (diam. 1.9cm); surf. treat: burnished; fabric: coarse; EH II. Comparanda: Berger 2004, Taf. 6.21, 7.37.

P18. (**Figure 19**). Stratum III, SU 0080201. Fragment form a carinated bowl; everted rim (diam. 30cm; h. 5.9cm; th. 0.8cm); slightly carinated body; surf. treat: covered with red slip and burnished; fabric: semi-fine; MH I-II. Comparanda: Cosmopoulos 2014, Vol.2, 467 (No. 467), Fig. 20.467, Pl. 36.467; Gauß and Smetana 2007, 72, Fig. 4:XXVIII-22, 74, Fig. 6:XXXV-10.

P19. (**Figure 19**). Stratum III, SU 0080201. Rim from a bowl; everted, thickened, moulded rim (diam. 22cm; h. 1.5cm; th. 0.6cm); surf. treat: burnished (grey surface); fabric: fine; MH II. Comparanda: Hale 2016, 281, Fig. 13.24; Cosmopoulos 2014, Vol.1, 273; 2014, Vol.2, Fig. 12.310; Gauß and Smetana 2007, 74, Fig. 6:XXXV-4, XXXV-5.

P20. (**Figure 19**). Stratum III, SU 0080201. Rim and part of the body from a cup; everted, tapering and pointed rim (diam. 6cm; 0.9cm; th. 0.5cm); carinated body (h. 3.6cm; th. 0.9cm); surf. treat: burnished; fabric: semi-fine; MH I-III. Comparanda: Hale 2016, 285, Fig. 14.28; Cosmopoulos 2014, Vol.1, 276-8; Gauß and Smetana 2007, 72, Fig. 4:XXVIII-26.

P21. (**Figure 19**). Stratum III, SU 0080202. Rim from a bowl; everted, thickened and moulded rim (diam. 22cm; h. 1.8cm; th. 0.7cm); surf. treat: burnished (brown-grey surf. colour); fabric: fine; MH II-III. Comparanda: Cosmopoulos 2014, Vol.1, 273-4; 2014, Vol.2, 45, Fig. 12.310; Maran 1992a, Taf. 68.10, 103.11, 103.12, 113.9).

P22. (**Figure 19**). Stratum III, SU 0080209. Lower body from a pedestalled bowl; the part where the pedestal base was attached is preserved (with grooves) (h. 3.9cm; th. 1.9cm); surf. treat: burnished (grey surf. colour); fabric: fine; MH II-III. Comparanda: Cosmopoulos 2014, Vol.1, 275; Hale 2016, 274.

P23. (**Figure 19**). Stratum III, SU 0080209. Rim from a bowl; inverted, thickened and hollowed (diam. 26cm; h. 2.1cm; th. 0.7cm); surf. treat: burnished (grey surf. colour); fabric: fine; MH II-III. Comparanda: Cosmopoulos 2014, Vol.1, 272; Hale 2016, 273, 277, 280, 284.

P24. (**Figures 19-20**). Stratum III, SU 0080201. Body fragment; concave body (h. 2.7cm; th. 0.6cm); surf. treat: bichrome decoration, consisting of red-brown and brown-black bands on buff-yellow surface; fabric: fine; LH I. Comparanda: Cosmopoulos 2014, Vol.1, 324-6, 2014, Vol.2, Fig. 27.648, 653; Gauß and Smetana 2007, 65 (Phase K); Maran 1992b, 168-69, Taf. 7. 251, 252.

P25. (**Figure 19**). Stratum III, SU 0080201. Base, possibly from a pedestalled bowl; plain, pedestal base (diam. 23cm; h. 2.7cm; th. 0.7cm); surf. treat: burnished (yellow-red surface); fabric: semi-fine; LH I. Comparanda: Cosmopoulos 2014, Vol.1, 339-40; Maran 1992b, 130-36, Taf. 25.784.

P26. (**Figure 19**). Stratum V, SU 0080212. Rim, with lug attached, from a basin; horizontal thickened, slightly sloping rim (diam. 31cm; h. 3.8cm; th. 1.2cm); horizontal crescent lug (h. 2.5cm; th. 1.3); surf. treat: burnished; fabric: semi-coarse; EH II. Comparanda: Wiencke 2000, 339, Fig. II.5 (P69); Berger 2004, Taf. 7.38.

P27. (**Figure 19**). Stratum V, SU 0080212. Rim from a bowl or a sauceboat (?); plain tapered, inturned rim (diam. 35cm; h. 3.6cm; th. 0.7cm); surf. treat: plain; fabric: coarse; EH II. Comparanda: Wiencke 2000, 482, Fig. II.64 (P1070, 1071); 584-8, 586, Fig. II.92 (Type 4); Berger 2004, Taf. 6.29.

P28. (**Figure 19**). Stratum V, SU 0080212. Base from a sauceboat or a pedestalled saucer; flaring ring-base (diam. 8cm; h. 1.1cm; th. 0.9cm); surf. treat: covered with light-slip; fabric: semi-fine; EH II. Comparanda: Wiencke 2000, 584-8, 586, Fig. II.92 (Type 3); 592-7, 596, Fig. II.93 (pedestalled types); Berger 2004, Taf. 6.19

P29. (**Figure 19**). Stratum V, SU 0080213**.** Rim from a bowl; plain tapered, inturned rim (diam. 22cm; h. 3.1cm; th. 0.8cm); surf. treat: burnished; fabric: semi-coarse; EH II. Comparanda: Wiencke 2000, 601-2, Fig. II.94 (Type 2); Berger 2004, Taf. 6.25.

P30. (**Figures 19-20**). Stratum V, SU 0080213. Fragment from a carinated bowl; everted, slightly thickened and hollowed rim (diam. 17cm; th. 0.5cm); carinated body; vertical strap handle (h. 3.3cm; th. 0.7); surf. treat: burnished (dark grey-black surface colour); fabric: fine; from MH III to MH III/LH I. Comparanda: Maran 1992b, 202-3, Taf. 31. 958; Hale 2016, 282-84, 285, Fig. 14.31.

P31. (**Figure 19**). Stratum VI, SU 0080304. Rim from a bowl/plate; plain tapered, slightly inturned rim (diam. 22cm; h. 3cm; th. 0.5cm); surf. treat: solidly covered with brown slip on orange surface; fabric: semi-fine; EH II. Comparanda: Wiencke 2000, 592-97, 596, Fig. II.93 (Type 2); Berger 2004, Taf. 6.23.

P32. (**Figure 19**). Stratum VI, SU 0080304. Rim from an inturned bowl; inturned, rounded rim (diam. 22cm; h. 1.8cm; th. 0.6cm); surf. treat: burnished; fabric: semi-coarse; EH II. Comparanda: Wiencke 2000, 592-97, 596, Fig. II.93 (Type 1); Berger 2004, Taf. 6.24.

P33. (**Figures 19-20**). Stratum VI, SU 0080305. Base and lower body from a pedestalled saucer or a sauceboat; ring-base (diam. 4cm; h. 0.9cm; th. 0.8cm); convex body (h. 1.8cm; th. 0.7cm); surf. treat: solidly covered with buff slip (on orange surface); fabric: semi-fine; EH II. Comparanda: Wiencke 2000, 592-7, 596, Fig. II.93 (pedestalled types); 584-8, 586, Fig. II.92 (Types 2 and 3); Berger 2004, Taf. 6.19, 6.27.

P34. (**Figures 19-20**). Stratum VI, SU 0080305. Body fragment, with handle attached, possibly from an open vessel, a cup (?); convex body (h. 7.7cm; th. 0.7cm); vertically attached round handle (diam. 1.2cm); surf. treat: painted decoration, consisting of brown bands on buff burnished surface; fabric: fine; MH II-III. Comparanda: shape possibly parallel to Siedentopf 1991, Taf. 117:777; for decoration see Cosmopoulos 2014, Vol.2, Pl. 10.143, Pl. 13.178.

WORK CITED

Balitsari, A., D. Filioglou, and M. Gkouma. 2019. "The Middle Helladic (MH) megaron at Plasi: old assessments in the light of new evidence." Unpublished paper read at the symposium *Fieldwork and Research XII: The work of the Sector of Archaeology and History of Art, National and Kapodistrian University of Athens, 28-29 March, Athens*.

Berger, L. 2004. „Ägina-Kolonna: Neue Ergebnisse zur FH II-Keramik aus der prähistorischen Innenstadt." In *Die Ägäische Frühzeit 2. Die Frühbronzezeit in Griechenland, mit Ausnahme von Kreta,* edited by E. Alram-Stern, Vol. 2.2, 1093-1103. Serie: Forschungsbericht 1975-2002. Veröffentlichungen der Mykenischen Kommission 21. Wien: Österreichischen Akademie der Wissenschaften.

Carrington-Smith, J. 1992. "Spinning and Weaving Equipment." In *Excavations at Nichoria in Southwest Greece. The Bronze Age Occupation.* Vol. 2, edited by W.A. McDonald and N.C. Wilkie, 674-711. Minneapolis: The University of Minnesota Press.

Caskey, L.J. 1956. "Excavations at Lerna, 1955." *Hesperia* 25.2:147-73.

Catling, H.W. 1982. "Excavation and study at the Melenaion, Sparta 1978-1981." Λακωνικαί Σπουδαί 6:28-43.

Catling, H.W. 2009. *Sparta: Menelaion I. The Bronze Age*. 2 vols*.* British School at Athens Supplementary Volume 45. London: The British School at Athens.

Cosmopoulos, M. 2014. *The Sanctuary of Demeter at Eleusis: The Bronze Age.* 2 vols. The Archaeological Society at Athens Library 295 and 296, Athens: The Archaeological Society at Athens.

Cosmopoulos, M., V. Kilikoglou, I.K. Whitbread, and E. Kiriatzi. 1999. "Characterization Studies of Bronze Age Pottery from Eleusis." In *Meletemata: Studies in Aegean Archaeology Presented to Malcolm H. Wiener as He Enters His 65th Year,* edited by P.P. Betancourt, V. Karageorghis, R. Laffineur, and W.-D. Niemeier. Vol. 1, 131-37. Université de Liège: Histoire de l'art et archéologie de la Grèce antique and University of Texas at Austin: Programs in Aegean Scripts and Prehistory.

Costin, L.C. 1991. "Craft Specialization Issues in Defining, Documentating, and Explaining the Organization of Production." *Archaeological Method and Theory* 3:15-56.

Cuomo Di Caprio, N. 1978-1979. "Updraught pottery kilns and tile kilns in Italy pre-Roman and Roman times." *Acta Praehistorica et Archaeologica* 9/10: 21-31.

Davaras, C. 1980. "A Minoan Pottery Kiln at Palaikastro." *BSA* 75:115-26.

Delcroix, G., and J.L. Huot. 1972. «Le fours dits 'de potier' dans l'Orient ancient.» *Syria* 49:35-95.

Dobres, M.-A., and C.R. Hoffman. 1994. "Social Agency and the Dynamics of Prehistoric Technology." *Journal of Archaeological Method and Theory*, 1.3:211-58.

Dobres, M.-A., and C.R. Hoffman. 1999. "Introduction: A Context for the Present and Future of Technology Studies." In *The Social Dynamics of Technology. Practice, Politics and World Views*, edited by M.-A. Dobres, and C.R. Hoffman, 1-19. Washington and London: Smithsonian Institution Press.

Evely, R.D.G. 2000. *Minoan Crafts: Tools and Techniques*. An introduction. Vol. 2. *SIMA* XCII:2, Jonsered: Paul ÅströmsFörlag.

Filis, K. 2016. "Νέα αρχαιολογικά ευρήματα από τα Λουσικά και τον Πολύλοφο Σανταμερίου." In Αρχαιολογικοί χώροι και μνημεία του δήμου Δυτικής Αχαΐας, Πρακτικά ημερίδας, 19 Σεπτεμβρίου 2016, edited by Β. Αργυρόπουλος, Ε. Σιμώνη, Κ. Παπαγιαννόπουλος, 29-36. Εφορεία Αρχαιοτήτων Αχαΐας.

Gauß, W. 2006. "Minos auf Ägina. Beobachtungen zu den Beziehungen Äginas zu Kreta." In *Timelines: Studies in Honour of Manfred Bietak,* edited by E. Czerrny, I. Hein, H. Hunger, D. Melman, and A. Schwab. Vol. 2, 437-48. Orientalia Lovaniensia Analecta 149, Leuven: Uitgeverij Peeters en Departement Oosterse Studies.

Gauß, W, and E. Kiriatzi. 2011. *Pottery Production and Supply at Bronze Age Kolonna, Aegina: An Integrated Archaeological and Scientific Study of a Ceramic Landscape*. Ägina-Kolonna Forschungen und Ergebnisse 5, Österreichische Akademie der Wissenschaften, Denkschriften der Gesamtakademie 65, Contributions to the Chronology of the Eastern Mediterranean 27. Wien: Österreichische Akademie der Wissenschaften.

Gauß, W., G. Klebinder-Gauss, and C. von Rüden. 2015. "Introduction. The Transmission of Technical Knowledge in the Production of Ancient Mediterranean Pottery." In *The Transmission of Technical Knowledge in the Production of Ancient Mediterranean Pottery: Proceedings of the International Conference at the Austrian Archaeological Institute at Athens*

23rd-25th November 2012, edited by W. Gauß, G. Klebinder-Gauss, and C. von Rüden, 7-15. Österreichisches Archäologisches Institut Sonderschriften Band 54. Wien: Österreichisches Archäologisches Institut Wien.

Gauß, W. and R. Smetana. 2007. "Aegina-Kolonna, the Ceramic Sequence of the SCIEM 2000 Project.» In *Middle Helladic Pottery and Synchronisms. Proceedings of the International Workshop Held at Salzburg, October 31st – November 2nd, 2004,* edited by F. Felten, W. Gauß, and R. Smetana, 57-80. Österreichische Akademie der Wissenschaften Denkschriften der Gesamtakademie 42, Ägina - Kolonna Forschungen und Ergebnisse 1. Wien: Österreichischen Akademie der Wissenschaften.

Goldman, H. 1931. *Excavations at Eutresis in Boeotia*. Cambridge, MA: Harvard University Press.

Gorogianni, E., N. Abell, and J. Hilditch. 2016. "Reconsidering Technological Transmission: The Introduction of the Potter's Wheel at Ayia Irini, Kea, Greece." *AJA* 120.2:195-220.

Gosselain, P.O. 1992. "Bonfire of the Enquiries. Pottery Firing Temperatures in Archaeology: What For?" *JAS* 19:243-59.

Hale, M.C. 2016. "The Middle Helladic Fine Gray Burnished (Gray Minyan) sequence at Mitrou, East Lokris." *Hesperia* 85.2:243-95.

Hansen-Streily A. 2000. *Bronzezeitliche Töpferwerkstätten in der Ägäis und in Westanatolien*. Ph.D. diss., Philosophische Fakultät der Universität Mannheim.

Hasaki, E. 2002. *Ceramic Kilns in Ancient Greece: Technology and Organization of Ceramic Workshops*. Ph.D. diss., College of Arts and Sciences, Department of Classics, University of Cincinnati.

Jung, R. 2000. „Das Megaron - ein Analogie(kurz) schluss der ägäischen Archäologie." In *Vergleichen als archäologische Methode: Analogien in den Archäologien - Mit Beiträgen einer Tagung der Arbeitsgemeinschaft Theorie (T-AG) und einer Kommentierten Bibliographie,* edited by A. Gramsch, 71-92. Oxford: Archaeopress.

Krause C., and A. Tuor. 1979-1980. "Eretria. Ausgrabungen 1979-1980." *AntK* 1979-1980:70-87.

Lemonnier, P. 1993. "Introduction." In *Technological Choices. Transformation in material cultures since the Neolithic,* edited by P. Lemonnier, 1-35. London and New York: Routledge.

Lindblom, M. 2001. *Marks and Makers. Appearance, Distribution and Function of Middle and Late Helladic Manufacturers' Marks on Aeginetan Pottery*. *SIMA* 128, Jonsered: Paul Åströms Förlag.

Livingstone-Smith, A. 2001. "Bonfire II: The Return of Pottery Firing Temperatures." *JAS* 28:991-1003.

Maniatis, Y., and M.S. Tite. 1981. "Technological examination of Neolithic-Bronze Age pottery from central Crete and Southeast Europe and from the Near East." *JAS* 8:59-76.

Maran, J. 1992a. *Die Deutschen Ausgrabungen auf der Pevkakia-Magula in Thessalien III. Die Mittlere Bronzezeit*, 2 vols. Bonn: Rudolf Habelt GMBH.

Maran, J. 1992b. *Kiapha Thiti. Ergebnisse der Ausgrabungen II2 (2. Jt.v.Chr.: Keramik und Kleinfunde)*. Marburger Winckelman-Programm 1990. Marburg: Joh. Aug. Koch.

Maran, J. 2007. "Emulation of Aeginetan pottery in the Middle Bronze Age of coastal Thessaly: regional context and social meaning." In *Middle Helladic Pottery and Synchronisms. Proceedings of the International Workshop Held at Salzburg, October 31st – November 2nd 2004,* edited by F. Felten, W. Gauss, and R. Smetana, 167-82. Österreichische Akademie der Wissenschaften, Denkschriften der Gesamtakademie 42, Ägina - Kolonna Forschungen und Ergebnisse 1. Wien: Österreichische Akademie der Wissenschaften.

Marinatos, S. 1970a. "Ανασκαφαί Μαραθώνος. Πλάσι, Τσέπι, Βρανά." *Prakt*:5-18.

Marinatos, S. 1970b. "Further news from Marathon." *AAA* III:153-66.

Marinatos, S. 1970c. "Further News from Marathon." *AAA* III:349-66.

Mastrokostas, E. 1970. "Προϊστορική Ακρόπολις εν Μαραθώνι." AAA III:14-21.

Mountjoy, P.A. 1986. *Mycenaean Decorated Pottery: A Guide to Identification*. Göteborg: Paul Åströms Förlag.

Pappa, M. 1990a. "Πολύχρονο Χαλκιδικής. Εγκατάσταση της εποχής του Χαλκού." *ArchDelt* 45(B2):317-8.

Pappa, M. 1990b. "Εγκατάσταση Εποχής Χαλκού στο Πολύχρονο." Το Αρχαιολογικό Έργο στη Μακεδονία και Θράκη 4:385-98.

Philippa-Touchais, A. 2007. "Aeginetan Matt Painted Pottery at Middle Helladic Aspis, Argos." In *Middle Helladic Pottery and Synchronisms. Proceedings of the International Workshop Held at Salzburg, October 31st – November 2nd 2004,* edited by F. Felten, W. Gauss, and R. Smetana,

97-113. Österreichische Akademie der Wissenschaften, Denkschriften der Gesamtakademie 42, Ägina - Kolonna Forschungen und Ergebnisse 1. Wien: Österreichische Akademie der Wissenschaften.

Polychronakou-Sgouritsa, N., Y. Papadatos, A. Balitsari, and E. Prevedorou. 2016. "Marathon in the Middle and Late Bronze Age: New Evidence from an Old Excavation. Preliminary Results from the Excavation of the University of Athens at Plasi." In *Ra-pi-ne-u: Studies on the Mycenaean World offered to Robert Laffineur for his 70th Birthday,* edited by J. Driessen, 305-15. Aegis 10. Louvain-la-Neuve: Presses universitaires de Louvain.

Prillwitz, S., and A. Hein. 2015. "A Closer Look at Updraft Pottery Kiln Constructions Based on Middle Helladic to Iron Age Examples in the Aegean." In *The Transmission of Technical Knowledge in the Production of Ancient Mediterranean Pottery: Proceedings of the International Conference at the Austrian Archaeological Institute at Athens 23rd-25th November 2012,* edited by W. Gauß, G. Klebinder-Gauß, and C. von Rüden, 351-65. Österreichisches Archäologisches Institut Sonderschriften Band 54, Wien: Österreichisches Archäologisches Institut Wien.

Rice, M. P. 1987. *Pottery Analysis: A Source Book*. Chicago: University of Chicago Press.

Rye, O.S. 1981. *Pottery Technology: Principles and Reconstruction.* Taraxacum.

Sarri, K. 2007. "Aeginetan Matt-Painted Pottery in Boeotia." In *Middle Helladic Pottery and Synchronisms. Proceedings of the International Workshop Held at Salzburg, October 31st – November 2nd, 2004,* edited by F. Felten, W. Gauß, and R. Smetana, 151-65. Österreichische Akademie der Wissenschaften, Denkschriften der Gesamtakademie 42, Ägina - Kolonna Forschungen und Ergebnisse 1. Wien: Österreichische Akademie der Wissenschaften.

Shaw, W.J., A. van de Moortel, P.M. Day, and V. Kilikoglou. 2001. *A LM IA Ceramic Kiln in South-Central Crete. Function and Pottery Production*. *Hesperia Supplement* 30, Princeton: The American School of Classical Studies at Athens.

Siedentopf, H.B. 1991. *Alt-Ägina IV 2. Mattbemalte Keramik der Mittleren Bronzezeit.* Mainz: Philipp von Zabern.

Skorda, D. 2010. "Κίρρα: οι κεραμεικοί κλίβανοι του προϊστορικού οικισμού στη μετάβαση από τη μεσοελλαδική στην υστεροελλαδική εποχή". In *Mesohelladika. Μεσοελλαδικά: La Grèce continentale au Bronze Moyen. Η ηπειρωτική Ελλάδα στη Μέση εποχή του Χαλκού. The Greek Mainland in the Middle Bronze Age. Actes du colloque international organisé par l'École française d'Athènes, en collaboration avec l'American School of Classical Studies at Athens et le Netherlands Institute in Athens, Athènes, 8-12 mars 2006,* edited by A. Philippa-Touchais, G. Touchais, S. Voutsaki, and J. Wright, 651-68. *BCH Supplementum* 52. Athènes: École française d'Athènes.

Sporn, K., L. Berger, and L. Tanner. 2017. "Mapping Aegina Kolonna." In *50 Jahre Archäologie an der Paris Lodron-Universität Salzburg, Salzburg, 14. Dezember 2016*, edited by F. Lang and W. Wohlmayr. *ArchaeoPlus* 9:81-98.

Swan, V. 1984. *The pottery kilns of Roman Britain*. Royal Commission on Historical Monuments, Supplementary Series V. London: H.M.S.O.

Theocharaki, E. 1979. "Μαραθώνας." *ArchDelt* 34(B1):89-91.

Thér, R. 2014. "Identification of pottery firing structures using the thermal characteristics of firing." *Archaeometry* 56 (Supplement S1):78-99.

Touchais, G. 1981. «Eretria: Chronique des Fouilles en 1981.» *BCH* 105:845-50.

Touchais, G. 1982. «Eretria: Chronique des Fouilles en 1981.» *BCH* 106:593-600.

Touchais, G. 2007. "Coarse Ware from the Middle Helladic Settlement of Aspis, Argos: Local Production and Imports." In *Middle Helladic Pottery and Synchronisms. Proceedings of the International Workshop Held at Salzburg, October 31st – November 2nd, 2004,* edited by F. Felten, W. Gauss, R. Smentana, 81-96. Österreichische Akademie der Wissenschaften, Denkschriften der Gesamtakademie 42, Ägina - Kolonna Forschungen und Ergebnisse 1. Wien: Österreichischen Akademie der Wissenschaften.

Tsetlin, B.Y. 2002. "Pottery Kiln at Tell Hazna I and its position in kiln evolution. The ceramics from the kiln". In *Modern Trends in Scientific Studies on Ancient Ceramics*, edited by V. Kilikoglou, A. Hein, and Y. Maniatis, 85-94. *BAR International Series* 1011.

Tuor, A. 1981. „Eine bronzezeitliche Siedlung auf Euboea." *AntK* 24:83-4.

Venieri, Y. 2010. "Νέα στοιχεία για την κατοίκηση στη νότια πλευρά της Ακρόπολης των Αθηνών κατά τη μεσοελλαδική περίοδο: ευρήματα από την ανασκαφή στο οικόπεδο Μακρυγιάννη": In *Mesohelladika. Μεσοελλαδικά: La Grèce continentale au Bronze*

Moyen. Η ηπειρωτική Ελλάδα στη Μέση Εποχή του Χαλκού. The Greek Mainland in the Middle Bronze Age. Actes du colloque international organisé par l'École française d'Athènes, en collaboration avec l'American School of Classical Studies at Athens et le Netherlands Institute in Athens, Athènes, 8-12 mars 2006, edited by A. Philippa-Touchais, G. Touchais, S. Voutsaki, and J. Wright, 187-98. *BCH Supplementum* 52. Athènes: École française d'Athènes.

Wace, J.B.A. 1949. *Mycenae. An Archaeological History and Guide*. Princeton.

Walter, H. 2004. *Ο κόσμος της αρχαίας Αίγινας. Βιβλιοθήκη της εν Αθήναις Αρχαιολογικής Εταιρείας*, no. 233. Αρχαίοι τόποι και μουσεία της Ελλάδος. Αθήνα: εν Αθήναις Αρχαιολογική Εταιρεία.

Whitbread, I.K., and D. Dawson. 2015. "Kiln construction and use in Greece. Communicating Technical Knowledge." In *The Transmission of Technical Knowledge in the Production of Ancient Mediterranean Pottery: Proceedings of the International Conference at the Austrian Archaeological Institute at Athens 23rd-25th November 2012,* edited by W. Gauss, G. Klebinder-Gauss, and C. von Rüden, 333-49. Österreichisches Archäologisches Institut Sonderschriften Band 54, Wien: Österreichisches Archäologisches Institut Wien.

Wiencke, H.M. 2000. *Lerna, a preclassical site in the Argolid. Volumes IV.1 and IV.2. The architecture, stratification and pottery of Lerna III*. Princeton: The American School of Classical Studies at Athens.

Zachou, E. 2004. „Die frühbronzezeitliche Siedlung in Proskynas/Lokris." In *Die Ägäische Frühzeit 2. Die Frühbronzezeit in Griechenland, mit Ausnahme von Kreta*, edited by E. Alram-Stern. Vol. 2, 1267-83. Serie: Forschungsbericht 1975-2002, Veröffentlichungen der Mykenischen Kommission 21. Wien: Verlag der Österreichischen Akademie der Wissenschaften.