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**Stratified Wheel made Pottery Deposits and Absolute  
Chronology of the LBA to the EIA Transition at  
Thessaloniki Tumba**

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# **Stratified Wheel made Pottery Deposits and Absolute Chronology of the LBA to the EIA Transition at Thessaloniki Toumba\***

A significant increase in the amount of Mycenaean vases is observed in all excavated settlements in Central Macedonia when LH III C style decorated pottery became current (WARDLE 1993, 130 f. with fig. 5. - HOCHSTETTER 1984, 12, FIG. 1; JUNG 2002, 221-229). Mycenaean pottery however, still comprised only a small section of the ceramic table ware assemblage, which remained primarily hand made. Moreover, it has been noted that during the last part of the Late Bronze Age, despite possible variations in quantity from site to site, the presence of the Mycenaean ware was ubiquitous in settlements, regardless of their location (JUNG 2003b). The complex historical circumstances, which may have been responsible for this impressive rise in the popularity of this class of vessels in the communities of Central Macedonia at the end of the LBA have been discussed elsewhere (ANDREOU 2003, 196-202) It is generally assumed, although it is not always easy to document, that most of the LH III C style pottery was locally produced in several small scale, dispersed, sub-regional production sites (IDEM, 196.-KIRIATZI 2000, 257-258.). This view is strengthened by the observation that circulation of Mycenaean vases was more or less confined in the limits of each sub-region of the area and by the occasional existence of local morphological features (JUNG 2003, 140) Nevertheless, the trends, in terms of regional technological and stylistic preferences and their development and in terms of patterns of use of this special class of containers, were more or less uniform in the area (BUXEDA I GARRIGOS, J. - R. E. JONES, - V. LEVI, S. T.- KILIKOGLU, - Y. MANIATIS, - J. MITCHELL, - L. VAGNETTI, - K. A. WARDLE, - S. ANDREOU 2003. 279-281. - KIRIATZI 2000, 197-226. -

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ANDREOU - PSARAKI 2007, 416-17). There are indications that a regional LH III C style developed which was based on the selection of a narrow repertoire of shapes and decorative motives and at the same time was not particularly amenable to innovations spreading from the South (JUNG 2003, 140. - ANDREOU 2003, 195. – cf. MOUNTJOY 1999, 15). As a result, several morphological features remained current for a much longer period in Central Macedonia than elsewhere in the Aegean. Although there are strong elements of ceramic continuity between the LBA and the EIA, the number of incoming innovations regarding the wheel made component of the ceramic assemblage increased and probably gained some momentum towards the end of the LBA and during the beginning of the EIA. This is documented by the introduction of a new class of wheel made ware, the fine grey ware and of some new shapes and decorative motives, the concentric circles painted with a multiple brush being the most characteristic among them (JUNG 2003, 138-139.- ANDREOU 2003, 195). At the same time a radical change occurred in the circulation of the wheel made decorated pottery, which either disappeared completely from some settlements or its frequency decreased gradually in others (WARDLE 1980, 260.- WARDLE 1997, 454. - HÄNSEL 1989, 339). Other changes, which also took place at different points in the same broad chronological horizon, stress the importance of the period which spans the end of the LBA and the first centuries of the EIA in Central Macedonia and the divergence of the area from the course of developments seen in the rest of the Aegean during the same period. These changes include an increase in the number of settlements, the growth in size of some settlements, the first appearance of cemeteries in Central Macedonia, etc. (PAPADOPOULOS 2005. - ANDREOU - EXARHOU IN PREPARATION). The need for clear, long and secure sequences, which will allow the chronological correlation of changes in Macedonia and will relate them with developments outside the area in order to enhance their understanding, is evident. The long stratigraphical sequences, such as those provided from the long lived tells of Central Macedonia, present an obvious advantage for such a study.

So far, Jung' s exemplary publication of the Mycenaean and Protogeometric style pottery from the Kastanas Toumba remains the only fully published settlement assemblage of wheel made ceramics from Central Macedonia (JUNG 2002). Only preliminary accounts regarding the characteristics and development of the decorated wheel made wares exist for the other three recently excavated sites in the area, namely Assiros Toumba (WARDLE 1980, 250-252- WARDLE 1993, 127, 130-133),

Thessaloniki Toumba (ANDREOU N. D. - ANDREOU 2003) and the Toumba of Ayios Mamas (JUNG 2003). All sites cover the LBA-EIA transition and continued to be occupied during the EIA. A drawback of the Kastanas Toumba sequence however, is the long duration, perhaps over 100 years, of the crucial layer 12, (HÄNSEL 1989, 188), which spans both the end of the LH III C phase and the beginning of PG without any identifiable reconstruction in between. As a result, it is not possible to observe stratigraphically the introduction of innovations, which may be related either to the latest LH III C stylistic phases, the Sub-Mycenaean or the Early Protogeometric (JUNG 2003, 136). If the regional tendency to retain stylistic features long after they have been abandoned elsewhere is combined with this problem, then the ability to obtain accurate intra and inter-regional chronological correlations loses some strength. The difficulties are even greater in Assiros Toumba, where after phase 5, placed by the excavator at the end of the LBA, wheel made pottery disappeared from the site, with the exception of the fragments of one PG amphora dated probably to Early/Middle PG (WARDLE 1997, fig. 2, 1. - NEWTON – WARDLE - KUNIHOLM 2003[2005], 135-36). Similarly to Kastanas and Assiros, Thessaloniki Toumba has a long stratigraphical sequence, which goes back to the MBA. In addition, it provides a series of stratified deposits, which gap the period from the beginning of LH IIIC to EPG and contain examples of Mycenaean and Protogeometric pottery (ANDREOU-KOTSAKIS 1996 [1997]). A number of  $14^C$  dates from these deposits can also be added to the series of absolute dates, which have been published so far from Kastanas and Assiros Toubas (JUNG - WENIGER 2002. - JUNG - WENIGER 2004. - NEWTON - WARDLE - KUNIHOLM 2003[2005] - WARDLE, NEWTON AND KUNIHOLM 2007).

The purpose of this paper then is to present the main features of the wheel made pottery from the architectural phases of the final LBA and very early EIA levels of Thessaloniki Toumba in order to facilitate the synchronisms with other Macedonian settlements and with the Central and Southern mainland and the eventual construction of a detailed chronological framework for the course of the developments during the LBA-EIA transition in the Northern Aegean.

## ***The site and the deposits***

The Thessaloniki Toumba is located ca 1,5 klms from the present coast of the Thermaikos bay, on the low hills that enclose the narrow coastal plain of Thessaloniki from the east. The site is one of the largest tells in Central Macedonia with a perimeter of ca 400 m. and maximum length and width of 150 and 100 m respectively and rises ca 20m above the Iron Age settlement, which spread around its base after the middle of the 9<sup>th</sup> cent BC. The excavation has shown that the site was first occupied at the end of EBA and continued to be used until the end of the 4<sup>th</sup> cent. BC, when the mound was abandoned, together with the surrounding lower town. The deposits, which will concern us here are located on the summit of the mound, where occupation was restricted during the later LBA (ANDREOU - KOTSAKIS 1996 [1997]. - ANDREOU 2001, 166-168. - ANDREOU - PSARAKI 2007, 401-403). Several blocks of orthogonal rooms, over a dozen in each Building, have been excavated there, divided by narrow pebble strewn paths (Fig.1). The walls of the Buildings were post framed and built with mud bricks. Posts were also used to support the roofs. Low rubble foundations supported the external walls and vertically placed stones often protected the lower courses of walls that faced on streets. Buildings and paths had been reconstructed repeatedly with minor changes in plan and immediately on top of their predecessors.

In order to be able to evaluate the information regarding the deposits of the LBA settlement one has to be aware of the basic depositional and post-depositional processes that are responsible for the formation of these deposits. The procedure that was usually followed before each reconstruction involved the leveling of the previous walls to a certain height. The room was filled with the debris of the previous phase, which usually comprised a thick and often rich stratum containing large quantities of broken and disintegrated mud bricks along with other finds. The new walls were reconstructed on top of the short protruding part of their predecessors, with or without the intervention of few courses of stones, which comprised the foundation of the new construction. Episodes of wall reconstruction are more clearly recognizable primarily when a rubble stone foundation had been used. Otherwise, it is often difficult to identify reconstructions in interior brick walls, which may be standing up to two meters of height with successive floors at different depths. Floors as a rule were made of trodden earth, which makes them equally hard to recognize, with hearths, and

cupboards and baskets standing on top of them, and clay bins and pithoi sunk down in them. In most occasions floors were kept clean and floor deposits are thin and not very productive in terms of artifacts and ecofacts. Open spaces, such as streets, and internal courts are usually identified through the loose, soft light grey earth, which contained huge amounts of rubbish of all kinds, from broken pottery to bones and shells. The LBA settlement of Thessaloniki Toumba did not suffer any destruction by fire; neither any other episode of widespread destruction has been recognized. This fact has several consequences for the character of the deposits. As a rule, the degree of fragmentation of the pottery is high. There is no means to be certain that the blocks of the settlement, or even the separate rooms of the same Building, underwent reconstruction simultaneously, although some episodes of more general reconstruction can be observed in separate Buildings, such as this between phases 3 and 4A. These phases of reconstruction, usually identified in the external walls, have been used to mark the different architectural phases. Minor reconstructions and the reconstructions of floors have been used to mark the sub phases. Some sub-phases could be further subdivided, but this was avoided in this paper. Furthermore, it was often only possible to follow a floor in a small part of the room, while it was more difficult to distinguish the material belonging to different floors and sub phases in the rest. For this reason we preferred for the purposes of this paper to combine the material of successive sub phases, at least for phase 4, which is the one with the longest duration, for this later part of the LBA. Similarly, one has to keep in mind that there is no way to secure that different sub-phases were exactly contemporary in different rooms. Finally, some processes are more or less endemic in tell formations and affect, occasionally seriously, the chronological identity of a find or a group of finds and their ability to date the surrounding context. One must assume that there was continuous recycling of all kinds of material, from mud bricks to wooden posts, to tools, and ceramic vessels, particularly the large pithoi. In fact, the re-use of the latter, which are occasionally huge and must have been considered very valuable, was a constant cause of disturbance. Quite often, pits were dug to facilitate the extraction of pithoi, which left their traces on the profile of the trench (Fig. 2). In other occasions pits must have been dug down into older levels beneath the floors to put in pithoi, which could have been extracted from the earlier levels of adjacent rooms in the reconstructed house. These activities were often, but not always recognizable during

the excavation. Occasionally they were recognized during the study, but it is possible that some must have escaped our attention.

The discussion that follows is based on the detailed and still partly under revision, study of Building A, which was excavated almost totally, three rooms of Building B to the northeast of Building A and the streets which separated them. All were excavated between 1985 and 1999. Building E is still under excavation, while the study of Building Z just finished, and has not been included in this account.

The earliest remains on the summit belong to Phase 5 (Fig. 2), which must have come to an end in LH III B, although LH III A2 pottery is also included in its deposits (ANDREOU 2003, fig. 5)<sup>1</sup>.

Phase 4 is the first and the longest of the phases which contain LH III C style pottery. Its last sub phase, phase 4A, provides the most complete picture in terms of architecture and activities in the rooms of Buildings A and B (Fig. 1). Nevertheless there are substantial floors and deposits, which belong primarily to phase 4C and to a lesser extent to phase 4D (only in the most southwestern rooms of Building A) (Fig. 2). Several of the large pithoi, which were concentrated in the two storerooms of the Building had been put in during this period and continued to be used in phases 4B-4A, when additional pithoi were added to these and to one more room. Clay bins were also used in two rooms during this period (A3 and A 5). No deposits belonging to these phases were reached in Building B.

Phase 4B-4A comprise the thickest deposits (actually they mostly belong to phase 4A) This is because a major reconstruction took place after the end of the period, at the beginning of phase 3. As a result, almost all rooms comprise deep fill deposits which belong to the very end of the phase, mixed with mud bricks. As a rule, one finds sherds joining from top to bottom in these deposits. This event is seen in both Buildings and the possibility that the reconstruction could have been instigated by an earthquake can not be ruled out, since some big parts of walls were found tumbled into the rooms. Three rooms in Building A (A11, A5, A8) and two in

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<sup>1</sup> More substantial deposits of Phase 5, which can be divided further to several sub phases, have been excavated just below the edge of the summit. They belong to two adjacent Buildings, M and H. Nevertheless, so far no clearly LH III A2 deposit has been identified. The earliest stratified Mycenaean sherd found at Toumba is a strap handle, probably from a squat jug, FS 87, which should be dated to LH II A or LH II B, depending, if it originated in the Argolid or Thessaly (MOUNTJOY 1986, figs. 21:1, 45:1). I am more inclined towards the former. The piece came from a secure floor deposit of phase 6 in Building H. I thank Dr. P. Mounjoy for information on this sherd. Few more LH II fragments have been found in later deposits, indicating the sporadic introduction of Mycenaean style pottery to the site at an early date.

Building B (B1, B2) were crowded with large pithoi during this phase (MARGOMENOU - ANDREOU - KOTSAKIS 2005 [2007]) and there is some evidence for metalworking, including gold working in the former (MAVROIDI - ANDREOU - VAVELIDIS 2004[2006]).

New foundation courses were laid, occasionally with large stones, at the start of phase 3 on top of the standing parts of external walls. The Buildings followed faithfully the plan of the previous phase with only occasional movement of some of the internal walls. The deposits of phase 3 on the western part of Building A were to a large extent eroded and disturbed and walls were rarely preserved above the first course of the foundation (Fig.2). Sealed deposits and secure floors, reconstructed at least twice, belonging to this phase, were only found in Building B and the NE corner of Building A (Fig. 3). Some rooms in Building A contained small hearths, but only few of the pithoi of phase 4 remained in use in one of the storage rooms of the previous phase (A10). It is possible that the northern room of Building B was covered with a light roof made of straw, to judge from the layer of phytoliths that was found on the floor. This might indicate a working area, an interpretation which is supported by the large amounts of crashed murex shells, which were the by-products of purple dye production (VEROPOULIDOU - ANDREOU - KOTSAKIS 2005 [2007]). Evidence for storage in straw baskets was found in one of the Southern rooms. As a rule, deposits of this period were not particularly deep.

Architectural remains assigned to phase 2B have only been found in three trenches (Fig. 1, nos 232, 242, 241) of Building A, and one trench of Building B. A rich deposit of pottery has been provided by the excavation of the street between the two complexes. The remains of this phase are eroded in the central and western part of the excavation (Figs. 2 and 3). There is little doubt however, that the plan of the settlement remained unchanged during this period as well. A major reconstruction of the NE corner of Building A and similar work on the western wall of Building B initiated the period. A number of floors and the construction of an oven in the northern room of Building B indicate that the period was not particularly short. On the other hand it is possible that the southern room of the Building remained out of use. In Building A, the soft gray layer that accumulated in one of the rooms indicates probably the existence of a yard at the NE corner (Fig. 1).

Secure deposits of Phase 2A, the earliest EIA phase, were only found in Building B, floor and fill, and in the street between A and B, the latter being quite a

substantial deposit with several events of street reconstruction (Figs. 1 and 3). Building A had been almost totally eroded, with the exception of its northern part, where a room with several clay bins was found right underneath the surface. Again, there is no reason to believe that the plans of the Buildings saw any substantial alterations. The foundation course of the eastern wall of Building A, belonging to phase 2A, is still in place as were a pile of stones, which probably formed some sort of staircase to enter the eastern room of A. Nevertheless, no secure deposits have been preserved inside Building A.

No architectural remains of the EIA have been found on the summit after the end of phase 2A. There is evidence from pits and occasional and incoherent foundations, which indicate that the summit continued to be occupied. It is likely however, that the remains were partly eroded and partly leveled in the 6<sup>th</sup> century BC, when a number of substantial buildings were built on the eastern and western edge of the summit (ANDREOU - KOTSAKIS 1996 [1997]).

### ***The Mycenaean and Protogeometric style pottery in the deposits of phases 4 to 2***

We shall include in our discussion here the wheel made pottery from phases 4 to 2 and their sub-phases, because as we shall see many ceramic features which start with the first occurrence of the LH III C stylist features in the deposits of the site, continue or only develop modestly up to the beginning of the EIA<sup>2</sup>.

It has been mentioned already that the wheel made component in the deposits of the Macedonian sites comprises only a small fraction of the total ceramic assemblage, which includes several handmade plain, burnished, painted, incised, cooking and pithos wares<sup>3</sup>. In the deposits which interest us here, however, a remarkable increase is apparent in the amount of wheel made pottery at the end of the LBA and particularly at the very beginning of the EIA (Fig. 4). This rise is exaggerated to some extent by the fact that phases 2B and 2A comprise substantial street deposits, as opposed to the other phases, which include only room fill and floor deposits. Nevertheless, it is reasonable to believe that the amount of wheel made pottery used at the site increased at the beginning of the EIA that is in phase 2A. A

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<sup>2</sup> Jung discusses this issue in the publication of Kastanas (JUNG 2002)

<sup>3</sup> For discussions of the different wares from Thessaloniki Toumba (KIRIATZI 2000. - PSARAKI 2004. – MARGOMENOU 2005) For quantitative data regarding the amount of Mycenaean in relation to the rest of the table wares at Toumba (ANDREOU 2003, 194, N. 15).

similar rise has been also noted during the same period in the settlement of Kastanas (JUNG 2002).

The main morphological and technological features of the wheel made decorated pottery will be described according to the grouping of the deposits that was proposed above.

Technologically<sup>4</sup>, the Mycenaean style pottery of sub-phases 4D-4C indicates a considerable variability in pastes, finishing techniques, firing conditions and paints (Fig. 5). In general terms all pottery is fine, with surfaces which may be burnished or carefully smoothed. The two main macroscopic technological groups (1 and 7), despite their considerable internal variability, can be described as one which uses fine red-orange pastes and dull reddish paints (Fig. 7:1, 2, 4) and another with pinkish-buff pastes and lustrous dark paints for the decoration. Chemical analysis has suggested that the latter probably included some imports from Central Greece (Fig. 7:3). With the exception of ceramic group 0 which contained a variety of more or less unique specimens, the other smaller groups are quite distinct and homogeneous.

Bell shaped deep bowls are by far the most common shape and include both the variant with the knobbed or everted rim (FS 304/305) and the regular type with the splaying rim (FS 284/285) (Fig. 7:1-4). Most are decorated with the wide, horizontal wavy band with the soft swing, very characteristic of LH IIIA2/IIIB and the very beginning of LH III C, and have the occasional stemmed-bowl type decoration (MOUNTJOY 1999; RUTTER 2003, 197, fig.10). No stems of stemmed bowls however, have been found at Toumba, as opposed to Kastanas (JUNG 2002). The wavy band retains a very high popularity as a decorative motive for deep bowls until phase 2A. Nevertheless, this particular smoothly undulating version seems to disappear from the site after phase 3. Wavy band deep bowls with linear decorated interiors are by far more common during this phase than those with monochrome interiors (Fig. 6). The latter decoration was common in Southern Greece in LH III B, but continued during the transitional and LH III C early in several areas of the eastern Peloponnesus (MOUNTJOY 1999, 37, fig. 3. - RUTTER 2003, 197, fig.10). Both varieties of wavy band bowls were particularly popular in Kastanas in layers 14b and 14a (Jung 2002, pls. 6-7 – 9,101). Spirals on the bottom of deep bowls with linear

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<sup>4</sup> The pottery was extensively sampled for refiring tests, petrographic and chemical analysis and results are in the processing stage. For a description of the technological characteristics of each ceramic group, see (ANDREOU N. D - KIRIATZI 2000, 200-215).

interiors is also common in during the beginning of LH III C (MOUNTJOY 1986, 151) and several examples with this type of decoration are present in the early phase 4 deposits of Toumba (Fig. 7:1). Monochrome bowls have not been identified prior to phase 3 at Toumba. Linear deep semi-globular cups are another characteristic shape in phases 4D and 4C (Fig. 7:7), which seems to be a typical feature of LH III C early contexts in Central and Southern Greece (MOUNTJOY 1999, 183 - RUTTER 2003, 197) and also appears in Kastanas 14a (JUNG 2002, pl. 12,129). Some characteristic closed shapes in 4D and 4C deposits, although not very finely dated, are also compatible with LH III C early. These are an amphoriskos (Fig. 8:1), a flat everted rim with painted strokes from a large closed vessel (Fig. 4:4) a cooking pot (Fig. 8: 2) and the painted neck of a medium-large closed vase (Fig. 7:3)<sup>5</sup>. Phases 4D and 4C then seem to fall inside the limits of LH III C early and are chronologically comparable with layers 14b and 14a of the nearby settlement of Kastanas Toumba (IBID., 222-23)<sup>6</sup>.

Technological and morphological variability increased slightly in phases 4B and 4A (Fig. 5). Perhaps the most important innovation was the introduction, although in very small numbers, of a new wheel made ware, the Fine Gray ware (Exarhou 2004). This class of pottery is also known from Kastanas, where it first appeared in the presumably later layer 12, again in small quantities. The only shapes present at Toumba in the LBA levels is the Mycenaean type Deep Bowl (cf. IBID., 2002, pl. 65, 531, 532, 536)<sup>7</sup>. Deep bowls of various sizes, including the variant with knobbed or everted rim, continued to be the predominant shape in the Mycenaean style ware. While linear examples still predominated (Fig. 9:1-2) monochrome interiors became more common than previously (Figs. 6 - 9: 3-6). Most vases display only linear decoration. The wavy line however, was still the most popular motive (Fig. 9:5). Two new motives made their appearance during these phases, the inverted horns motive

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<sup>5</sup> For the amphoriskos see (MOUNTJOY 1999, fig. 40: 306); for the everted rim (MOUNTJOY 1986)fig. 200:2 and the cooking pot (RUTTER 2003, fig. 7).

<sup>6</sup> For more on the a comparisons between the stratigraph of Thessaloniki Toumba and Kastanas Toumba see { JUNG - ANDREOU IN PREPARATION }

<sup>7</sup> One or two additional shapes were present at Kastanas, the carinated cup (FS 240) and the shallow bowl (FS 295). Both are also seen at Toumba, but in disturbed levels. Gray ware pottery, with a different repertoire, gradually increasing in numbers, continued to be used at Toumba, Kastanas and other sites in Central Macedonia during the EIA (Exarhou 2004 and Andreou and Exarhou in preparation). The early appearance of the ware at Toumba, during the high period of the presence of Mycenaean style pottery confirms the view expressed by Jung, which connects the earliest Macedonian examples with Gray ware imitations, which were found in Southern and Central Greece in late LH III B and LH III C contexts (JUNG 2002, 198 f.).

(Fig. 9: 3) and the tassel (Fig. 9: 4. - *IBID.*, 83 f.). The latter is still very rare, but there are several examples of the former in the deposits of phases 4B and 4A. As is the case with the wavy line, they occur on deep bowls and on larger vessels. The horns motive, if not a local invention, it is a local selection, which continues to be seen at Toumba in phases 2B and 2A (Fig.13:1). Outside Macedonia, it appears only rarely and in a restricted geographical zone (JUNG 2002, 84, fig. 16). For chronological purposes it may be useful however, to point out that the few stylistically remote parallels from Central and Southern Greece belong to the later part of LH III C early and to LH III C middle (MOUNTJOY 1999, Fig. 77,197. - MOUNTJOY 1986, fig. 206:2). At Kastanas the horns appeared first in layer 14b (JUNG 2002, pl. 6,65) and continued without interruption until the layers 12 and 11. On the other hand, the tassel is seen on closed vessels in South and Central Greece already in LH III C. In deep bowls however, it does not appear before LH III C middle and then only rarely (MOUNTJOY 1986, 137 and 160). At Kastanas the motive first occurred in layer 13 (JUNG 2002, 91-92). Few kraters were found in the deposits of these sub-phases<sup>8</sup>. A presumably ring based krater with thickened rim, linear interior and decoration of wavy line, tricurved arch or tassel (Fig. 9: 8) may be more compatible with a LH III C middle date<sup>9</sup>. Two fragments of another krater with monochrome interior display an intricate decoration of two reversed rows of semicircles or tricurved arch and interspaces filled with concentric arcs (Fig. 9:10)<sup>10</sup>. Finally, an atypical, perhaps spouted krater (FS 298) with a narrow decorative zone (Fig. 9:5), may also compare to LH III C middle examples (MOUNTJOY 1999, fig. 309, 259, 260). A series of large and small closed shapes were also found in the rich deposits of phases 4B and 4A (primarily the latter). Several fragments belonged to belly handled amphoras (FM 58) (Fig. 9:10), a type which became more common in LH III C middle in South and Central Greece (MOUNTJOY 1986, 161). Smaller (FS 59) and larger amphoriskoi (FS 61) occasionally had three handles and wavy band decoration (Fig. 10: 2-4). They are also better in place in LH III C middle (cf. MOUNTJOY 1999, figs. 99, 227. 384, 16. 385, 18). The small piriform jars with kylix foot, which is probably the most

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<sup>8</sup> Kraters and basins were generally few in the deposits of Thessaloniki Toumba. For quantitative data on the different classes of shapes see (ANDREOU 2003).

<sup>9</sup> Cf. (MOUNTJOY 1986, fig.223:2)

<sup>10</sup> Only one of the two fragments is shown here. A larger and better preserved ring based krater with identical decoration from a different Building has been illustrated elsewhere (ANDREOU 2003, fig. 9, KA 665). No good parallels have been found, but some remote similarities may be seen with kraters of LH III C middle (MOUNTJOY 1986, figs. 223-25).

characteristic shape of the regional Mycenaean style in Macedonia, may also be dated to LH III C early or middle. At Kastanas two were found in layer 14b and may be earlier than the Toumba examples shown here (Fig. 10: 5-6)<sup>11</sup>. Finally, two juglets are less decisive for dating purposes, but both in terms of form and decoration belong to LH III C early or middle<sup>12</sup>. Sub-phases 4B and 4A, should probably then run contemporary with the later part of LH III C early and part of LH III C middle. It also looks probably that they partly overlapped with Kastanas layers 14a and 13.

With phase 3 some significant changes can be seen in the technological groups that comprise the ceramic assemblage. Two new groups begin (11P and 1P), which will gradually grow and along with others will replace the earlier ceramic groups, by phase 2A (Fig. 5). The two groups also broke down to a more orange-red and a buff variety. Their pastes are less fine, but are better fired. Their surfaces are less carefully smoothed and the paints duller even when fired to a dark brown or black. A second important feature is that during this period, for the first time the monochrome interiors outnumber the linear in deep bowls. Moreover, the first monochrome deep bowls occurred in the deposits of Toumba (Figs. 6. - 11:1, 5). In effect there are several indications that in this phase the Mycenaean style pottery of the site approached more closely the norms of LH III C style pottery that had been current for some time in the rest of the Aegean. Monochrome interiors in deep bowls may now have a reserved band below the rim inside (Fig. 11: 7)<sup>13</sup> or a painted band below a reserved rim band outside (Fig. 11: 4)<sup>14</sup>. Tassels also occurred more often on bowls and on large closed vessels (Fig. 11: 2-3. - 12: 6)<sup>15</sup>. A motive that appeared for the first time in this phase and subsequently became common at Toumba is the group of double or triple horizontal or vertical wavy lines in bowls, cups and large vessels (Figs. 11: 5-6. - 12: 7). This is a characteristic motive in LH III C middle contexts in the Southern and Central mainland (MOUNTJOY 1987, figs. 200, 19 - 204). At Kastanas it was found first on a closed vessel in layer 13, but it became common in layer 12 (JUNG 2002, 85 f. pl. 18, 205). Similarly, the horn motive which is seen in a closed vessel of phase

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<sup>11</sup> For a discussion of the type and its distribution see (Jung 2002: 167f. and pls. 8:89-90). Feet which could belong either to kylikes or to stemmed small piriform jars occur also in levels of phase 4D and 4C, but it is impossible to distinguish one from the other.

<sup>12</sup> Cf. (MOUNTJOY 1999, figs. 210: 340 – 341 - 261: 176; 303: 178).

<sup>13</sup> (MOUNTJOY 1987, 176-77)

<sup>14</sup> As in Kastanas layer 13 (JUNG 2002, fig. 20)

<sup>15</sup> Also in layer 13 of Kastanas (IBID., pl. 19: 208) and LH III C middle (MOUNTJOY 1987, fig. 212,1)

3 at Thessaloniki Toumba (Fig. 12: 5) finds parallels in Kastanas layer 12 (IBID., 185). Another characteristic feature, which was known in the southern mainland since LH III C early and appeared at Toumba for the first time in phase 3 and at Kastanas in layer 13 is the hollow rim of large closed vessels (Fig. 12: 1-2). Flat everted and painted rims of closed vessels (Fig. 12: 3), which were previously rare also became common from phase 3 onwards. Finally, the cut-away neck jug, a shape which has attracted interest and discussion regarding the recognition of hybridization processes in the Mycenaean style pottery of Macedonia, appeared also during the same phase<sup>16</sup>. There are no compelling reasons to consider phase 3 as later than the end of LH III C middle. On the other hand there are indications for overlapping with both layers 13 and 12 of Kastanas.

Two additional technological groups were added to the assemblage in phase 2B, replacing gradually the ceramic traditions that were dominant in phases 4 and 5 at the site (Fig. 5)<sup>17</sup>. The common characteristic of the new groups is again the drop in quality of the pottery in terms of coarseness, surface treatment, paint application etc., while in other respects such as firing standards remained high or were even improved. The impression one has is that the changes were related to a more speedy and larger production, which also agrees with the observation that was made earlier in the paper regarding the increase in the amount of wheel made pottery in phases 2B and 2A (Fig. 4). Monochrome bowls were again present and bowls with monochrome interiors increased considerably (Figs. 6. 13: 6). Nevertheless the traditional bowls with linear interiors still held a small part of their old popularity (Figs. 6. 13:3). The new features, which signal the manifestation of Late Helladic III C late and perhaps even of Submycenaean trends are the introduction of the wiggly horizontal wavy line (Fig. 13:2) and particularly the wide reserved zone, occasionally decorated, on the outside of deep bowls (Fig. 13:5) (MOUNTJOY 1986, 183, figs. 235,14. 191-92, figs. 254, 4-5. 269: 3). The latter trait is also seen in Kastanas layer 12 (JUNG 2002, pl. 24, 272-274). Another new feature is the appearance of the shallow bowl, with horizontal handles, painted everted rim and often reserved lower body inside (Fig. 13: 4). These bowls are also seen in layer 12 of Kastanas and continue in at Toumba in phase 2a. It

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<sup>16</sup> Cf. (WARDLE 1980, 251-52) for a similar jug from Assiros phase 7. For a summary and discussion of the views on the topic see (JUNG 2002, 181-82, pl. 31, 331) where also an example from Kastanas level 12 is mentioned.

<sup>17</sup> These changes were not only identified macroscopically and microscopically, but were also evident in the chemical characterization of the samples.

is indicative of the idiosyncratic nature of the choices made by the potters and consumers in Macedonia that this shape (FS 295), which was used further South since the beginning of LH III C only gained popularity in Central Macedonia during this and the next period, at the very end of the Mycenaean ceramic traditions in the rest of the Aegean. Similarly, kraters with everted rims (Fig. 13: 7), which were also current in the rest of the Aegean from the start of LH III C were adopted at Toumba and Kastanas during phases 2b and 12 respectively (JUNG 2002, 108 f.) and continued in both sites during the EIA. On the other hand, the fragment of a closed neck-handled vessel with a tassel or hanging spiral bordered by groups of vertical wavy lines provides a connection with LH III C late (MOUNTJOY 1986, fig. 244,2) and with layer 12 of Kastanas (JUNG 2002, pls. 31,336. 35,345). Finally the amphora or hydria with decoration of multiple horizontal wavy lines from this level, probably signifies the earliest occurrence of a pot mark in the area (Fig. 13: 10)<sup>18</sup>.

The changes, which were initiated in phase 3 were to a large extent completed in sub-period 2A. Although some significant innovations were introduced, marking the initiation of a new era in the Central and Southern Aegean, several of the traditional elements still held strongly their position in the ceramic assemblage of Thessaloniki Toumba. It is true that only a small portion of the pottery continued to be produced in the technological traditions which had been initiated in phase 5, during the 13<sup>th</sup> century<sup>19</sup>. That this new ceramic assemblage was produced locally or at least somewhere in the region, is more than likely. This seems likely because the preliminary chemical and petrographic data do not necessarily suggest a different origin. A more important reason however, is that the stylistic idiosyncrasies, which characterized the wheel made pottery of the area all along, were still present and visible during phase 2A (Fig. 14: 4-8).

Few deep bowls kept their linear interiors during this phase. Instead the number of monochrome bowls increased (Fig. 6; Fig. 14: 9). The hastiness of production to which reference was made when the period 2B pottery was discussed, is often seen in the application of the paint on the inside of bowls. Large parts of the surface were often very thinly coated, so that they can be easily confused with reserved areas (Fig. 14: 1-2). In some cases, however, the lower part of the interior of

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<sup>18</sup> For pot marks in the Dark Ages see (PAPADOPOULOS 1994).

<sup>19</sup> I must admit that it is not very easy to distinguish between residual sherds and those that had been actually disposed off during phase 2A, particularly since a large part of the deposit comprises street levels.

deep bowls was left unpainted on purpose. Skyfoid kraters with reserved rim bands inside were also a new feature, which appeared in this phase (Fig. 14:11) as was the triple horn with multiple wavy lines (Fig. 15: 3). All these features are also seen in Kastanas layer 12 (JUNG 2002, pl. 22, 249-251. 26,283).

The most important innovation, however, in the ceramics of phase 2A, as in layer 12 of Kastanas, was the manifestation of the beginning of the Early Protoegeometric style through the appearance of few deep bowls, kraters and large closed vessels decorated with concentric circles, drawn with a multiple brush (Fig. 15: 5-8)<sup>20</sup>. It is significant to point out that the new motive involved vessels which belonged to the same ceramic groups as the rest of the pottery and that concentric circles were occasionally combined with traditional motives derived from the regional Mycenaean style (Fig. 15: 7). For all these reasons it is not likely that the particular vessels were imports from outside the area. It is also noteworthy that normal features of the Early Protoegeometric style, such as the high conical bases on bowls and cups are missing from Thessaloniki Toumba and Kastanas<sup>21</sup>. This indicates a process of selection, where once again, as it happened earlier with the adoption of the Mycenaean style, the rules were set by the local demand for decorated wheel made pottery<sup>22</sup>.

The synchronisms that have been proposed above are summarized in Table 1 along with the dates that are traditionally given to the various phases of LH III C and the beginning of EPG (DICKINSON 2006, 23). A series of eleven samples from the deposits that were discussed here have been <sup>14</sup>C dated in the course of the years in two different laboratories. The samples that were dated using AMS in Poznan were carbonized seeds from hearths, while those dated by Demokritos in Athens were small charcoal fragments from deposits of phase 4 (Table 2).

Out of the eleven dates, seven, despite their wide margin of probability, are compatible both with the traditional chronology and with the recently proposed high

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<sup>20</sup> For the discussion of this phenomenon in Kastanas layers 12-11 see (JUNG 2002, 187 f.)

<sup>21</sup> The phase 2A pottery from Thessaloniki and the similar pottery from layer 12 of Kastanas are stylistically quite different from the pottery that was found in the earlier graves of the cemetery of Torone (PAPADOPOULOS 2005) and Koukos in Cahlkidiki or the cemeteries of Vergina and Olymbos to the west and south, where the more conventional Protoegeometric features are evident. This was already pointed out by JUNG (2003, 139 with references) in relation to Kastanas and the different situation in the central plain is now strengthened by the evidence from Thessaloniki Toumba.

<sup>22</sup> For a discussion and interpretation of the process of adoption of the Mycenaean ceramic traits in Central Macedonia see (ANDREOU 2002-03. - ANDREOU 2003).

chronology for the end of the LBA. The latter would prefer a date in the 13<sup>th</sup> cent. for the beginning of LH III C (WARDLE - NEWTON - KUNIHOLM 2007, n. 82 with fig. 7). The high chronology is based on the dendrochronology and 14<sup>C</sup> wiggle-matched determination of four timbers from the EIA phases 3 and 2 at Assiros and a single wheel made amphora, which belonged to the floor of phase 3 and has been dated stylistically to the later part of the EPG or the beginning of MPG. The combined determinations from Assiros would raise the date for the start of EPG to 1100/1120 BC instead of 1025/50, which is the traditionally accepted view (NEWTON - WARDLE, - KUNIHOLM 2003[2005]) and this would necessary affect the dating of LH III C<sup>23</sup>. The three remaining dates from Thessaloniki Toumba are either too late or too early for either the low or the high chronology system<sup>24</sup>.

In conclusion, I hope to have shown, that despite the regional characteristics, which transcend the pottery from the beginning of phase 4 to phase 2A, the latest assemblage displays some clear and recognizable differences in morphological and in technological terms in comparison with the situation at the beginning of the sequence. The continuous stratigraphy of Thessaloniki Toumba indicates that these changes were not sudden, but developed gradually and locally and in constant contact with the developments in the rest of the Aegean throughout the periods of LH III C, Submycenaean and EPG.

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<sup>23</sup> The authors have a strong case. Nevertheless, the fact that the evidence from Assiros practically stands alone as a positive argument for the radical revision of the absolute chronology for the end of the palatial period and of the Bronze Age in the Aegean and beyond, is something that calls for caution. Even more so, because the evidence comes from a tell site, where the constant recycling of materials of all kinds, besides the practical advantages that it offered, was a process, which was deeply embedded in the way the occupants made sense and justified their way of life on these mounds. In fact, to their credit, the authors admit that the reuse of the poles can not be absolutely ruled out. They argue strongly however, that this was not the case (WARDLE - NEWTON - KUNIHOLM 2007, 494).

<sup>24</sup> For a comparison of the 14<sup>C</sup> dates from Thessaloniki and the 14<sup>C</sup> dates of Kastanas Toumba see (JUNG - ANDREOU IN PREPARATION)

Dates BC	Pottery Phases	Thessaloniki Toumba Phases	Kastanas
1000			
1050/1025	EPG	2A	12
1100/1090	SUBMYCENAEAN LH III C LATE	2B	
1150/1140	LH IIIC ADVANCED	3	13
	LH III C DEVELOPED	3 4A	
1200/1190	LH IIIC EARLY	4B	14a
		4C	14b
		4D	

Table 1. Synchronisms between Thessaloniki Toumba, Kastanas Toumba and the traditional relative and absolute chronology.

LABORATORY	BP	BC 68,20%	BC 95,40%	PHASE	TRAD. DATE BC <sup>25</sup>
Poz-17441	2900 ± 35	1270-1120	1380-1080	4A	1140-1110
Poz-17431	2880 ± 30	1120-1010	1200-930	4A	1140-1110
DEM-1285	3036 ± 25	1380-1260	1400-1210	4A	1140-1110
DEM-1284	3147 ± 35	1490-1390	1500-1320	4B	1160-1140
DEM-1652	2803±30	1000-920	1040-850	4C	1180-1160
DEM-1704	3088±30	1410-1310	1430-1270	4C-4A	1180-1110
Poz-17426	3030 ± 35	1380-1210	1410-1130	4C-4B	1180-1140
Poz-17429	2990 ± 30	1300-1130	1370-1120	4C-4B	1180-1140
Poz-17428	2980 ± 30	1270-1120	1370-1110	4C-4B	1180-1140
Poz-17430	2980 ± 35	1270-1120	1380-1080	4C-4B	1180-1140
DEM-1443	3045 ± 46	1390-1260	1420-1130	4D	1200-1180

Table 2. 14 C dates from the phase 4 deposits of Thessaloniki Toumba.

<sup>25</sup> Based on (DICKINSON 2006, 20-21 with fig. 1 .1)

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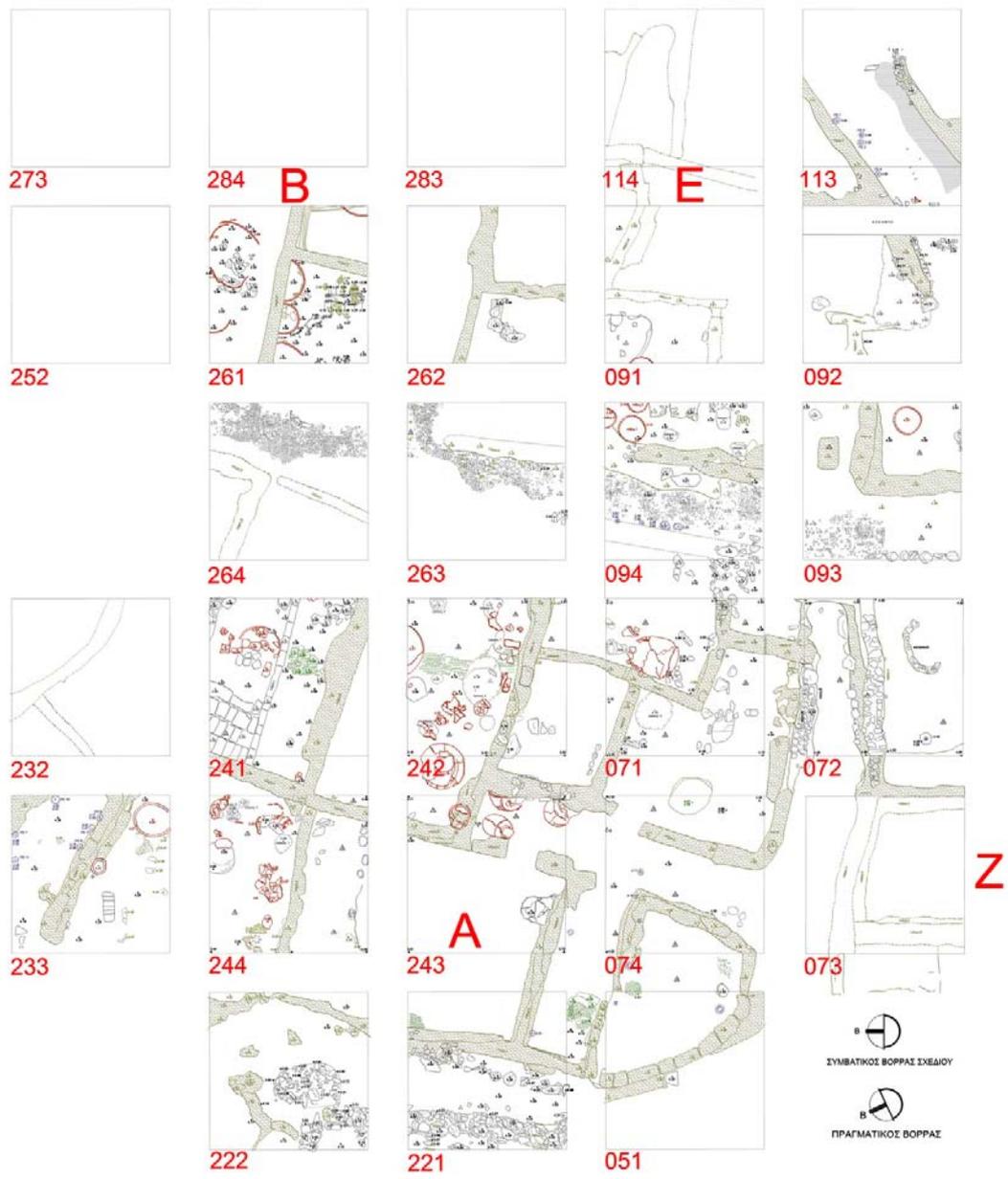
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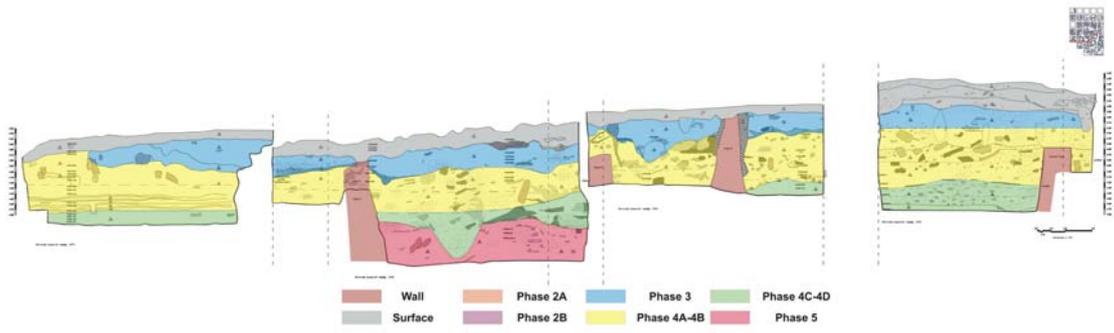
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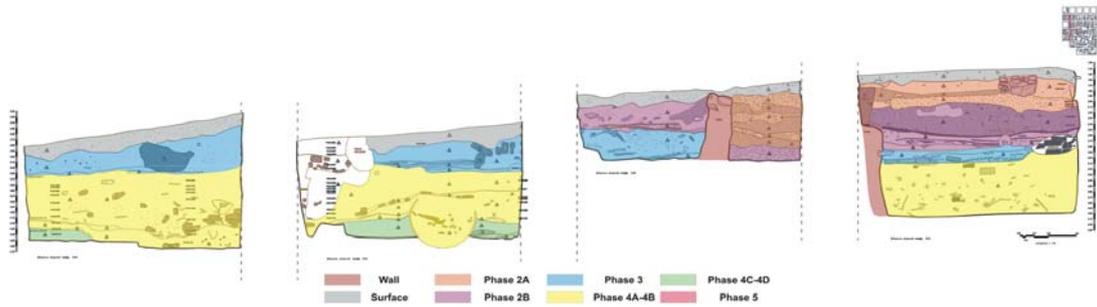
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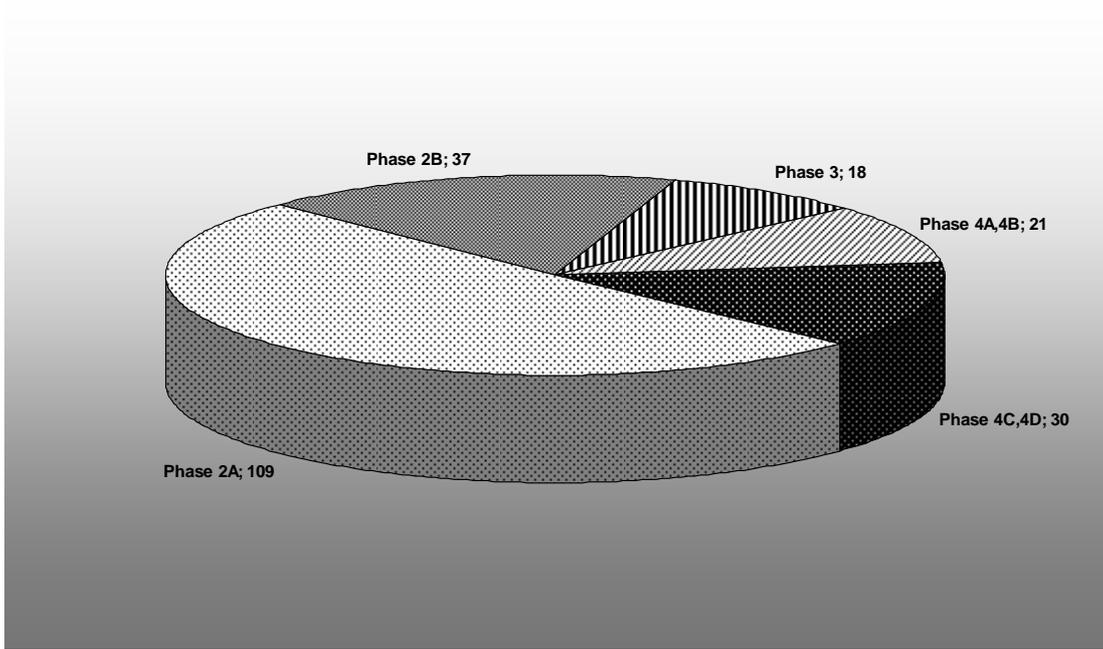
**Figure 1**



**Figure 2**



**Figure 3**



**Figure 4**

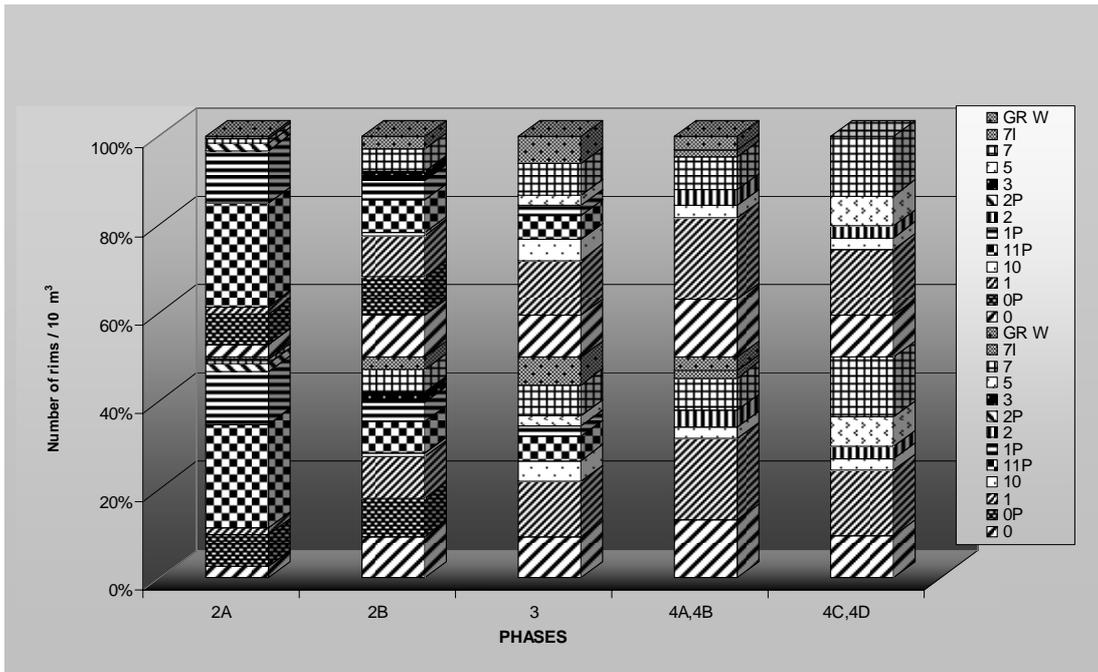


Figure 5

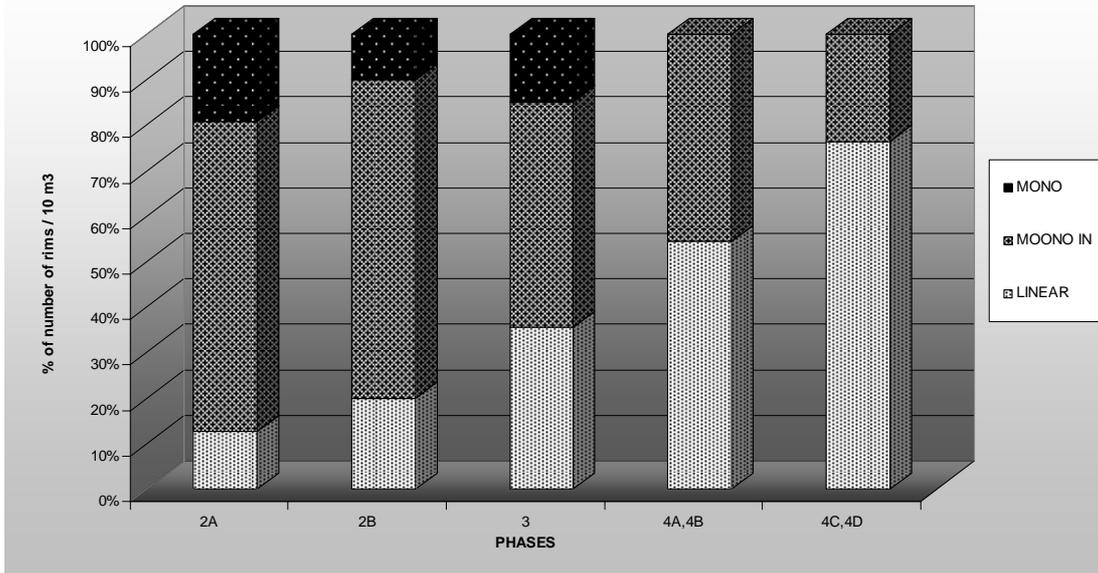
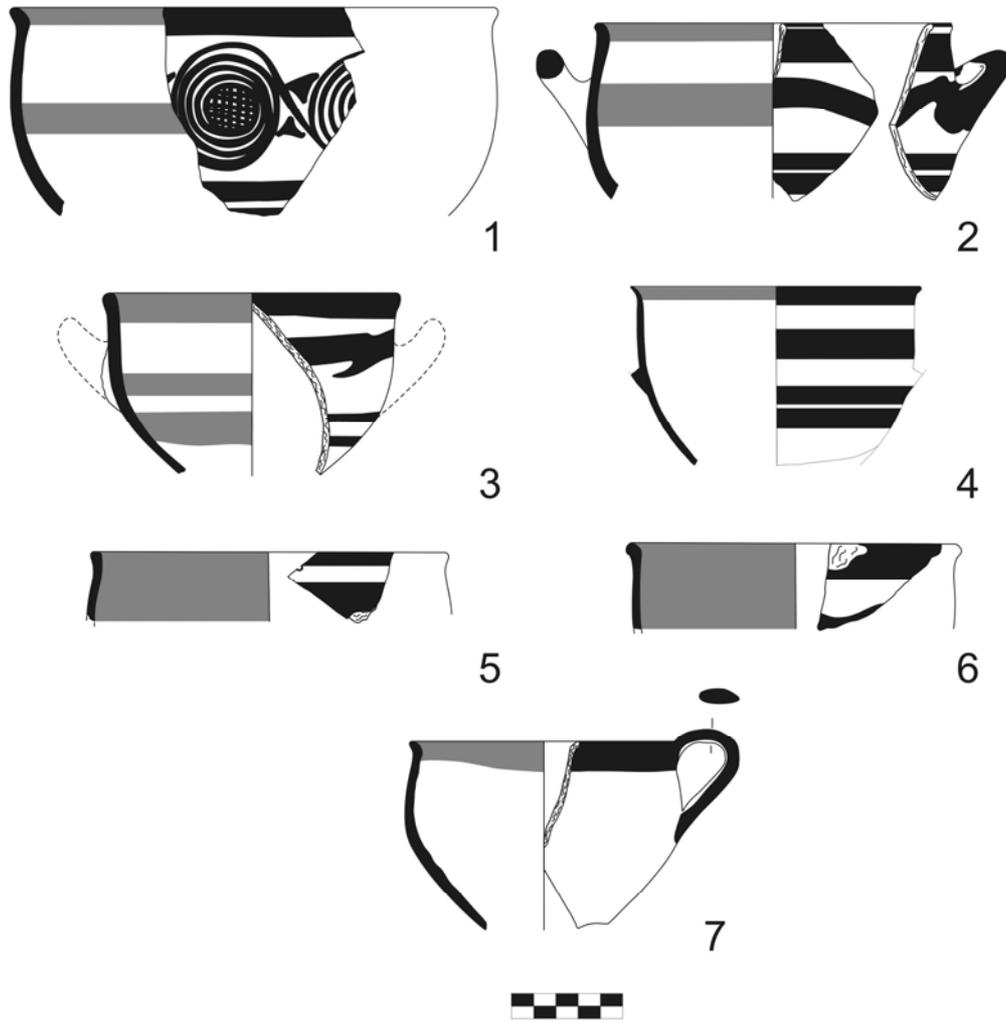
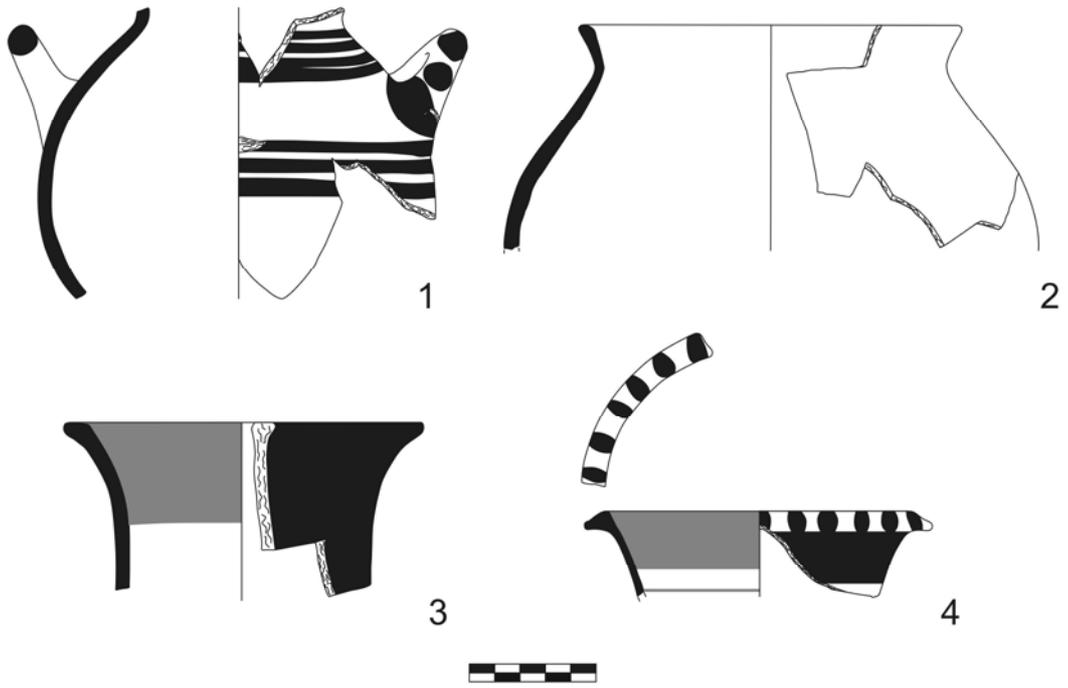


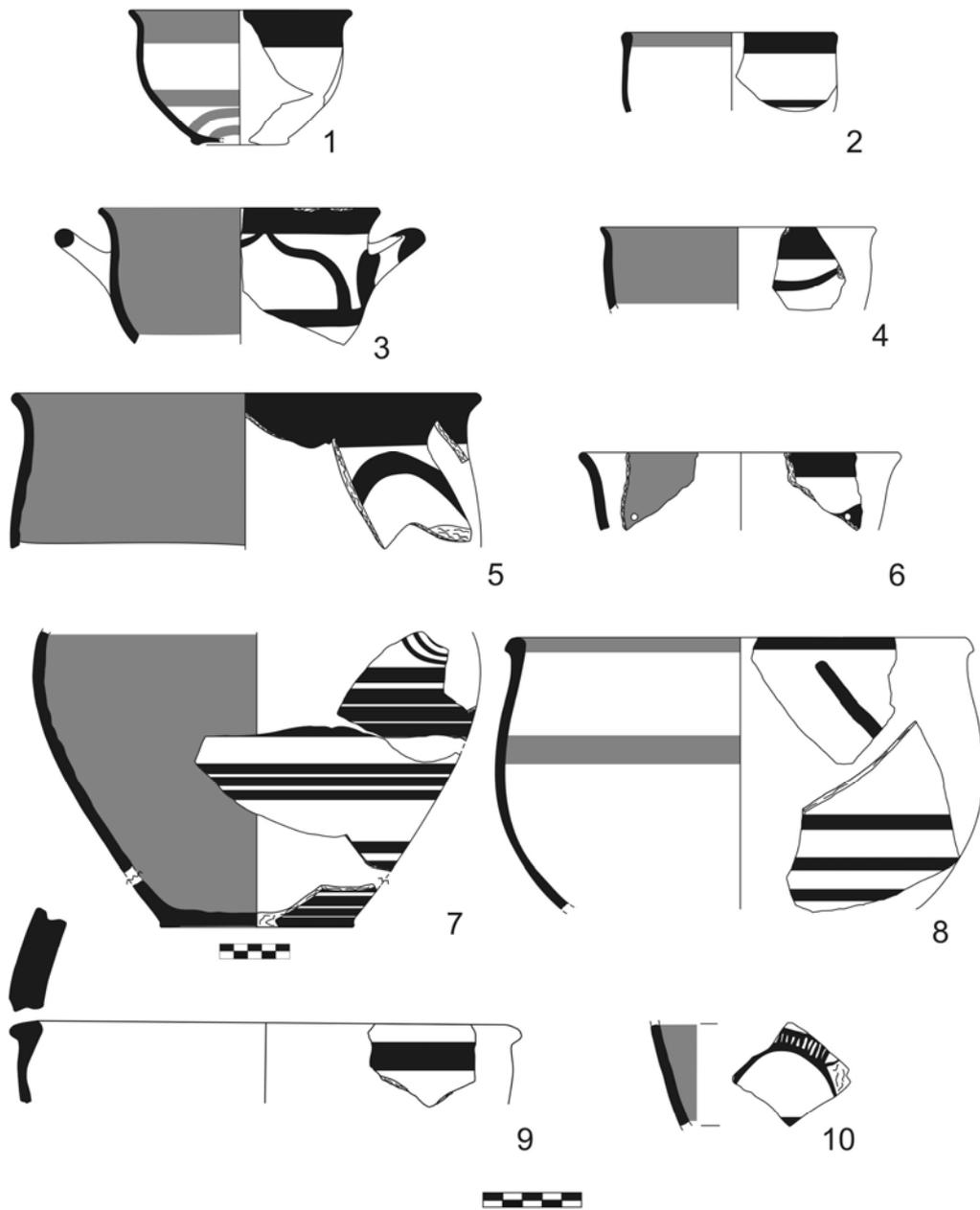
Figure 6



**Figure 7**



**Figure 8**



**Figure 9**

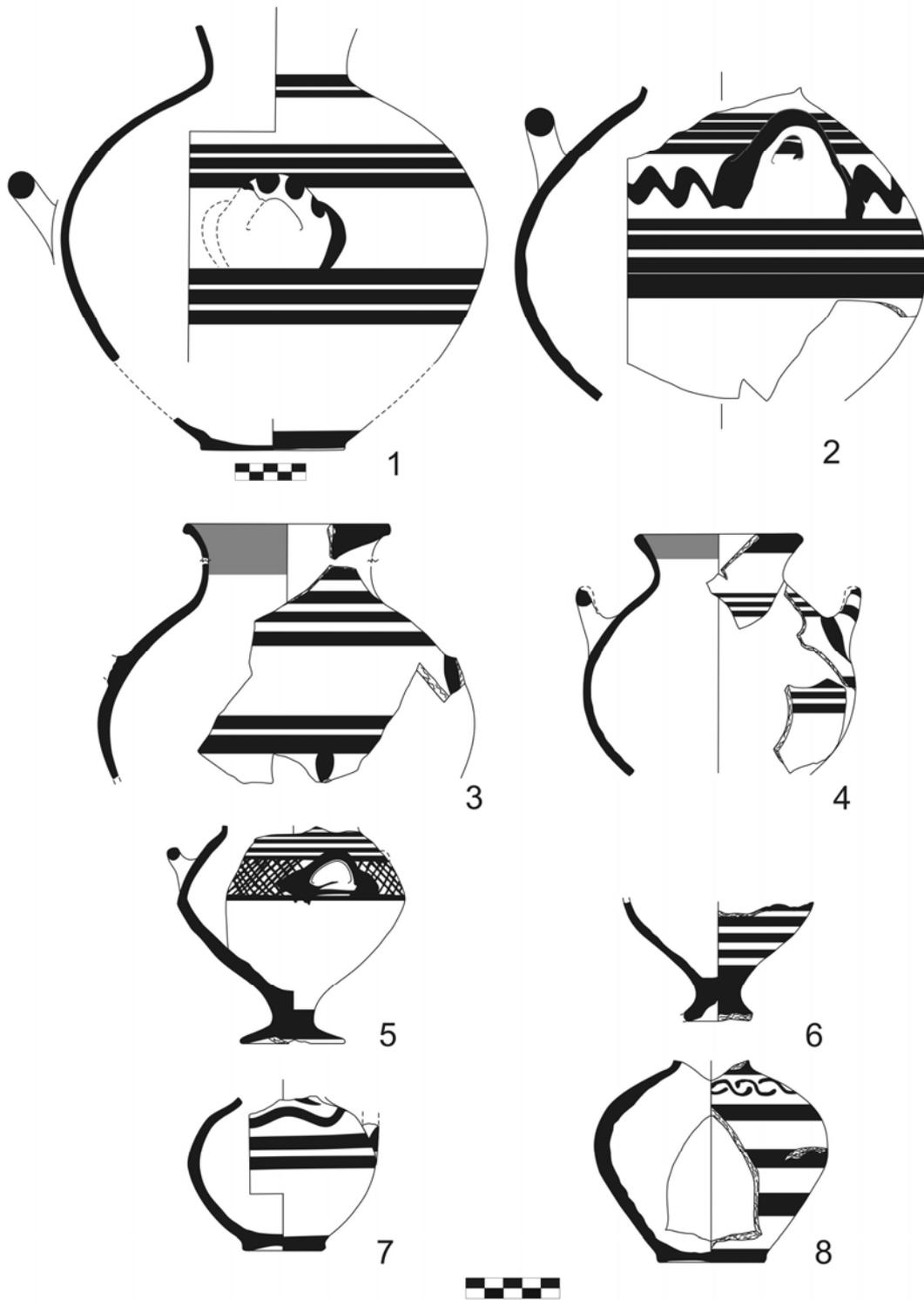


Figure 10

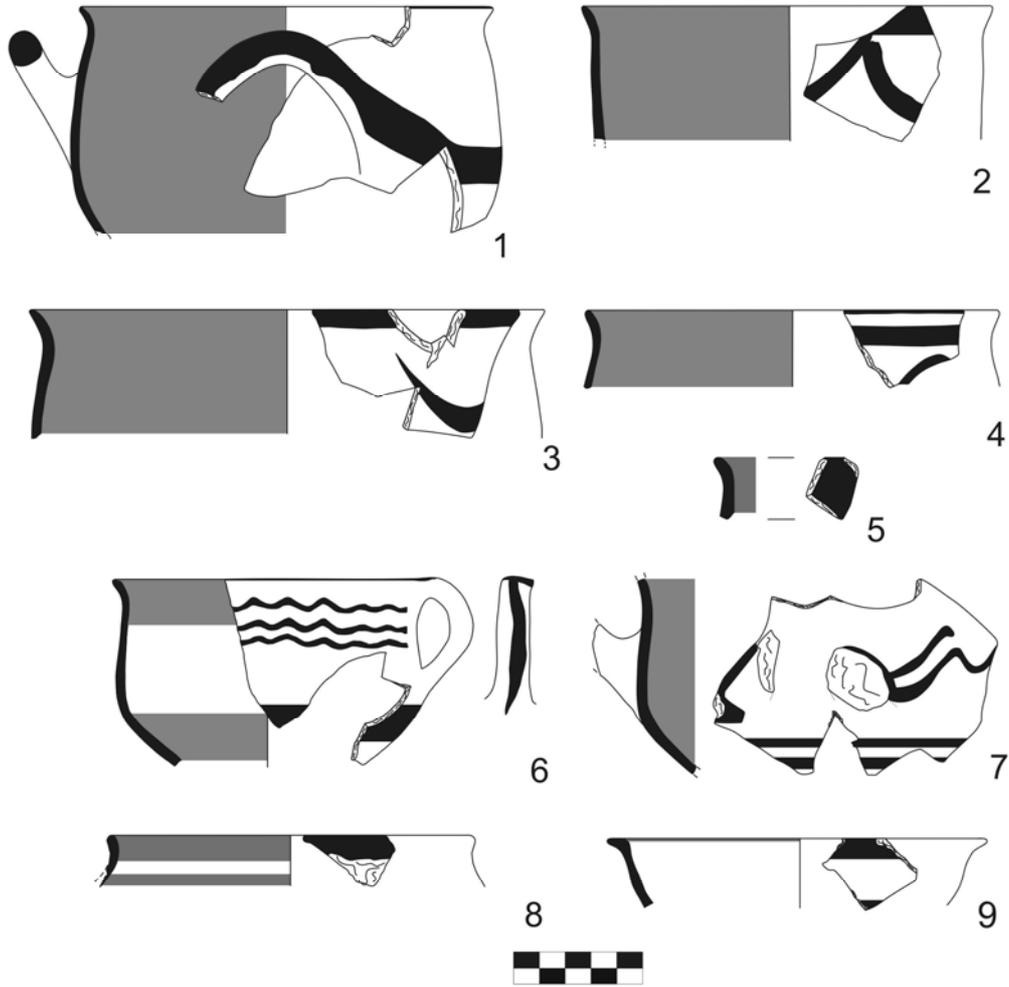


Figure 11

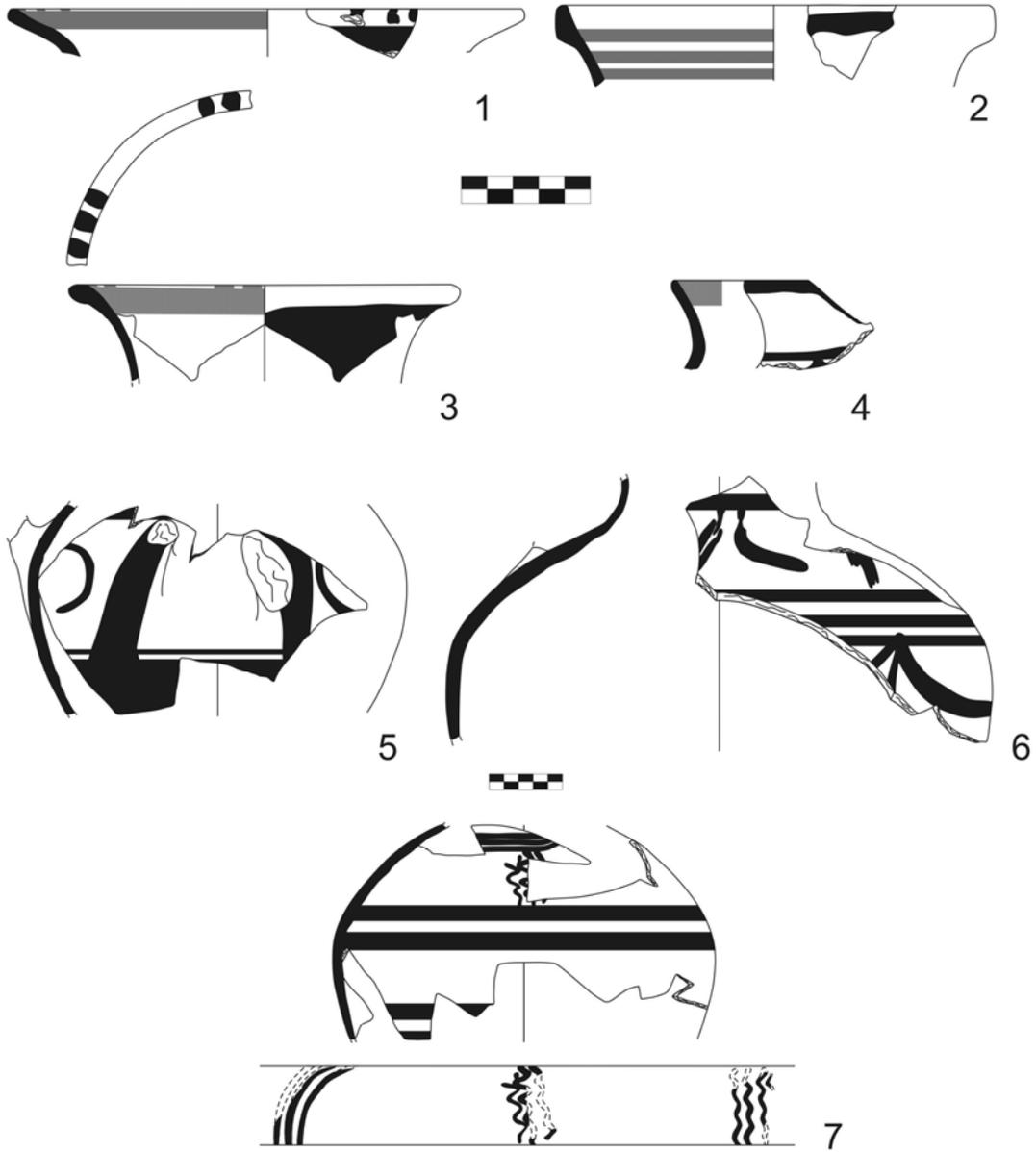


Figure 12

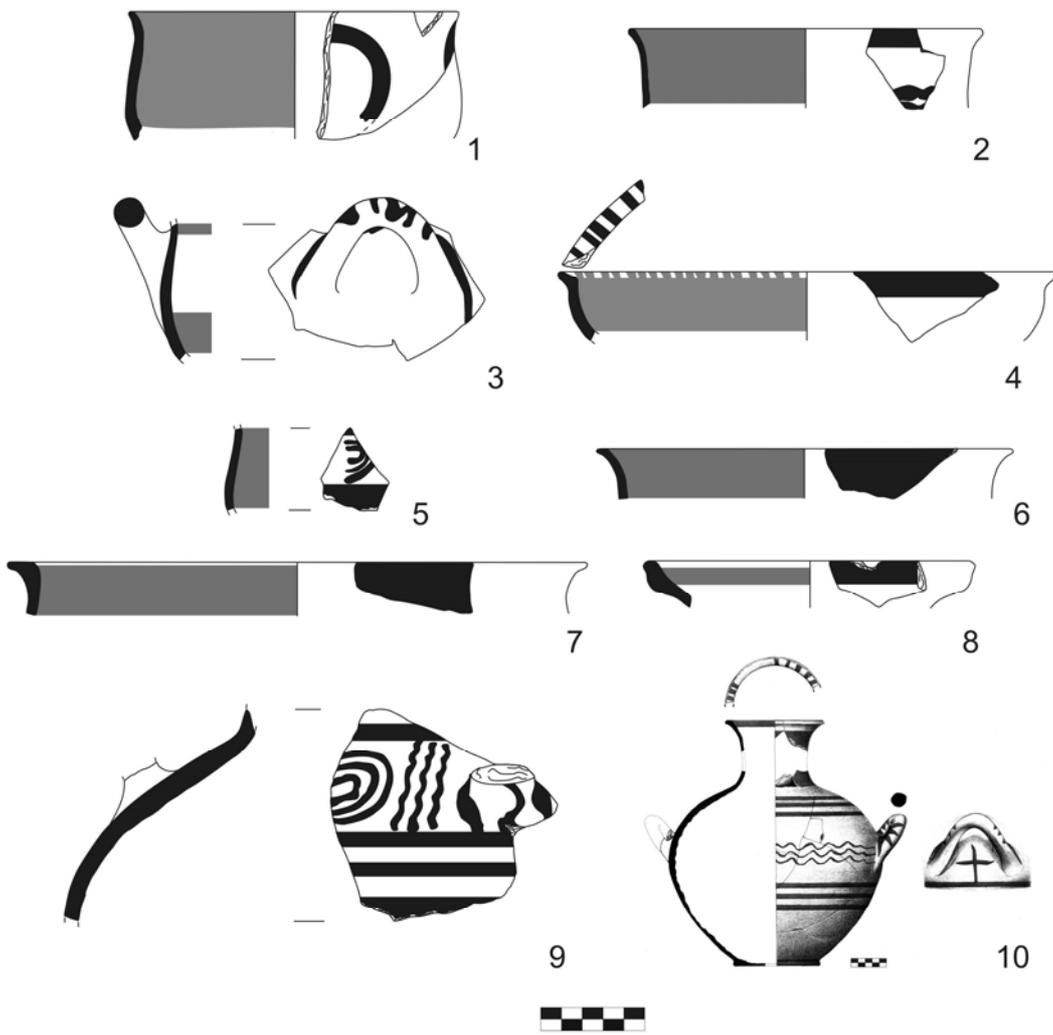


Figure 13

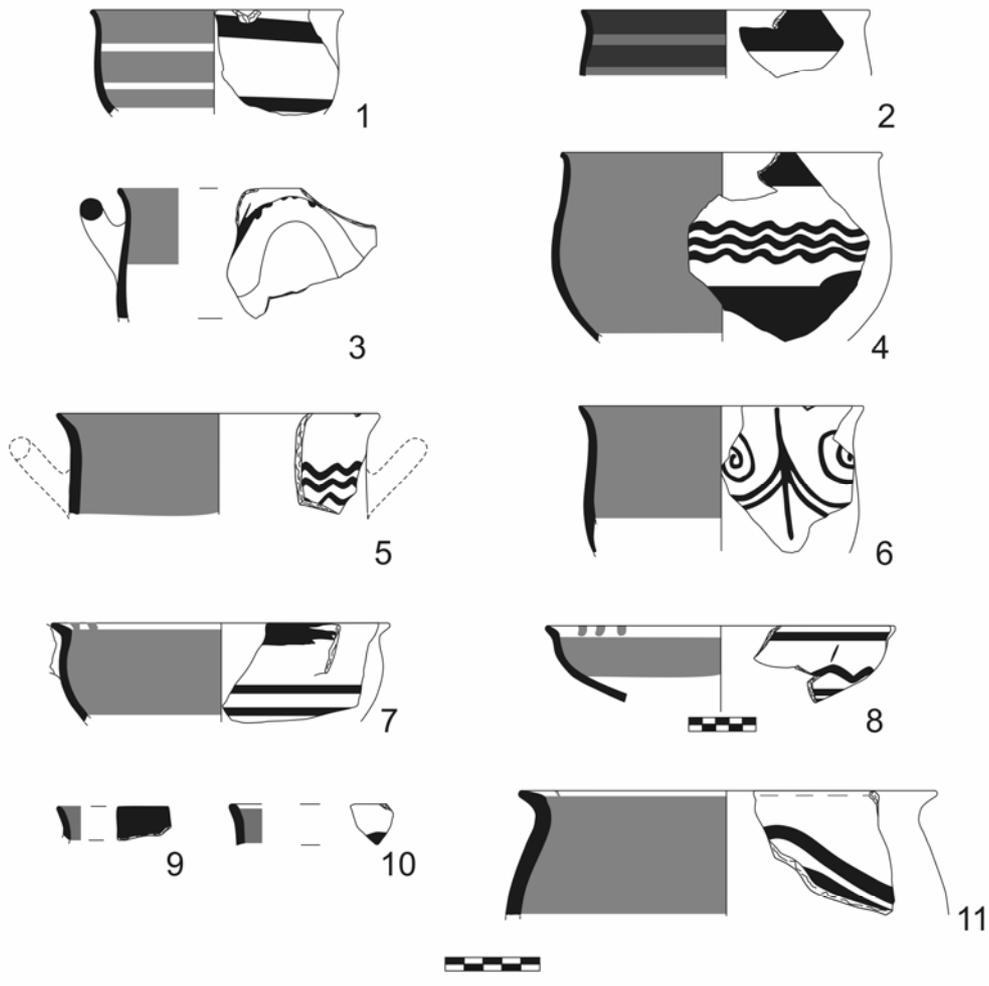


Figure 14

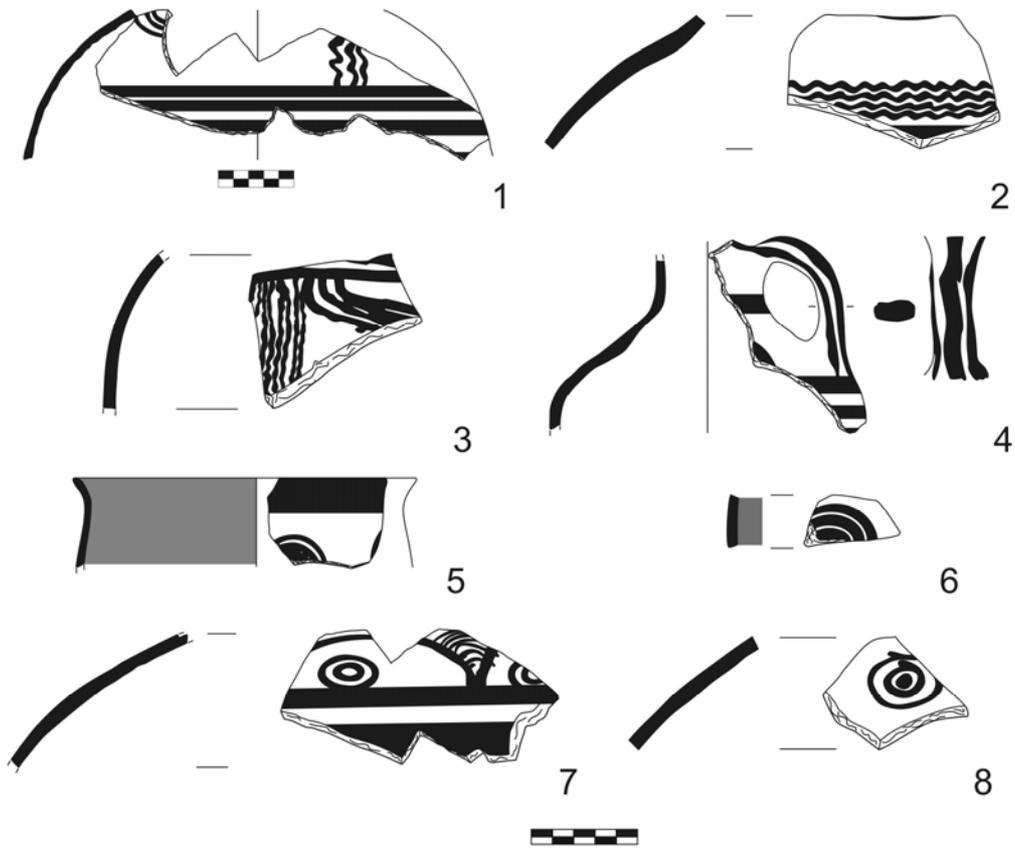


Figure 15