

DEVELOPMENT OF A CERAMIC CULTIC ASSEMBLAGE ANALYZING POTTERY FROM LATE HELLADIC IIIC THROUGH LATE GEOMETRIC KALAPODI

Ivonne KAISER, Laura-Concetta RIZZOTTO, Sara STRACK

Abstract

The following paper presents preliminary results of a quantitative study of ceramics from the Late Bronze and Early Iron Age levels from the sanctuary site at Kalapodi in Phokis. The authors outline a simple sorting and recording method which can be used as the basis for quantification of highly fragmentary sherd assemblages, characteristic of both domestic and cult-related activities. We stipulate that only through the employment of quantitative methods can all finds be included in the assessment and interpretation of a site. A variety of quantitative methods, including count, weight, EVEs and MNIs, are used in an attempt to reconstruct patterns of past human behaviour at Kalapodi. The authors conclude that for the Bronze Age and initial phases of the Early Iron Age, Kalapodi served as a meeting place for the inhabitants of the surrounding landscape who gathered here for convivial meals; at the transition to the Late Geometric period, the character of the site changes dramatically to emphasize bronze votives, together with evidence for drinking rituals and holocaustic sacrifice as the focus of cult activity.

Keywords: Kalapodi, Phokis, EVE, MNI, aggregate feature count, cult site, ritual activity, ceramic use pattern

INTRODUCTION

The sanctuary of Kalapodi in ancient Phokis is situated above the road from Livadia to Atalanti or, in a more global sense, on the route from Itea on the Corinthian Gulf via Delphi to the shore of the Euripus (Felsch and Kienast, 1975, 1–7, Fig. 1). So far, two temples have been unearthed, situated on terraces on a sloping hillside. R. Felsch from 1973 to 1982 concentrated on the excavation of the North temple (Felsch, 1980, 42–44), while the South temple was excavated for the most part only down to the Early Archaic floor level, with only a few soundings going deeper; the work resumed in 2004 under W.-D. Niemeier and so far has focused on the earlier phases of the South temple and its immediate environs. The area of the two temples has yielded material from Mycenaean to Roman-Byzantine times. Thankfully the site escaped the attention of early excavators and could therefore be excavated stratigraphically.

The excavations conducted by Felsch were based on a grid system of 10 by 10m (Felsch 1980, 44–45), which were excavated in square meters. The new excavation has a 5 by 5m grid system. Wherever possible, stratigraphic layers are followed. Each layer or feature in a layer receives a lot number (*Befundnummer*), is described on a context

sheet and is drawn on a sheet of paper at a scale of 1:25. Special finds are recorded with a total station. To retrieve even small pieces of pottery or other material each closed context is dry sieved with a 5mm mesh. The grid supervisors set aside samples for flotation which is carried out directly on site.

There are several areas on the site where remains of the Late Bronze and Early Iron Age have been discovered (Fig. 2, shaded areas). Since the study of finds from the current excavations at Kalapodi is still at an early stage, a single trench (5030/4965) east of the Late Geometric/Early Archaic temple was chosen as a case study for this paper. Here the excavation of the Late Helladic III C and Early Iron Age layers took place in 2005 and 2006. This trench has a size of 3 by 5m and is bounded by the walls of a small Roman temple at a higher elevation, as well as the Early Archaic temple beneath the Roman structure. In the Early Iron Age levels the major structure identified here is a roughly circular ring of unworked stone, tentatively identified as a bothros or altar. According to the trench supervisors, this structure was accompanied by several floor levels with pottery, metal, and bone finds.

The Late Bronze and the Early Iron Age levels each comprise approximately 1m of soil. The total number of pottery fragments recovered from this area is 11,164, weighing a total 144 kg, together with 8.2 kg of bone and an as yet unspecified amount of metal.

METHODOLOGY

Research questions and goals underlying the use of quantitative pottery analysis at Kalapodi

Our study of the ceramic finds from Kalapodi pursues a number of specific goals. Thus, we aim to record all (ceramic)¹ finds in a structured manner, in order both to create a basic record of finds and to provide the basis for further study. Because of our individual research interests, emphasis has been placed upon studying the composition and development of the entire ceramic assemblage, i.e. all elements of the ceramic spectrum including fineware, storage and other utilitarian vessels, cooking pots, and technical ceramics (e.g. tiles); this approach is in contrast to many studies of Late Bronze Age and Early Iron Age pottery which have often focussed merely upon selections

¹ The study of finds from the recent excavations at Kalapodi is still in its initial stages, and thus does not allow an overall picture of the evidence as yet. We hope to eventually collate the evidence from all find classes for a better understanding of activities at Kalapodi in the period studied.

of vessels and sherds, usually pattern-decorated, without providing an overall picture of the ceramics found. To this end, using a quantitative approach as the basis of study allows for the incorporation of all the evidence at hand into analysis and interpretation (i.e. all sherds retrieved, not just complete or reconstructable pots and profiles), allowing for a broader and more complete picture of human activity.

The resulting ‘ceramic profile’, viewed both at the site level and with regard to individual phases or deposits, allows for the study of the pottery from Kalapodi in a regional and interregional context, with a number of more farther-reaching research questions in mind:

- characterisation of the pottery of Late Bronze and Early Iron Age Kalapodi and its surroundings;
- characterisation of a ceramic assemblage at a Late Bronze/Early Iron Age cult site, as well as its diachronic development;
- development of ceramic production in a Central Greek micro-region at the Bronze Age-Iron Age transition;²
- cycles of production, use, and discard of ceramics at Kalapodi; focussing in particular on the differentiation between use and discard patterns in ritual versus domestic context, as well as the question of ceramic votives;
- analysis and reconstruction of depositional processes at the site.

Limits and opportunities

As at any other excavation site, the mode of excavation and recording, the site itself, and the excavation infrastructure impose a framework of limitations and guide our work in certain directions. Thus, trenches at Kalapodi are frequently cut or constricted by later architecture and so do not allow for the excavation of continuous open areas. Depending on size, number of finds, and complexity, the excavation of one deposit might span days, weeks, or even several campaign years, resulting in numerous excavation lots potentially from the same deposit. Similarly, the old (1973–1982) and new (2004–present) excavations cover roughly the same terrain, necessitating some amount of cross-referencing.

Already during excavation it became clear that the pottery derived mostly from levels of fill of unknown extent, of which only parts could be excavated. Contained, closed deposits are relatively rare. The few deposits that appear to represent discrete events in time and space (e.g. the destruction level of a Geometric structure, which might represent

the oldest cult building yet identified at the site³) unfortunately tend to contain little by way of pottery. The preservation of pottery, both regarding sherd size and completeness of vessels, varies a great deal between different deposits or fills; by analyzing the ceramic profile of different deposits, and by taking into account the sherd size and average sherd weight,⁴ conclusions can be drawn regarding the processes involved in the discard of this material, its provenance within the site, and the depositional history of specific contexts. Pottery study, in other words, involves a certain amount of site reconstruction to proceed successfully.

Another factor with which most archaeologists are familiar is the limited time and space available for study of excavation material. The configuration at Kalapodi generally discourages strewing of large numbers of lots at the same time; we found useful an approach that allowed us to process one pottery lot at a time, while the strewing of small numbers of adjacent lots was limited to concentrated searches for joins before being packed away again. Much of our reconstruction of stratigraphic units was then done on the computer.

Further limitations are set by the material itself. Only very small amounts of pottery from Kalapodi are pattern-decorated; wheelmade fineware more often bears simple banding or areas of monochrome decoration, and undecorated, usually handmade, utilitarian wares comprise large segments of the ceramic assemblage. This can result in the lack of chronologically diagnostic material, particularly in small excavation lots. Regarding quantitative methods relying upon the identification of vessel units (MNI), the simple and repetitive character of the pottery at the site renders such methods challenging and often impossible. At the same time, the wide range of variation in quality and colouring of fabric and paint, as well as in the technical execution of vessels, seems to indicate broad variations in what might be considered local/regional pottery production, and might possibly mask the presence of imported ceramics at the site.⁵

³ The structure and associated finds are as yet unpublished. Reports on the progress of discovery of this structure have been included in the annual reports on the work of the DAI delivered orally at the Winkelmann Feier by its director, Prof. W.-D. Niemeier; see also brief note in Morgan 2008, 48.

⁴ Average sherd weight is overall weight (per lot/stratum) divided by number of sherds; see also Rutter 1990, 378–379. Since not all pottery categories are represented equally throughout the levels dug at Kalapodi – thus, for example, several deposits contained large quantities of pithos, with a very high average weight per sherd – it is useful to calculate this figure for individual vessel categories, e.g. wheelmade painted fineware, or even sub-categories within such a group, e.g. small open shapes. Note that painted fineware, especially small open shapes, is one of the most numerous pottery categories; furthermore, this type of pottery tends to break into numerous small fragments; distribution throughout lots therefore appears to be statistically significant for these classes even for small lots.

⁵ So far, very little material has been identified as imported, although provenances are often unclear. The Bronze Age levels contain fragments of micaceous cooking vessels with volcanic inclusions not characteristic of the geology of Central Greece; the presence of gold mica and volcanic glass might suggest Aegina as production site for these pieces, but this assessment needs to be confirmed by scientific analysis. The Early Iron Age levels contained a small number of fragments tentatively identified as Attic imports, while several fragments of pendent semi-circle skyphoi

² Note that Phokis is one of the regions which at the end of the Bronze Age saw the beginning of a large scale production of handmade pottery, which has at times been connected with population movements at the Bronze Age-Iron Age transition. While today such theories have largely been discredited, the region-specific timeline for the introduction of handmade wares, as well as the share of the overall functional spectrum covered by handmade pottery, divides the formerly Mycenaean Greece and its periphery into distinct regions with widely differing responses in ceramic production to the collapse of the palatial system and the ensuing social and economic changes; see further Strack 2007; Strack in preparation.

Sorting

Because of the fragmentary nature of Late Bronze Age and Early Iron Age ceramic material found at the sanctuary at Kalapodi both from the old (1973–1982) and the current (2004 to present) excavations, these finds are best recorded in a practical and useful way, that, among other things, allows the comparison of the Kalapodi assemblage with that of other sites. The material from our sample trench presented in this paper represents a chronological sequence from Late Helladic IIIC, with earlier material of Late Helladic IIIA2/B date, to the Late Geometric period.⁶ This material shows a high degree of fragmentation, as illustrated by the fact that not a single complete vessel was retrieved, most of the pots were broken into numerous sherds, and even when joining fragments could be recovered from different lots, these rarely represent even a quarter or half of a pot.

The logical first step was to divide this material into broad basic categories, based mainly on the fabric characteristic (fineware, coarseware) and the manufacturing technique, (wheelmade, handmade), thus following a generally used system of classification using formal criteria. The intent of the sorting system was to provide exhaustive and mutually exclusive categories that allow for the sorting of all ceramic material finds. Using this sorting method outlined as follows every single sherd will be recorded; with increasing experience and knowledge of the material additional (and more detailed) categories can easily be inserted at a later stage.⁷

As a result of the above considerations, at Kalapodi we therefore identify the following ceramic categories:

- wheelmade fineware: small and large open, as well as small, medium and large closed shapes; primarily fine painted pottery;⁸
- wheelmade plainware: small open and large closed shapes (virtually all Mycenaean in date);

from the Protogeometric/Subprotogeometric levels are sufficiently distinct from local wares to suggest imports. However, the vast majority of material, while displaying a range of wares, seems to be differentiated by variations in degree rather than kind, which to date do not group into distinct classes for which different provenances could be postulated. Rather, local/regional production seems to comprise a range of variations in fabric, decoration, and technical execution, possibly reflecting small scale, semi-professional production of pottery. See Strack in preparation.

⁶ Despite ongoing research on different Late Bronze Age sites in the Phokis region, the knowledge of Mycenaean culture in this area is limited and little material has thus far been published. See Mountjoy 1999, vol. II, 810, with further bibliography. Recently, Kramer-Hajos 2008, 136–137, gave an overview of the Mycenaean period in East Lokris, discussing burial, settlement and cult evidence, including the area of Kalapodi. The Early Iron Age in this region appears to be known even less well.

⁷ Since distinguishing between local/regional and imported ceramics, at least through macroscopic analysis, has turned out to be quite difficult, we avoid using these categories for the present. Chemical analysis of pottery of the old excavation conducted by Jones (1996, 115–120) indicated a homogeneous geological landscape, with the soils in the area of Kalapodi sharing most of their geological features with northern Boeotia.

⁸ The distinction between size classes, while not entirely straightforward in sherd assemblages, is here used to denote vessels up to 15cm in height (small), vessels between 15 and 30–40cm in height (medium), and vessels above 30–40cm in height (large).

- wheelmade and handmade coarse ware;
- wheelmade and handmade cooking ware;
- pithos ware: large shapes, mainly pithoi, although sometimes also basins or other forms. While the identification is based upon fabric criteria, in the latter two cases, i.e. cooking ware and pithoi, a characteristic fabric and a specific function coincide;
- ‘mudbrick ware’: a soft fabric with organic temper;
- other coarsewares: unidentified coarsewares that cannot be allocated to any of the previous categories;
- residual: sherds that are considerably older than the context under consideration. This category is the only category based exclusively on chronological criteria.

After a first definition mainly based on fabric types each category is further sorted into rims, bases, handles, and body sherds. We avoid, at least in this first phase of study, the assigning of diagnostic sherds to specific vessel types, such as the cup, deep bowl, mug, hydria, etc., because some of the represented shapes, where fragmentary, can easily be confused. Thus, for example a Late Bronze Age torus foot from a closed shape could belong to an amphora, jug or hydria. Such difficulties in precise identification can often result in misidentification, especially when the pottery repertoire is insufficiently understood and/or is very fragmentary, as in the case at Kalapodi.

In order to avoid such misidentifications, we use descriptive criteria, based upon formal characteristics of feature sherds (examples of rim types common among small open shapes are spreading, flaring, etc.; large closed shapes are represented, for example, by thickened rims. A similar approach has been taken for bases and handles). Similarly, in order to maintain uniform criteria we do not consider painted body sherds as feature sherds even when pattern-decorated, but subdivide them by type of decoration, e.g. a single band, multiple bands, or patterned decoration.

At present, our intention is not to count the absolute number of cups, kantharoi, jugs, etc. present in a given context or over a period of time; instead, we attempt to trace the diachronic development of the entire ceramic assemblage occurring at the transition from the Bronze to the Iron Age. The idea behind this concept is to be able to detect variability and change horizontally, i.e. within one category, by looking at the relationship between closed and open shapes, or among open shapes between small shapes (cups, skyphoi) and large shapes (kraters), or by taking a vertical approach and studying the relationship between different categories, for example between finewares and coarse/cooking wares. Thus, the identification of patterns within the ceramic assemblage (e.g. presence/absence of certain categories, relative frequency of different categories) allows for comparison of different contexts from the same site and, eventually, also from within the wider region. Generally, the composition of pottery assemblages allows for the identification of specific use patterns, enabling an identification of the site as domestic, funerary, or ritual.

Calculations and methods of assemblage reconstruction

The level of detail used in recording the pottery was condensed in a next step to facilitate further analysis. Thus, four basic figures are prepared for every ceramic category within each excavation lot (for additional data and discussion, see Strack, this volume):

- sherd count
- sherd weight
- aggregate feature count (rims, handles, bases)
- estimated vessel equivalent (EVE), based on vessel rims (see Fig. 3 for an example).

Fragment size, or degree of brokenness, was established using the average sherd weight; no other methods recording individual sherd size were employed (i.e., size classes or sherd surface area; e.g. Kerschner, this volume).

The quantity of ceramics per excavation lot varies to a great extent, and representation particularly of rare ceramic classes is heavily dependent on lot size; it follows that the data, especially for small lots, should not be treated as representative samples. However, in many cases these excavation lots appear to be part of larger deposits; thus, the excavators already noted similarities between lots (e.g., soil colour; consistency; presence/absence of charcoal, bone fragments, etc.), indicating their common depositional history.

During the study of the ceramic finds, the presence of joins between sherds, which were charted on a diagram as sorting and recording proceeded, further helped in reconstructing larger stratigraphic units among the material excavated in our sample trench. The average sherd weight, calculated by dividing the total weight by the total count, as well as the presence and absence of certain ceramic categories, was used to highlight potential links among excavation lots (Rutter 1990, 378–379). Any further calculations and analyses were then performed on the level of stratigraphic units.

While sherd count and weight record the amount of pottery present, the feature count and vessel-equivalents consider the number of pots present and thus can be used to attempt to reconstruct the actual numerical relations between ceramic classes. Both rims and bases were measured for diameter and percentage of preservation (Egloff 1973; Orton 1993, 172–173); however, in our sample rims outnumber bases by almost 2:1, suggesting that greater representation, especially of rare ceramic classes, can be expected from EVEs based on vessel rims. No attempts were made to calculate the number of vessels represented (MNI), since methods outlined in the relevant bibliography were found to be time-consuming, without at the same time yielding good results, when applied to the material at hand. The different data sets collected for each stratum were then converted into relational figures, i.e. percentages, which allow for comparison with other units of similar date, or else for diachronic comparisons with other strata as presented in this article.

PRELIMINARY RESULTS

Sample size, completeness and brokenness

The trench presented here in total yielded 10,526 sherds, weighing 133.2kg (Fig. 4). Joins between fragments were generally rare, and virtually no complete profiles could be reconstructed. The small size of sherds was noted throughout the study process – the average sherd weight for the entire assemblage is 12.9g; excluding pithos sherds, this is reduced to 8.4g. Sherd size was smallest in the Late Helladic IIIC stratum (compare Figs. 12 and 13), where the overall average sherd weight is 7.1g (5.7g excluding pithos), and as low as 3.7g and 2.4g for painted and plain small open vessels respectively (Fig. 5). Similarly, the high degree of fragmentation is reflected in the results of rim measurements (EVE values). The average portion of vessel rims preserved is 6.7%, though variations can be observed for different ceramic categories – thus, hand-made coarse and wheelmade painted large closed shapes show an average rim breakage of 7.9% and 9.7% respectively, while fine plain small open rims break into 6.3% portions on average (Fig. 6).

Since no other indicators for brokenness (i.e. the number of sherds into which each vessel is broken) and completeness (i.e. the percentage of each individual vessel represented in the sample) could be identified, both have been extrapolated from the rim EVE values. While processing rims for EVE values, close attention was paid not only to possible joins, but also to the presence of non-joining rim fragments from the same vessel; where these could be identified, they were recorded accordingly. However, it was only in rare cases that we found more than one sherd from each vessel rim, and thus feel justified in proposing the application of the preserved portion noted for vessel rims to complete vessels. Thus, we suggest that on average, the degree of completeness of vessels in trench 5030/4965 is 6.7%.

We then tried to obtain an estimate of the degree of brokenness for each category by using the rim portion average (Fig. 7).⁹ The resulting figures are, of course, to be used only as trends, rather than secure data, but show very clearly the difference in sherd yield between categories, which can be several times as high when large shapes are compared to small. The same figure was then used to estimate the portion of a complete vessel represented by a single sherd of each category, which in the current sample can be as low as 0.1–0.2% for pithoi and large closed shapes. Thus, the brokenness of ceramics in our sample trench is very high, combined with a low degree of completeness.

The large number of sherds retrieved from trench 5030/4965, together with the high degree of fragmentation, led us to

⁹ For each category, we calculated the percentage of rim sherds in the total sherd count (e.g., in the case of wheelmade painted small open shapes, rims comprise 15.1% of the count). A rim preservation of 6.7% means that rims break into 14.9 pieces on average; if 14.9 sherds represent 15.1% of the total, the average number of sherds per vessel is 99 (rounded).

expect an even and statistically valid representation even for rare vessel classes in our sample. However, the ceramic categories least well represented (wheelmade painted small closed shapes, wheelmade plain large open shapes, and wheelmade coarsewares) each account for only about 1% of the total of sherds counted, and to between 0.5–0.8% of the feature sherds – or nine to 16 sherds; representation of these groups in the individual stratigraphic units is (with the exception of units Ia and IIIa, ranging between 1058 and 3087 total sherds counted), by necessity, even sketchier. While clearly indicating the rarity of these categories at the site, the small number of fragments retrieved should induce some caution regarding the interpretation of data pertaining to these categories, particularly for figures derived from further selected fractions of sherds, such as the EVE values. Future research at the site will show the degree of variation between the present sample and other trenches, but for the time being this example raises some doubts concerning the statistical validity even of samples intuitively perceived of as ‘large’, especially where the distribution of artefact classes is not even (Jones and Leonard 1989. For sample size and validity, see Kintigh 1989; Meltzer *et al.* 1992; Strack this volume).

Stratigraphic units and their chronology

On the basis of field observations by the excavators, pottery joins, and observations regarding characteristics of sherds in the individual excavation lots (size, composition, as well as style), we identified seven distinct stratigraphic units in trench 5030/4965, which can be dated to four chronological phases.

- SU I - KAL05.179, 183, 189, 190, 194, 195, KAL06.2, 12, 13, 15, 16, 17, 23, 25, 32, 42 (Fig. 14)
- SU Ia - KAL05.176, 178¹⁰
- SU II - KAL05.133, 141, 143, 146, 148, 149, 150, 152, 154, 165, 174 (Fig. 15)
- SU III - KAL05.97, 98, 100, 106, 110, 112, 115, 122 (Fig. 16)
- SU IIIa - KAL05.101, 107, 111, 116
- SU IIIb - KAL05.117, 124, 131, 132 (Fig. 17)
- SU IV - KAL05.35, 53, 56, 70, 73, 78, 84, 85, 88 (Fig. 18)

Phase I (SU I and Ia) dates to Late Helladic IIIC, with some admixture of earlier material (chiefly Late Helladic IIIA2 and IIIB). Phases II and III can be dated to Late Protogeometric and Subprotogeometric respectively, while IV contains both Middle and Late Geometric finds (as well as single sherds of a variety of earlier date, see e.g. Fig. 18 bottom left). Not all excavations lots could be assigned thus to larger units, and some material datable to the earlier stages of the Early Iron Age (Early and Middle Protogeometric) was found in some of these mostly rather small lots. It should be noted that in the sample trench here presented, no continuous stratigraphic sequence from the Bronze to the Early Iron Age could be identified. Furthermore, no material was

¹⁰ SU Ia and IIIa did not contain much material for inventory and are consequently not illustrated here.

found which stylistically could be termed Submycenaean (on the absence of Submycenaean from Kalapodi, see also Lis 2008, 204; *contra* Jacob-Felsch 1996, 99).

Characterization of finds

One of the issues encountered when studying the ceramic profile of archaeological assemblages and attempting to understand the use profile which comes closest to historic reality, is our lack of data regarding the use lives of individual vessels and vessel classes (see the difference between ‘life’ and ‘death assemblage’ in Orton *et al.* 1993, 166–167). The use life of a vessel depends on a number of factors, both specific to the vessel itself – e.g. durability, presence of flaws, weak points characteristic of the shape – and to the use it is being put to – e.g. use frequency and type, as well as possibility of re-use after breakage, be that following repair or re-definition of function. Ethnoarchaeological studies have indicated some general, mostly rather obvious trends; thus, vessels with high use frequency and/or cooking function break more frequently than vessels that are used or moved less often and are not subjected to thermal shock on a regular basis (e.g. Foster 1960, 608; Arnold 1985, 152–155; Shott 1996, 466–468, tables 2–4). The number of factors involved in determining the life-span of a given vessel or vessel class, however, results in widely varying use lives even for comparable vessel types recorded in ethnographical studies (compare, e.g., the figures for cooking pots in Rice 1987, 296 table 9.4); consequently, the use-life of vessels from archaeological contexts cannot be reliably predicted (Orton 1993, 178–180; Orton *et al.* 1993, 208–209).

We expect the ceramic profile of a cult site, such as Kalapodi, to differ significantly from that of e.g. domestic contexts. On the one hand, this should reflect the nature of activities enacted at these sites; on the other hand, the use-pattern and resulting use-life of ceramics at cult sites are likely to differ from those in domestic settings. According to current knowledge, Kalapodi functioned as a rural open air cult place, not closely associated with any settlement, and presumably in use for sporadic ceremonies and festivities at unknown intervals (for cult at Kalapodi in general, see e.g. Felsch 1998; 2001). The prescriptions followed during these rituals may have contributed significantly to the history of the use of vessels at Kalapodi; thus, vessels appear to have been smashed intentionally after use (e.g. Jacob-Felsch 1996, 103) – the small sherd size and sharp, clean breaks support this interpretation. Consequently, it may be legitimate to suggest that the ceramics deposited at Kalapodi, or at least the greatest part of these deposits, represent a close reflection of the assemblage used for cultic activities.¹¹

¹¹ The smashing of pottery seems especially valid for vessels used by individual participants, such as small open shapes. The large number of cooking pot fragments in SUs I–III, comprising 13–23% of the aggregate feature count, and the average rim preservation, which is 6.2% and 6.6% for wheelmade and handmade cooking pots respectively, seems to suggest a similarly short life expectancy for these vessels. At the same time, we wonder whether a certain basic inventory of pots was kept on site to be re-used in recurrent ritual activity (see e.g. the set of cooking pots and

While the majority of ceramic finds from Kalapodi appear to have been produced locally or regionally, we were able to identify macroscopically a number of imports, particularly from Athens and Euboea, as well as examples of Thapsos ware; in addition, some clearly non-local pieces from the Early Iron Age levels might derive from north Central, or indeed northern Greece. The Early Iron Age finds from the old excavations presented a similar picture, with a rather homogeneous ceramic landscape, while some imports were identified Peloponnesian (Nitsche 1987, 38, fig. 60, 7), as indicated by the fabric, and several pieces, mostly skyphoi, were of Euboean provenance (Nitsche 1987, 46, fig. 62, 4–5) with parallels in Lefkandi. Chemical analysis was conducted on finds of Mycenaean and Submycenaean date from the old excavations. Although samples of coarse fabrics were taken, the focus was on wheelmade decorated fine ware, since the latter was better suited to the study being conducted (Jones 1996, 115–120).

Having discussed the identification of different stratigraphic units and their chronology above, we now turn our attention to the characterisation of finds and the development of the ceramic assemblage in order to explore the taphonomy of the material, the nature of this deposit and its possible cultic character.

An immediately obvious characteristic of the pottery studied is the large quantity of serving vessels (small open shapes) in comparison to transport/storage vessels (large closed) and cooking pots. Thus, in phase I small open shapes account for 77.4% (rim EVE) of the total; a high percentage of this are plain ware small open shapes, which virtually disappear in the following phases. In phase II, small open shapes register a low at 30.5 % and increase to 65.5% in phase IV (Fig. 8 and Fig. 9). We believe, however, that the large quantities of pithos and cooking pot fragments in phase II probably result from chance deposition rather than representing the actual activity at the time.

A clear tendency was identified within the development of handmade wares as well. A considerable increase in the production of handmade pottery starts during Late Helladic IIIC (Lemos 2002, 84, Jacob-Felsch 1996, 73),¹² with handmade shapes gradually replacing wheelmade large closed shapes, both fine and coarse. In fact, in the Geometric period

mixing bowls stored after ritual use in the Classical cult cave at Isthmia, Gebhard 2002, 70–71 with fig. 10); the most obvious categories for retention would be large storage vessels, such as pithoi, and communally used pots, or pots which were rather more valuable than the remainder; see for example kraters, particularly the pictorial examples from the Late Helladic IIIC strata (Jacob-Felsch 1996, pls. 7–11; Whitley 2007, 43 fig. 51). The available evidence, however, contains no clear indication of such a distinction between vessels for individual consumption and communal serving; indeed, breakage patterns for kraters are close to those for cooking pots and small open shapes (average rim percentage is 3.7%), and no krater fragments dating noticeably earlier than the majority of the SU have been identified. The number of pithoi (both rim EVEs and aggregate feature count) is too small in each of the SUs to draw any conclusions.

¹² Jacob-Felsch in calculating the rates of handmade and wheelmade pottery observed an increase in handmade vessels at Kalapodi. Thus, in excavation area K25 handmade pottery amounts to 28.2% whereas in K25 North, where the Early Protogeometric layers are predominant, handmade pottery even reaches 51.3%.

virtually all shapes of this type (amphorae, hydriae, jugs) are handmade. This phenomenon continues at least until the Archaic period and can be observed throughout Central Greece, as well as in the Northeast Peloponnese (Strack 2007, 208–209, 234–236). Furthermore, in the trench under consideration, in phases II–IV it is possible to observe a significant increase in sherd count and weight that corresponds to a growth in size of individual handmade vessels.

Regarding the serving vessels of the Late Bronze Age, it is noteworthy that numerous plain fineware sherds were found, most of which could be identified as kylikes, a shape that first appears in Late Helladic III A1, and, replacing shallow cups and goblets, becomes one of the most common shapes in Late Helladic III A2 (Mountjoy 1986, 64–67).

Recent studies of Mycenaean pottery have suggested the existence of ‘drinking sets’, comprising kraters and certain drinking vessels, in the material record (e.g. Bettelli 2002, 247–248; Podzuweit 2007, 191–194). Podzuweit in particular goes so far as to identify specific numbers and types of open shapes combined with a krater¹³ in such a set. Based on the present evidence, no such sets can be identified in the ceramic record at Kalapodi, where kraters are in fact fairly rare (based on sherds counted, krater fragments account for 0.4–3.0% of the total, while both in the rim EVEs and aggregate feature count, kraters are absent from SUs Ia, III–IIIb).¹⁴ SUs I and IV contain the largest number of krater sherds; based on rim EVEs, small open shapes outnumber kraters by 85:1 and 40:1 respectively. At the same time, there is a much closer correlation between small open shapes and cooking pots (the ratio falling to between 1:1 and 7:1). In the Middle to Late Geometric SU IV, however, the number of both cooking pots and skyphoi, in relation to cups, declines steeply;¹⁵ this coincides with a slight increase in the prevalence of kraters (Fig. 11. MNI count based on diagnostic vessel parts, here handles; see further Strack, this volume). Thus, in SU IV small open shapes outnumber cooking pots by 23:1 (rim EVEs); the increase in

¹³ In this respect it is interesting to note that the krater, already in the Mycenaean period, was designed for holding and probably mixing wine. In comparison with the individual drinking vessels, e.g. a kylix or cup, it has very large, sometimes monumental dimensions and represents a very meaningful symbol of drink distribution. Mountjoy 1986, 156.

¹⁴ Note, however, several sherds of pictorial kraters found in trenches adjacent to our sample trench (Niemeier, in Whitley 2007, 43 fig. 51).

¹⁵ It should be reiterated that the common designation of all small open shapes as ‘drinking cups’ might well be misleading (e.g. Morgan 1999, 261–266). Based on shape and traces of use, the standard cooking pot of the Iron Age was best suited for the preparation of fairly liquid foods, such as soups and stews; the prevalence of these cooking vessels presupposes the existence of serving vessels from which these foods were to be eaten. In comparison with the Late Bronze Age pottery repertoire, the number of Early Iron Age shapes is markedly limited; note particularly the virtual limitation of small open shapes to cups and skyphoi. The scarcity of typological variety and clear distinction in shape and size between cups and skyphoi suggests that these two were functionally distinct as well – cups for drinking, following on the cups and kylikes in the Mycenaean period, and skyphoi for eating from; Desborough 1952, 77, at least allows for the possibility of using skyphoi for food ‘The [skyphos] is an ordinary drinking-vessel; and I suppose it is possible that one ate out of it as well’, but the apparent lack of vessels for the consumption of food has largely gone without comment. Suggestions that vessels made from organic materials largely accounted for this function should be dismissed, see Strack 2007, 130.

kraters is clearly to be seen in the aggregate feature count, where kraters now comprise 3.1% of the total (compared to 1.6% and 2.5% in phases II and III respectively).

Based, as these figures are, on one trench only, these results should be regarded with some amount of caution. However, some support for the validity of our assertions can be gleaned from the published results of the earlier excavation campaigns, at least for the earlier stages of our sequence (Jacob-Felsch 1996, tables 1–3, sherd count of strata 1–23, LH IIIC through EPG; here summarized in Fig. 10. The chronology follows Felsch 2007, x. For problems with Submycenaean at Kalapodi, see above, and Lis 2008). Cooking pots comprise between 18.8% and 26.2% of the total count, compared to between 20.7% and 29.4% in phases I–III in our sample trench. The number of krater sherds identified by Jacob-Felsch amounts to between 0.5% and 1% of the total sherd count per phase (note, however, that only about 20% of the finewares counted by Jacob-Felsch could be identified with regard to shape), compared to our 0.5% to 1.8%. In the Late Bronze and the Early Iron Age, at least in trench 5030/4965,¹⁶ we do not have a significant representation of miniature vessels, which are often thought to be related to cultic activities. The extraordinarily high number of ceramic vessels reserved for drinking and possibly also for religious offerings (small open shapes) could support an identification of Kalapodi as a cult site. It is furthermore noteworthy that the figures for drinking vessels are roughly equal between the Late Bronze and Early Iron Age levels, supporting the hypothesis of cult continuity, and suggesting that the rituals enacted at the site remained comparable across the Late Bronze/Early Iron Age transition.

Ritual feasting at the site in Late Helladic IIIC through Subprotogeometric seems to have centred on the consumption of food, or a balanced mix of food and drink, rather than on drinking alone. In the Middle to Late Geometric period (SU IV), there is a marked shift in ritual practice, emphasizing the consumption of drink; the virtual disappearance of cooking pots (Fig. 8) suggests that communal meals were no longer part of the activities engaged in by the participants at Kalapodi.

The findings from the analysis of archaeozoological material from the old excavation follows along similar lines; thus, the amount of bone retrieved decreases notably from the Late Helladic to the Geometric levels, with unburnt bone in the Late Bronze Age contrasting with calcinated bone fragments in the Geometric period – the latter are indicative of holocaustic sacrifice (Stanzel 1991, 14). Stanzel's conclusions agree with preliminary findings from the trench here presented. Worth noting is that this shift coincides with the emergence of metal objects, predominantly bronzes, as votive offerings, and the establishment of a hearth altar underneath the later North temple (Felsch 1987, 5; 2007, 552); the reorganization of the sanctuary noted by Felsch (1987, 5) thus goes hand in hand with a redefinition of ritual activity at Kalapodi.

¹⁶ Some fragments of miniature vessels were recovered during the old excavation. Jacob-Felsch 1996, 103, 130, no. 86.

A comparison of these findings with other sanctuary sites in Greece, particular the apparent shift from communal meals to the dedication of votive offerings as the focus of ritual in the mid to late 9th century BC, is somewhat hampered by the lack of comparable data. The later sanctuary of Poseidon at Isthmia bears some resemblance to the site at Kalapodi; Isthmia, too, appears to have been an open-air site, without close association with a settlement. Like Kalapodi, Isthmia has yielded what appears to be the remains of cultic activity from the earliest stages of the Iron Age onwards; the inception of cult activity at Isthmia has been dated to the Early Protogeometric period. However, only minute deposits of this early date remained in situ, while the majority of Iron Age finds were being incorporated in Archaic terracing fills (Gebhard, in Morgan 1999, 195–212). Consequently, little information can be gleaned regarding the entire spectrum of ceramics used at the site at any given chronological phase, since coarse- and cooking wares, but presumably also non-diagnostic fineware sherds, cannot be dated with any confidence (Morgan 1999, 152–155, table I.1). Based on the dated, catalogued material, there appears to be a marked increase of kraters in the Middle Geometric II to Late Geometric periods; however, the differences between the two assemblages stand out far more than the similarities. Cooking vessels seems to have played little to no role in the activities at Isthmia; based on the data from the most recent excavation campaign, cooking pots account for a mere 0.3% of Iron Age ceramics, while other coarsewares amount to 1.5% (Morgan 1999, 155; 1989 finds only). The increase in cups in Kalapodi phase IV is not mirrored at Isthmia either, where the Middle and Late Geometric periods bring the virtual replacement of cups with protokotylai and kotylai, a shape thus far not attested among the locally produced ceramics at Kalapodi and only sparsely represented among imports (e.g. Nitsche 1987, 47 fig. 63.5, Early Protocorinthian). While the preference of cups over kotylai reflects the local ceramic styles in Central Greece and the Corinthia, the prevalence of cooking pots in pre-Middle Geometric deposits at Kalapodi attests to significant differences in use patterns of the two sites.

The use of the site in Late Helladic IIIC through Late Geometric

In mainland Greece ritual drinking and eating activities, related to communal gatherings for cult ceremonies¹⁷ have a well rooted tradition in the Late Middle Bronze Age and are particularly well attested during the peak of Mycenaean culture in Late Helladic III (Wright 2004a, 154). In this period there is a difference in large-scale feasts with many participants sponsored by palatial centres, and feasts at other, less monumental places, sometimes associated with architectural structures that would have allowed only limited participation.

¹⁷ 'Like death and burial, feasting is an activity that makes places out of spaces and thereby marks the lived world with spatial and temporal referents. It memorializes relationships across time and space and instructs through practice the boundaries of the group. In rituals of food production and consumption and in rituals of death, societies reinforce themselves and their social structures, even as they remake them'. Wright 2004b, 76.

For the Late Bronze Age at Kalapodi there is evidence for drinking and eating activities, probably related to ritual; the ritual character of the site in the Bronze Age can cautiously be inferred from its later phases. In defining what kind of drinking and eating activities took place at this site, we unfortunately have little information at our disposal. The usually well-preserved, sharp-edged sherds suggest that we are dealing with discarded vessels that were deposited relatively soon after use. In addition, the possibility remains that the vessels had been smashed deliberately, probably as part of a ritual (Jacob-Felsch 1996, 103).¹⁸ It is possible to consider these remains as evidence for Late Bronze Age feasts performed in the frame of ritual activity within a wider religious context but outside the big palatial feasts; it should be remembered that we are dealing with the period after the fall of the Mycenaean palaces. These feasts possibly took place regularly, as might have been the case for religious centers (Wright 2004c, 126).

Despite our expectations of being confronted with material from the centre of the Early Iron Age sanctuary, fuelled by the discovery of the bothros/altar, the analysis of the ceramic material suggests otherwise. Most notable was the lack of in situ depositions of cult-related ceramic material. Instead, the area was characterized by successive strata of fill which seems to have resulted from terracing operations. The focus of cultic activity might have been located north-west of Trench 5030/4965, following the natural slope of the hill. In fact, a mid-9th century hearth or hearth altar was discovered during the old excavations underneath the later North temple (Felsch 1987, 5); to answer this question conclusively, however, would require more investigation in this area.

SU IV, the latest layer in our stratigraphy, comprises yet another fairly thick layer of material brought in for leveling the terrain. Based on stratigraphy, the chronology of finds, and absolute levels, we suggest that SU IV represents the terracing prior to the construction of the earliest cult building at the site. The density of finds, particularly metal, in the immediate environs of the building (Morgan 2008, 48) seems to justify the suggestion that in the Late Geometric period the focus of the sanctuary at Kalapodi moved towards the location of the later South temple.

Prior to the 9th cent. BC, there is little material that can be recognized as votives (fragments of figurines, predominantly Mycenaean, are discussed and illustrated in Felsch 1981, 87–88, figs. 18–22; Whitley 2006, 69, fig. 106); among the more exotic finds from the Bronze Age levels, there are a Early Neolithic stone toad and a Minoan seal stone, both possibly heirlooms (Niemeier, in Whitley 2007, 43 with fig. 52; Morgan 2008, 48 with fig. 54). Only in the 9th century BC is there a significant rise in the number of metal finds at Kalapodi (Felsch 2007, 552). These observations seem to indicate that the activities reflected in the ceramic record of earlier periods, i.e. the preparation

and consumption of food and drink, played the major role in the behaviour engaged in at the site. Whatever representations of wealth and power the local elite might have enacted at the site focussed not so much on dedications as on the communal consumption of food and drink. Elevated status might have been symbolized by rare hunting prey that was offered and possibly consumed by the cult community (e.g. bear and lion, Stanzel 1991, 110, 114; also Felsch 2001, 195–197). At the same time, association with elites and elite representation might not have been the focus of the cult place at Kalapodi; Felsch notes the presence of much bone material from sheep/goats, and what might be offerings specifically of pastoralists (Felsch 1999, 166–168, fig. 1; 2001, 197). Until the construction of the first cult building at the end of the Geometric period, little investment had been made at the site in terms of either structures and their embellishment or of votive offerings. There is some evidence for rather ephemeral structures, maybe for the storage of items used at the site, such as the quern stones found near by, as well as pithoi containing food stuffs (Felsch 2001, 194).

The open-air site at Kalapodi best matches Hägg's concept of a public cult site, accessible to much of the community (e.g. Hägg 1981, 38–39). Together with the evidence from the pottery and votive material, as well as the bone finds from the old excavations, this might suggest a use of the site for congregations of pastoralists and/or hunters from communities in the surrounding landscape, who gathered here for festivities, possibly seasonal, during which food and drink were prepared and shared. Finds of burnt cereal and legumes (Felsch 2001, 194)¹⁹ might well represent remains of the basic meal prepared at Kalapodi, to be enriched with the meat from hunted and farmed animals provided by the participants.

References

- ARNOLD, D.E., 1985. *Ceramic theory and cultural process*, Cambridge.
- BETTELLI, M., 2002. *Italia meridionale e mondo miceneo*, Florence (Grandi contesti e problemi della protostoria italiana 5).
- DESBOROUGH, V.R. d'A., 1952. *Protogeometric Pottery*, Oxford.
- DICKINSON, O.T.P.K. 2006. *The Aegean from Bronze to Iron Age. Continuity and change between the twelfth and eight centuries BC*, New York.
- EGLOFF, B.J., 1973. A method for counting ceramic rim sherds, *AmerAnt* 38, 351–353.
- FELSCH, R.C.S., 1980. Apollon und Artemis oder Aretmis und Apollon? Bericht von den Grabungen im neu entdeckten Heiligtum bei Kalapodi 1973–1977, *AA*, 38–85.
- FELSCH, R.C.S., 1981. Mykenischer Kult im Heiligtum bei Kalapodi? in R. Hägg and N. Marinatos (eds), *Sanctuaries and Cults in the Aegean Bronze Age*. *Proceedings of*

¹⁸ For a general up to date discussion about religion and cult continuity in Late Bronze Age and Early Iron Age, see Dickinson 2006, 219–237.

¹⁹ Felsch states that this 'Rezept' is 'zum Kochen eigentlich weniger geeignet'; however, cereals and vegetal protein provide the basis for many regional cuisines, both ancient and modern, and might well have represented staples available to the inhabitants of ancient Phokis.

- the First International Symposium at the Swedish Institute in Athens, 12–13 May, 1980, Stockholm, 81–89.
- FELSCH, R.C.S., 1987. Kalapodi. Bericht über die Grabungen im Heiligtum der Artemis Eplaphebolos und des Apollon von Hyampolis 1978–1982, AA, 1–26.
- FELSCH, R.C.S., 1998. Kalapodi und Delphi – zur Frühzeit des Apollonkultes Mittelgriechenland, in R. Rolle and K. Schmidt (eds), *Archäologische Studien in Kontaktzonen der antiken Welt*, Göttingen, 219–236.
- FELSCH, R.C.S., 1999. Το μυκεναϊκό ιερό στο Καλαπόδι: Λατρεία και τελετουργικό, in Η περιφέρεια του μυκεναϊκού κόσμου, Α' διεθνές διεπιστημονικό συνέδριο, Λαμία 1994, Athens, 163–170.
- FELSCH, R.C.S., 2001. Opferhandlungen des Alltagslebens im Heiligtum der Artemis Elaphebolos von Hyampolis in den Phasen SH III C – Spätgeometrisch, in R. Laffineur and R. Hägg (eds), *POTNIA. Deities and Religion in the Aegean Bronze Age. Proceedings of the 8th International Aegean Conference Göteborg*, Göteborg University, 12–15 April 2000 (*Aegaeum* 22), Liège, 193–199.
- FELSCH, R.C.S., 2007. Kalapodi. Ergebnisse der Ausgrabungen im Heiligtum der Artemis und des Apollon von Hyampolis in der antiken Phokis. Band II, Mainz.
- FELSCH, R.C.S. and H.J. KIENAST, 1975. Ein Heiligtum in Phokis, AAA 8, 1–24.
- FOSTER, G.M., 1960. Life-expectancy of utilitarian pottery in Tzintzuntzan, Michoacan, Mexico, *AmerAnt* 25, 606–609.
- GEBHARD, E.R., 2002. Caves and Cults at the Isthmian Sanctuary of Poseidon, in R. Hägg (ed), *Peloponnesian Sanctuaries and Cults*, Proceedings of the 9th International Symposium, Athens, June 11–13, 1994, Stockholm, 63–74.
- HÄGG, R., 1981. Official and popular cults in Mycenaean Greece, in R. Hägg and N. Marinatos (eds), *Sanctuaries and Cults in the Aegean Bronze Age. Proceedings of the First International Symposium at the Swedish Institute in Athens*, 12–13 May, 1980, Stockholm, 35–39.
- JACOB-FELSCH, M., 1996. Die spätmykenische bis frühproto-geometrische Keramik, in R.C.S. Felsch (ed), *Kalapodi. Ergebnisse der Ausgrabungen im Heiligtum der Artemis und des Apollon von Hyampolis in der antiken Phokis*. Band I, Mainz, 1–213.
- JONES, G.T. and LEONARD, R.D., 1989. The concept of diversity: an introduction, in R.D. Leonard and G.T. Jones (eds), *Quantifying diversity in archaeology*, Cambridge, 1–3.
- JONES, R.E., 1996. Appendix: Chemical Analysis of Mycenaean and Submycenaean Pottery from Kalapodi, in Felsch R.C.S. (ed), *Kalapodi. Ergebnisse der Ausgrabungen im Heiligtum der Artemis und des Apollon von Hyampolis in der antiken Phokis*, Band I, 115–120.
- KINTIGH, K.W., 1989. Sample size, significance, and measures of diversity, in R.D. Leonard and G.T. Jones (eds), *Quantifying diversity in archaeology*, Cambridge, 25–36.
- KRAMER-HAJOS, M., 2008. *Beyond the Palace: Mycenaean East Lokris (BAR 1781)*, Oxford.
- LEMONS, I.S., 2002. *The Protogeometric Aegean. The archaeology of the late eleventh and tenth centuries BC*, Oxford.
- LIS, B., 2008. The sequence of Late Bronze/Early Iron Age pottery from Central Greek settlements – a fresh look at old and new evidence, in S. Deger-Jalkotzy and A.E. Bächle (eds), *LH III C chronology and synchronisms III: LH III C Late and the transition to the Early Iron Age*, Vienna, 203–234.
- MELTZER, D.J., LEONARD, R.D. and STRATTON, S.K., 1992. The relationship between sample size and diversity in archaeological assemblages, *JAS* 19, 375–387.
- MORGAN, C.A., 1999. *Isthmia VIII. The Late Bronze Age settlement and Early Iron Age sanctuary*, Princeton.
- MORGAN, C.A., 2008. *Archaeology in Greece 2007–2008*, AR 54, 1–94.
- MOUNTJOY, P.A., 1986. *Mycenaean Decorated Pottery: A Guide to Identification (SIMA 73)*, Gothenburg.
- MOUNTJOY, P.A., 1999. *Regional Mycenaean Decorated Pottery*, Rhaden/Westf.
- NITSCHKE, A., 1987. Protogeometrische und subprotogeometrische Keramik aus dem Heiligtum bei Kalapodi, AA, 35–49.
- ORTON, C., 1993. How many pots make five? – An historical review of pottery quantification, *Archaeometry* 35, 169–184.
- ORTON, C., TYERS, P. and VINCE, A., 1993. *Pottery in archaeology*, Cambridge.
- PODZUWEIT, C., 2007. *Tiryns XIV. Studien zur spätmykenischen Keramik*, Wiesbaden.
- RICE, P.M., 1987. *Pottery analysis: a sourcebook*, Chicago.
- RUtter, J.B., 1990. Pottery groups from Tsoungiza of the end of the Middle Bronze Age, *Hesperia* 59, 375–458.
- SHOTT, M.J., 1996. Mortal pots: on use life and vessel size in the formation of ceramic assemblages, *AmerAnt* 61, 463–481.
- STANZEL, M., 1991. *Die Tierreste aus dem Artemis-/Apollon-Heiligtum bei Kalapodi in Böotien/Griechenland*, Doctor of veterinary medicine dissertation, University of Munich.
- STRACK, S., 2007. *Regional dynamics and social change in the Late Bronze and Early Iron Age: a study of handmade pottery from southern and central Greece*, PhD thesis, University of Edinburgh.
- STRACK, S., *in preparation*. The (re-) introduction of handmade pottery in the post-palatial Aegean: migration, loss of knowledge, technological regression?
- WHITLEY, A.J., 2006. *Archaeology in Greece 2005–2006*, AR 52, 1–112.
- WHITLEY, A.J., 2007. *Archaeology in Greece 2006–2007*, AR 53, 1–121.
- WRIGHT J.C., 2004a. A survey of evidence for feasting in Mycenaean society, in *Feasting in Mycenaean society*, Colloquium on Mycenaean feasts held at the Annual Meeting of the Archaeological Institute of America, Philadelphia, 2002, *Hesperia* 73 (2004), 133–178.
- WRIGHT J.C., 2004b. The Emergence of Leadership and the Rise of Civilization, in J.C. Halstead and P. Barrett (eds), *The Emergence of Civilisation Revisited*, Sheffield Studies in Aegean Archaeology 6, Oxford, 64–89.
- WRIGHT J.C., 2004c. The Mycenaean Feast: An Introduction, in *Feasting in Mycenaean society*, Colloquium on Mycenaean feasts held at the Annual Meeting of the Archaeological Institute of America, Philadelphia, 2002, *Hesperia* 73, 121–132.



Fig. 1. Map of Central Greece.

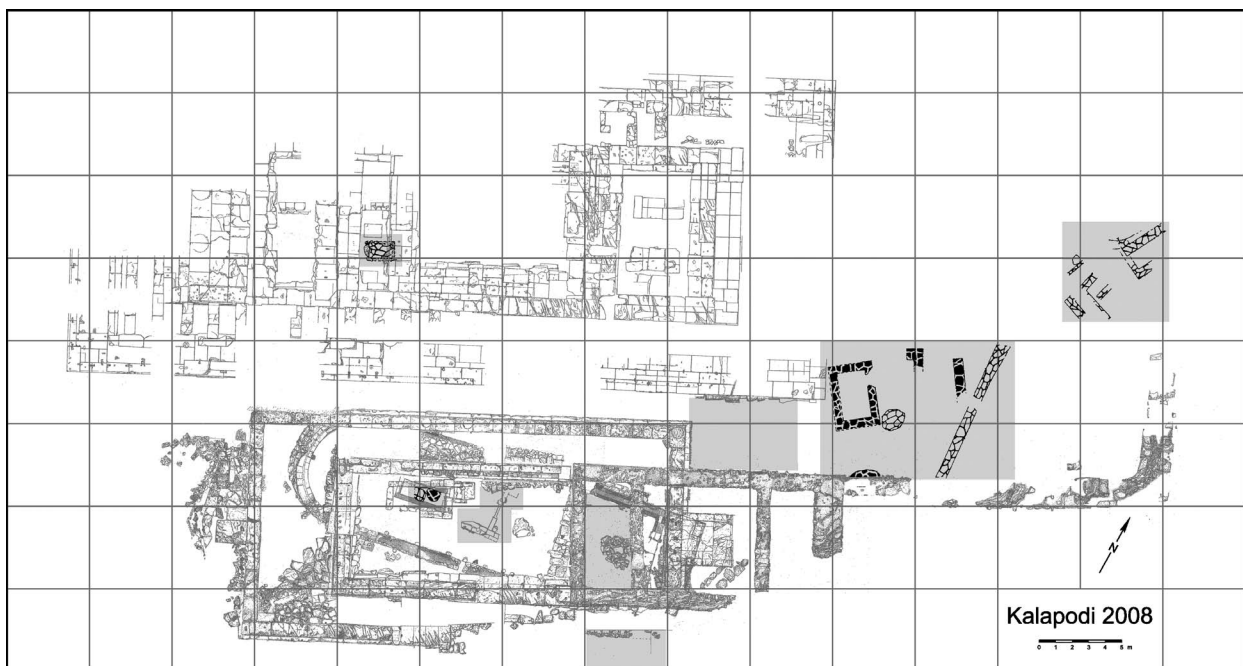


Fig. 2. Kalapodi site plan. Areas with Late Bronze and Early Iron Age remains shaded.

KAL05.78	Rim (Ct)	Rim (Wt)	Handle (Ct)	Handle (Wt)	Foot (Ct)	Foot (Wt)	Body (Ct)	Body (Wt)	rim EVE	AvShWt [g]	total Ct	total Wt	AFC
WM painted small open	31	0.083	25	0.191	23	0.141	120	0.274	2.81	2.3	199	0.689	79
WM painted large open	2	0.014	0	0.000	3	0.078	22	0.115	0.00	5.2	27	0.207	5
WM painted small closed	0	0.000	0	0.000	0	0.000	0	0.000	0.00	0	0	0.000	0
WM painted medium closed	1	0.003	1	0.003	0	0.000	30	0.095	0.13	3.2	32	0.101	2
WM painted large closed	0	0.000	1	0.008	0	0.000	15	0.069	0.00	4.6	16	0.077	1
WM plain small open	0	0.000	0	0.000	0	0.000	0	0.000	0.00	0	0	0.000	0
WM plain large closed	0	0.000	0	0.000	0	0.000	0	0.000	0.00	0	0	0.000	0
WM coarse	0	0.000	0	0.000	0	0.000	0	0.000	0.05	0	0	0.000	0
HM coarse	3	0.020	1	0.070	1	0.038	171	1.417	0.12	8.3	176	1.545	5
WM cooking	0	0.000	0	0.000	0	0.000	14	0.155	0.00	11.1	14	0.155	0
HM cooking	0	0.000	0	0.000	0	0.000	1	0.008	0.00	8.0	1	0.008	0
pithos (-ware)	0	0.000	0	0.000	0	0.000	13	1.125	0.00	86.5	13	1.125	0
other	0	0.000	1	0.008	0	0.000	3	0.017	0.00	5.7	4	0.025	1
TOTAL	37	0.120	29	0.280	27	0.257	389	3.275	3.11	8.4	482	3.932	93

Fig. 3. Quantitative data for excavation lot KAL05.78.

All lots	Rim (Ct)	Rim (Wt)	Handle (Ct)	Handle (Wt)	Foot (Ct)	Foot (Wt)	Body (Ct)	Body (Wt)	total Ct	total Wt
WM painted small open	453	1.743	305	2.886	281	2.412	1966	5.196	3005	12.237
WM painted large open	16	0.173	7	0.111	22	0.617	146	1.444	191	2.345
WM painted small closed	5	0.009	6	0.032	5	0.051	76	0.192	92	0.284
WM painted medium closed	16	0.086	23	0.206	16	0.275	292	1.187	347	1.754
WM painted large closed	21	0.207	18	0.405	20	0.734	731	6.070	790	7.416
WM plain small open	120	0.321	34	0.214	45	0.264	379	0.617	578	1.416
WM plain large closed	4	0.037	4	0.048	2	0.031	90	0.287	100	0.403
WM coarse	4	0.040	1	0.027	4	0.143	101	1.127	110	1.337
HM coarse	67	1.359	74	3.355	59	2.400	1720	20.405	1920	27.519
WM cooking	35	0.250	10	0.379	19	0.732	554	2.815	618	4.176
HM cooking	83	0.781	64	2.215	16	0.450	1304	13.009	1467	16.455
pithos (-ware)	14	1.778	1	0.051	12	2.322	871	48.568	898	52.719
other	12	0.474	2	0.010	3	0.048	393	4.565	410	5.097
TOTAL	850	7.258	549	9.939	504	10.479	8623	105.482	10526	133.158

Fig. 4. Kalapodi Trench 5030/4965, overall sherd count and weight (excluding pre-sorted lots).

Stratum	I	I a	II	III	III a	III b	IV	all lots
WM painted small open	3.7	4.9	7.7	3.8	3.1	4.5	3.6	4.1
WM painted large open	11.1	11.0	13.5	17.0	8.0	18.6	9.7	12.3
WM painted small closed	3.5	2.0	5.0	5.0	2.7	n/a	2.6	3.1
WM painted medium closed	3.8	n/a	6.0	5.5	4.3	4.2	5.4	5.1
WM painted large closed	7.4	9.0	11.6	13.6	34.0	10.8	11.9	9.4
WM plain small open	2.4	n/a	n/a	n/a	n/a	n/a	n/a	2.4
WM plain large closed	4.0	8.0	n/a	n/a	n/a	n/a	n/a	4.0
WM coarse	13.1	22.3	n/a	n/a	n/a	n/a	n/a	12.2
HM coarse	10.4	10.5	18.7	15.7	14.5	13.0	11.9	14.3
WM cooking	6.9	9.0	28.0	n/a	n/a	n/a	10.9	6.8
HM cooking	10.0	9.3	14.5	10.4	15.5	10.0	10.1	11.2
pithos (-ware)	33.7	30.0	55.1	71.2	73.6	40.0	76.2	58.7
other	4.4	11.7	27.4	28.8	4.0	20.2	4.3	12.4
overall average	7.1	15.7	25.8	14.2	12.1	12.1	8.8	12.7

Fig. 5. Comparison of average sherd weight (in gram) as indicator of brokenness for the ceramic categories identified at Kalapodi (n/a – category not present).

All lots				
category	rim sum	% sum	av. %	rim EVE
WM painted small open	513	3351%	6.5%	33.51
WM painted large open	14	58%	4.1%	0.58
WM painted small closed	5	77%	15.4%	0.77
WM painted medium closed	12	131%	10.9%	1.31
WM painted large closed	25	242%	9.7%	2.42
WM plain small open	121	766%	6.3%	7.66
WM plain large closed	4	21%	5.3%	0.21
WM coarse	3	14%	4.7%	0.14
HM coarse	75	589%	7.9%	5.89
WM cooking	31	192%	6.2%	1.92
HM cooking	96	627%	6.5%	6.27
pithos (-ware)	13	59%	4.5%	0.59
other	6	14%	2.3%	0.14
TOTAL	918	6141%	6.7%	61.41

Fig. 6. Rim EVEs for Kalapodi sample trench.

All lots	% R (totalCt)	sherds per pot	% single sherd
WM painted small open	15.1%	99	1.0%
WM painted large open	8.4%	177	0.6%
WM painted small closed	5.4%	276	0.4%
WM painted medium closed	4.6%	324	0.3%
WM painted large closed	2.7%	552	0.2%
WM plain small open	20.8%	72	1.4%
WM plain large closed	4.0%	373	0.3%
WM coarse	3.6%	414	0.2%
HM coarse	3.5%	426	0.2%
WM cooking	5.7%	261	0.4%
HM cooking	5.7%	261	0.4%
pithos (-ware)	1.6%	931	0.1%
other	2.9%		

Fig. 7. Estimate of number of sherds per vessel, based on rim portion average (6.7%) and ratio of rim count to total count. The third column shows the average percentage a single sherd represents of the whole vessel. (The category 'other' comprises, for the most part, unidentified body sherds, with features, and particularly rim fragments, significantly underrepresented; consequently, no figures were calculated for this 'class'.)

Phase	I		II		III		IV	
	Ct	rim EVE	Ct	rim EVE	Ct	rim EVE	Ct	rim EVE
WM painted small open	23.5%	42.6%	9.3%	30.5%	27.8%	57.3%	45.1%	65.5%
WM painted large open	1.7%	0.9%	0.5%	2.5%	1.8%	0.0%	3.0%	2.2%
WM painted small closed	1.6%	0.7%	0.1%	0.0%	0.2%	2.6%	1.2%	0.0%
WM painted medium closed	1.0%	0.4%	3.6%	2.2%	4.1%	6.4%	6.8%	3.6%
WM painted large closed	14.2%	5.9%	7.8%	3.2%	3.0%	2.9%	3.9%	2.7%
WM plain small open	14.6%	34.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
WM plain large closed	3.0%	1.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
WM coarse	2.8%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
HM coarse	3.3%	0.6%	24.8%	19.4%	24.1%	7.9%	33.0%	16.0%
WM cooking	15.8%	8.8%	0.2%	2.5%	0.0%	0.0%	0.7%	0.0%
HM cooking	4.9%	2.9%	22.3%	27.6%	29.4%	22.9%	3.6%	2.2%
pithos (-ware)	7.3%	0.0%	26.6%	12.2%	6.8%	0.0%	2.1%	0.0%
other	6.4%	0.7%	4.7%	0.0%	2.7%	0.0%	0.5%	0.0%

Fig. 8. Sherd counts and rim EVEs for Kalapodi trench 5030/4965, phases I-IV (Late Helladic IIIC through Late Geometric). (I: n=3317; II: n=1098; III: n=2599; IV: n=2033)

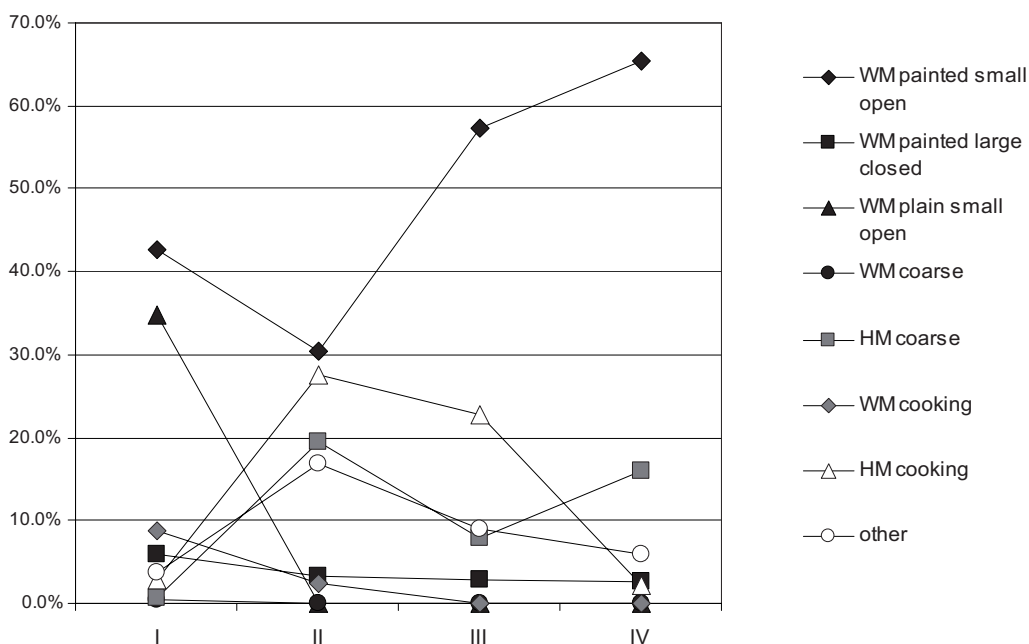


Fig. 9. Kalapodi phases I-IV, development of main ceramic categories (based on rim EVEs).

	Total sherds	WM fine	cooking	coarse	pithos	other
LHIIIC	12369	70.7%	18.8%	1.6%	7.1%	1.8%
SM	3110	47.7%	22.3%	14.5%	14.3%	1.2%
EPG	5948	38.9%	26.2%	15.0%	18.8%	1.1%

Fig. 10. Jacob-Felsch 1996, tables 1–3, summary of figures. Trenches K25 and K25N are here appraised together. Cooking and coarse ware comprise both handmade and wheelmade examples.

Phase	cup		skyphos		other s/o		krater	
	min.	max.	min.	max.	min.	max.	min.	max.
I	16	26	5	18	7	13	1	2
II	2	2	2	6				
III	6	11	5	17				
IV	23	42	7	26			1	1

Fig. 11. MNIs of small and large open shapes for phases I-IV.

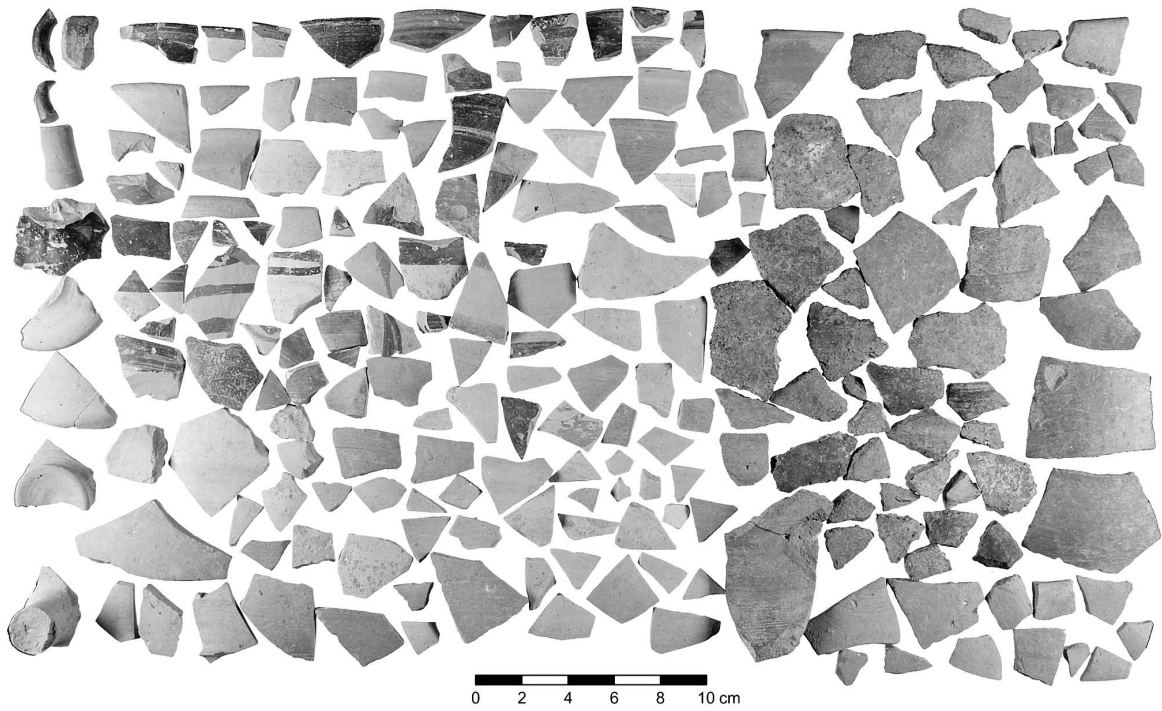


Fig. 12. Late Helladic ceramics. Representative example of breakage patterns.

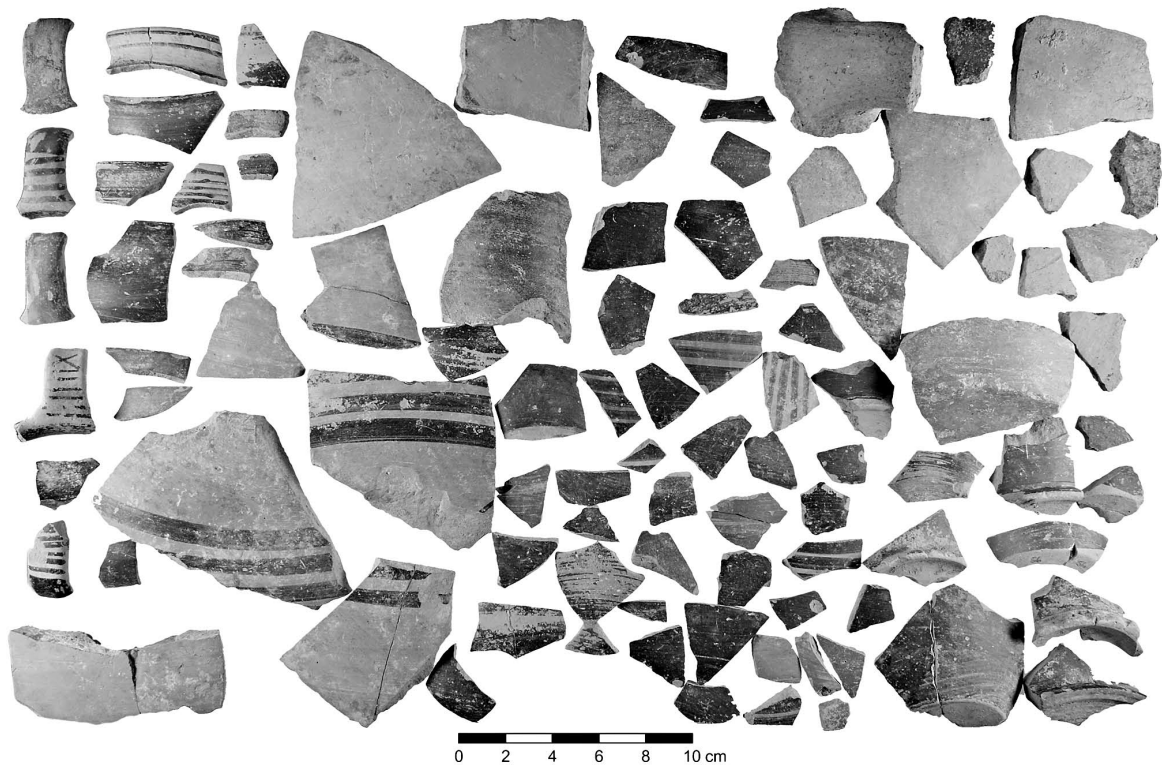


Fig. 13. Early Iron Age ceramics. Representative example of breakage patterns.

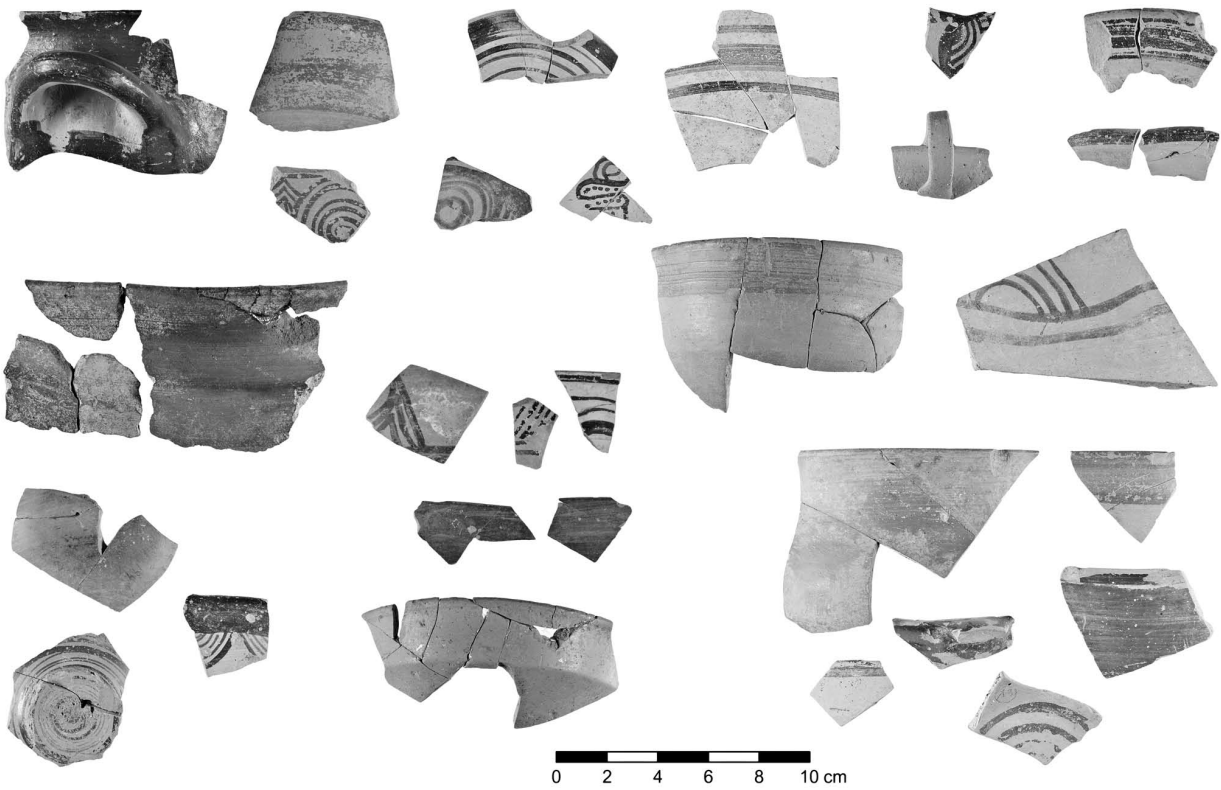


Fig. 14. SU I. Representative sample of inventoried sherds.



Fig. 15. SU II. Representative sample of inventoried sherds.



Fig. 16. SU III. Representative sample of inventoried sherds.

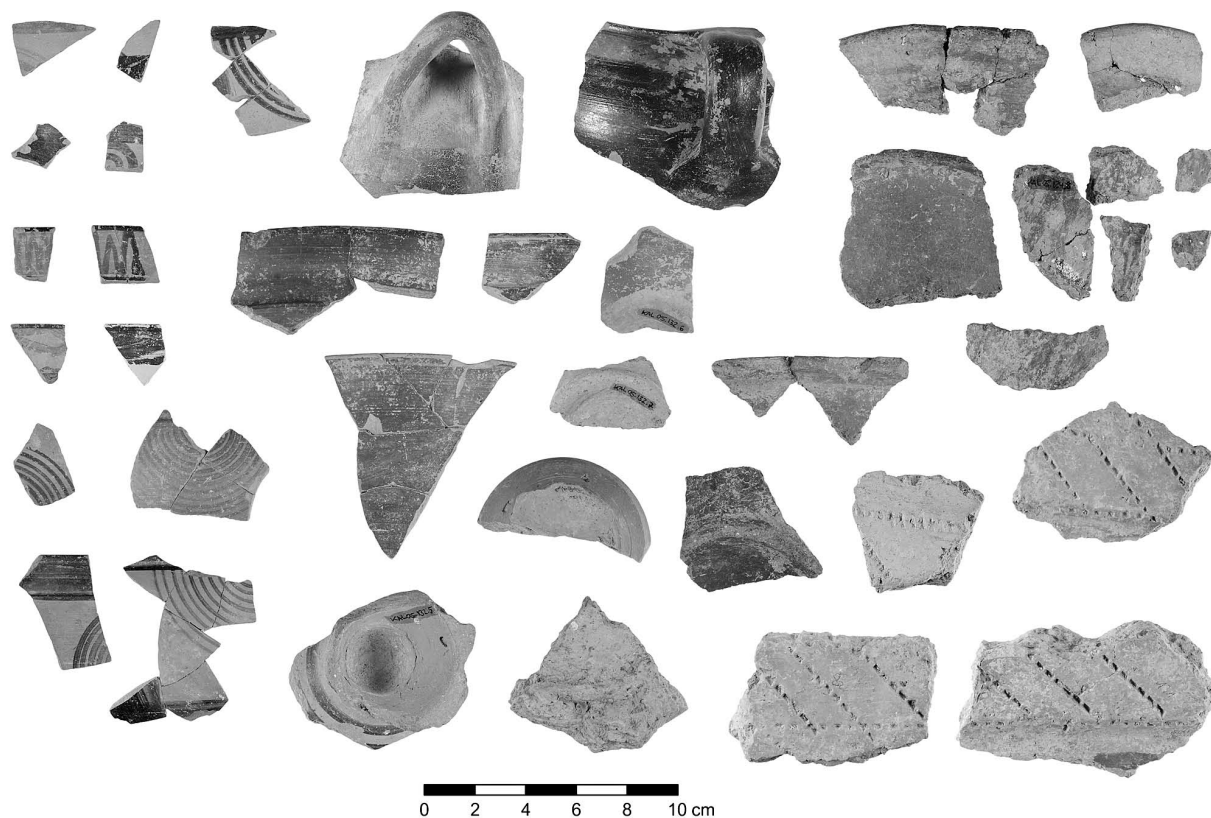


Fig. 17. SU IIIb. Representative sample of inventoried sherds.

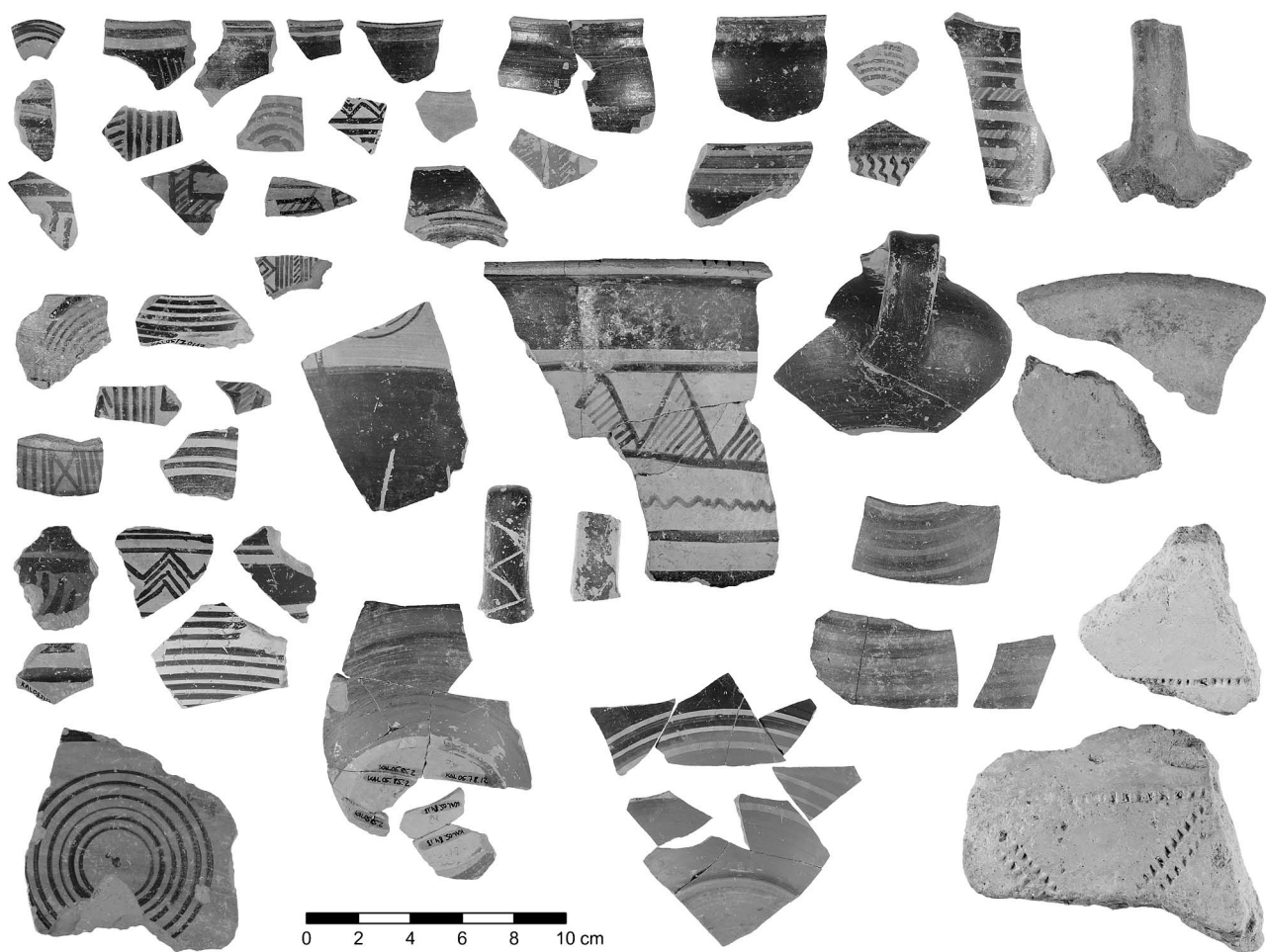


Fig. 18. SU IV. Representative sample of inventoried sherds.