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Cooking in progress: Evolution and diversity of cooking pottery in prehistoric Northern Greece and Bulgaria

Anastasia Dimoula, Zoï Tsirtsoni, Paraskevi Yiouni, Alexander Chohadzhiev, Pascal Darcque, Maria Ivanova, Chaido Koukouli-Chryssanthaki, Sofia Koulidou, Krassimir Leshtakov, Petar Leshtakov, et al.

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COOKING WITH PLANTS
IN ANCIENT EUROPE AND BEYOND

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COOKING WITH PLANTS
IN ANCIENT EUROPE AND BEYOND

Interdisciplinary approaches to the archaeology of plant foods

SOULTANA MARIA VALAMOTI, ANASTASIA DIMOULA AND MARIA NTINOU (EDS)

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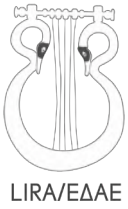

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Chapter 21

Cooking in progress: evolution and diversity of cooking pottery in prehistoric northern Greece and Bulgaria

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Abstract

This paper presents and discusses evolution and diversity patterns of cooking pottery in the regions of northern Greece and Bulgaria throughout the prehistoric periods (late 7th to late 2nd mill BC), where considerable excavated evidence comprises features and artefacts related to subsistence activities, particularly food preparation. The aim is to facilitate the identification of cooking pots in the archaeological record, to enrich datasets on cooking pottery technology and use, and contribute to the reconstruction of prehistoric cooking practices. A multileveled methodology is applied, including systematic bibliographical research and organization of the available data in an especially designed database, firsthand study of original archaeological material selected from representative habitational contexts, along with technological and functional analyses of designated cooking pot samples. The results of our study and analyses demonstrate that prehistoric cooking vessels shared specific, but not exclusive, functional attributes, while their use remained largely versatile. Most importantly, our research suggests that evolution of prehistoric cooking pottery in the area was not linear but rather tangly, involving material transformations and adaptations, ceramic traditions and innovations, as well as rejections and revivals, all related to the given social groups' dynamics.

Keywords: *cooking, pottery, technology, use, Neolithic, Bronze Age*

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21.1 Introduction

Human societies in northern Greece and Bulgaria undergo significant changes over the five millennia that cover the Neolithic, Chalcolithic and Bronze Age periods (late 7th to late 2nd mill BC). However, the history of the area by no means reflects a linear evolution from simpler to more refined or complex patterns of living; the latter can be summarised as a continuum of simple, even rudimentary, modes of settling alternating with substantial, even sometimes monumental, architecture. As such, in all prehistoric periods, Neolithic to Bronze Age, we encounter settlements with groups of dwellings built with light materials and/or partly dug in the ground changing location after a few generations, as well as villages with more stable structures maintained on the same location for centuries or millennia (Andreou et al 1996; Treuil et al 2008; Bailey 2000; Bailey and Panayotov 1995).

Regardless the settlement type and/or intra-site spatial organisation, a large body of the excavated evidence is habitational, comprising various architectural features and artefacts related to subsistence activities, of which food preparation should have been performed on a regular basis. But although research has established *what* people cooked, through the study of botanical and faunal remains and through residue analysis, little is known as to *how* food was being cooked, and in relation to *which* devices, vessels in particular (Valamoti 2009). Research on cooking pottery has advanced considerably in recent years (see e.g. Spataro and Villing 2015; Hruby and Trusty 2017; Ivanova et al 2018), but the positive identification of a cooking pot is still far from being a straightforward process. Publications of pottery assemblages that can be used as reference very rarely touch upon the functional aspect, thus cooking pots are usually grouped together with other "daily use" vessels under the label "coarse ware". This is often inevitable, because when the material is highly fragmented, as commonly encountered in pit features, it is difficult to relate use traces, such as sooting clouds, with specific shapes. On the other hand, complete vessels are usually preserved *in situ* after destruction by fire, the effects of which cover original use traces. Moreover, although cooking pots share some specific typological and technological characteristics directly associated with their function, e.g. curved shapes or coarse fabrics, these are often common with other use categories, such as storage or tableware. Finally, as ethnographic studies have demonstrated, pots did not always have a single use during their lifecycle (Skibo 2013).

In the scope of facilitating the identification of cooking pots in the archaeological record and of improving our knowledge on prehistoric cooking practices, we decided to gather, organize and review the available data in the literature for the above temporal and spatial frame. Furthermore, in order to enrich the limited record on cooking pot technology and use, we conducted first-hand analyses of material selected from representative habitational contexts in northern Greece and Bulgaria. This overview, incorporating the results of current analyses, allows for a synthesis of the diachronic evolution and synchronic distribution of cooking vessels, in relation to settlement patterns and contextual affinities. Moreover, it permits inter- and intra- regional and temporal comparisons on multiple levels, essential to detect traditions and cultural interactions, as well as divergences and innovations in cooking practices. Above all, it enables interpretations on the relations between technological requirements and perceptions, between efficiency and choice, and eventually between cooking and societies.

21.2 Methodology

The methodology applied in the current study followed four stages. The first comprised systematic bibliographical research on the available literature concerning cooking pots from the areas under study, i.e. the regions of Macedonia and Thrace in northern Greece, along with regions in Bulgaria.[1] Bibliographical data were organized in an especially designed database,[2] including detailed fields on cooking pottery context and date, morphological and technological characteristics, use-wear traces and contents. The tables presented in this paper are a product of this endeavor, including all the relevant bibliography, which is not repeated in the text (Tables 21.2-21.6, Fig. 21.1). Information is organized by period and according to site provenance, accompanied by date, type of settlement, and brief mention to contexts. The characteristics of cooking pots are summarized with reference to their fabric (frequency and type of inclusions, porosity, clay matrix, firing), shape (overall, type of rim, base, handles/lugs), ware (surface treatments) and decoration, followed by average dimensions and capacities. The above information was not all available in publications, or not in the same degree of detail, thus in some cases data is fragmentary or rough (e.g. exterior and interior surface treatment of vessels is rarely distinguished in the literature).

The second stage focused on the macroscopic study of selected archaeological cooking pot assemblages. These case studies, representative of the chronological periods and geographical regions under study, include sites dated from the Middle Neolithic throughout to the Late Bronze Age and located across northern Greece and Bulgaria (for

1 This was conducted within a wider framework of literature review of cooking pottery from prehistoric Greece and adjacent areas in the context of the PlantCult project.

2 The database, as part of the PlantCult project, was developed by Themis Roustanis and Panagiotis Tokmakidis, Department of Topography, School of Engineering, Aristotle University of Thessaloniki.

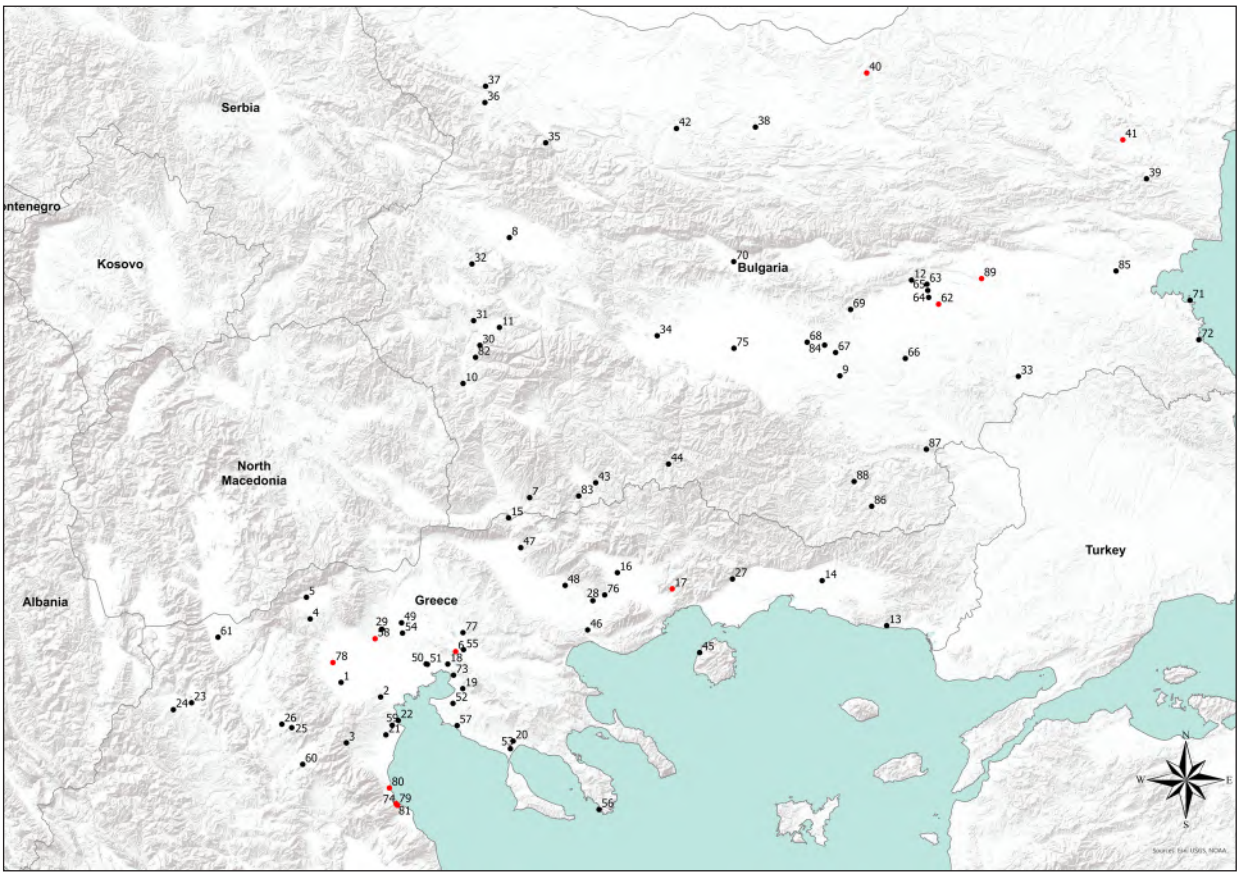

Fig. 21.1 Map indicating the sites mentioned in the text and tables. Highlighted are the sites from which cooking pottery was analyzed in the PlantCult project (© PlantCult Project, Th. Roustanis).

Map No	Site	Region	Date	Studied context	Number of samples
6	Lete I	Northern Greece, Thessaloniki	First half of 6th mill BC	Pit house with thermal structure	13
17	Dikili Tash	Northern Greece, Kavala	4350-4250 BC	Above ground building with thermal structures	16
40	Petko Karavelovo	Northern Bulgaria, Veliko Ternovo	First half of 5th mill BC	Above ground buildings with thermal structures	10
41	Avren	Northern Bulgaria, Varna	4600-4400 BC	Above ground building with thermal structures	2
58	Archondiko	Northern Greece, Giannitsa	2135-1980 BC	Above ground buildings with thermal structures	20
62	Sokol	Southern Bulgaria, Nova Zagora	3200-2600 BC	Above ground buildings with thermal structures	6
74	Valtos-Leptokarya	Northern Greece, Pieria	1885-1695 BC	Above ground building with thermal structures	4
78	Angelochori	Northern Greece, Veroia	1495-1290 BC	Above ground buildings with thermal structures and exterior areas	20
79	Rema Xydias	Northern Greece, Pieria	1489-1296 BC	Apsidal building with thermal structures and exterior areas	10
80	Pigi Artemidos	Northern Greece, Pieria	1390-1100 BC	Open-air spaces, stone structure and pottery kiln	2
81	Trimpina	Northern Greece, Pieria	1600-1400 BC	Pit structures	4
89	Chokoba 18A	Southern Bulgaria, Nova Zagora	1700-1300 BC	Pit structures	5

Table 21.1 The ceramic cooking pot assemblages used as case studies and analyzed in the frame of the PlantCult project.

details see Table 21.1 and Fig. 21.1). The principal criterion for their selection was their correlation with contexts preserving sound evidence on cooking activities, i.e. food processing equipment, such as thermal structures, and food remains. Thus, our study did not include the bulk of the cooking pottery material of the sites under study, but focused on assemblages from specific cooking contexts. Moreover, our emphasis was on vessels preserving sufficient information on their shape, either complete or fragments forming a large part of the vessel profile. Their macroscopic examination involved detailed observations on fabric (frequency and type of inclusions, clay colour), shape (overall with dimensions, type of rim, base, handles/lugs), ware (surface treatment and type of decoration) and use-wear traces (chemical, carbonization and attrition, as well as mechanical alterations, following Skibo 2013) together with capacity estimation.[3]

The third stage involved the petrographic analysis of selected cooking pot samples, representative of their context and type (Table 21.1).[4] Furthermore, some selected non-cooking pot samples were analysed to make comparisons between different functional categories. The scope of the analysis was to acquire refined data on technological issues, such as raw material provenance and processing, building techniques, surface treatment and firing, as well as use alterations reflected on ceramic fabrics.

Finally, all samples were subjected to chemical organic residue analysis to reconstruct their contents, the results of which are not included here as they require the length of a separate paper.[5]

The results of the above research stages are presented below. The review of the bibliographical data on the cooking pot characteristics of each period (presented in detail in the respective tables) is enriched or confronted with the results of the macroscopic and petrographic analyses of archaeological material from our case studies. The approach is qualitative, focusing primarily on the characteristics of pottery wares and fabrics; the inhomogeneous presentation of published material (either sherd accounts or vessel descriptions or, mainly, brief mention of pottery wares) could not allow for quantitative results.

Moreover, it should be noted beforehand, since the presentation is in chronological order, that there are discrepancies in the terms used for the description of periods in the different parts of the territory (between Greece and Bulgaria, but also among different authors). Therefore, all the relative chronological labels are accompanied by indications on absolute chronology, derived directly from 14C dates of specific sites/contexts, or indirectly by comparison with the dated ones. This is indeed the only way to compare contemporaneous assemblages that are described with different names –or, conversely, distinguish between assemblages that are described with the same names but having different contents (see Tsirtsoni 2016).

21.3 Early Neolithic/Middle Neolithic (EN/MN, mid-7th mill BC-first half of 6th mill BC)

A number of radiocarbon dates place the beginning of the Neolithic in Northern Greece in the middle of the 7th mill or slightly earlier, whereas in Bulgaria, the earliest evidence comes from the years around 6100/6000 BC. Accordingly, in Greece, only the first century of the 6th mill is unanimously described as still Early Neolithic, the years between ca 5900/5800-5500/5400 BC being usually termed Middle Neolithic; by contrast, in Bulgaria, the entire interval is described as Early Neolithic.

Data on cooking pots (Table 21.2) derive mostly from flat extended sites, as the majority of long-lived tell sites in the eastern part of the territory conceal their earlier phases below later constructions, or start later, or their cooking vessels are just poorly known from publications, a recurrent problem also in subsequent periods. Architectural features comprise pits of large dimensions, sometimes preserving thermal structures, pointing to their use for habitation, but also above ground buildings, single-roomed, constructed with wood and clay, and containing thermal structures.

The earliest ceramic assemblages comprise open or slightly closed hemispherical bowls, hole mouthed jars, and rather rare necked jars. The majority of vessels is of medium size, the most common rim diameter ranges being 10-25 cm. Carefully made vessels have smoothed and burnished surfaces, while slipping is varying in frequency among the settlements. As can be concluded by the absence or scarcity of use-wear traces related to cooking, i.e. external sooting clouds and internal carbonization, these pots were rarely used for cooking. At Nea Nikomedeia (Table 21.2), despite the presence of many rather low-fired vessels (<750-800°C) manufactured from a variety of pastes containing abundant non-plastic inclusions, the amount of pottery that probably can be connected with cooking is very limited. In contemporaneous sites the existence of cooking pots is not reported.

3 Vessel capacity was calculated with the software Pot Utility, which was created by Jean Paul Thalmann in ARCANE Project (http://www.arcane.uni-tuebingen.de).

4 Thin sections were prepared in the Geology Department, Aristotle University of Thessaloniki, by N. Kipouros, supervised by Prof. L Papadopoulou. Petrographic examination was conducted by Anastasia Dimoula, in the PlantCult laboratory in CIRI-AUTh, using a Leica DM2700 P polarizing microscope. Images were taken with a Leica MC190 HD microscope camera and using the LAS V4.12 software. Description and characterization of the fabric groups followed the system proposed by Whitbread 1995 with minor modifications.

5 Organic residue analysis was conducted by Prof. O. Craig and Dr. E. Standall, University of York.

Map No	Site	Date (BC)	Type of settlement	Contexts	Fabrics	Shapes	Wares/ Decoration	Dimensions (cm)/ Capacities (l)	References
1	Nea Nikomedeia	6400-6000	Tell	Houses above ground	Coarse-medium, six fabrics, sedimentary, metamorphic or igneous inclusions, porous, low firing temperatures	1. Bowls hemispherical, simple rim, flat base 2. Hole-mouthed, globular	Burnished, smoothed		Yiouni 1996
2	Paliambela	5900-5400	Flat on natural hill	House above ground	Coarse, igneous fragments, porous, low firing temperatures	1. Bowls, hemispherical or conical, simple or outward rim, flat base 2. Hole-mouthed, globular 3. Shallow dish	Smoothed, impressed or incised Dish burnished	1. 3-4 l 3. rd 31	Siamidou 2017; Saridaki 2019
3	Ritini	5900-5500	Flat	Large pit	Coarse-medium, two fabrics, gneiss or metamorphic inclusions, porous, low firing temperatures	1. Bowls, hemispherical or conical, simple or outward rim, flat or disc or ring-shaped 2. Hole-mouthed, globular body, pear-shaped, s-profile, conical neck 3. Shallow dish	Burnished, smoothed, incised or impressed, barbotine Dish burnished	3. rd 58	Intze 2011; Saridaki 2019
4	Apsalos-Grammi	6000-5500	Flat	Pit houses	Medium-coarse, two fabrics, volcanic and/or metamorphic inclusions, organic material, low porous, low firing temperatures	1. Bowls, hemispherical, conical, simple or outward rim 2. Hole-mouthed, simple or s-profile	Burnished, smoothed, barbotine		Vouzara 2009; Saridaki 2011
5	Sosandra	6066-5840	Flat	House interior, thermal structure	Medium-coarse, sand inclusions	1. Bowls, conical or hemispherical, flat base, simple or outward rim, small handles or lugs on body 2. Closed, globular body, s-profile or conical neck, flat base, small handles or lugs on body	Smoothed, burnished, red-slipped band on rim	1. h 23-29, rd 25-40, bd 12-19, wth 0,5-1 2. h 14-24, rd 15-18, bd 8-15, wth 0.5-1	Georgiadou 2015
6	Lete I	first half of 6th mill	Flat	Pit houses, thermal structures	Medium coarse, two fabrics, gneiss or phyllite/shale, organic material, low porous, sieved or tempered, oxidizing conditions, low firing temperatures	1. Open, globular or conical, simple rim, curved or flat base 2. Hole-mouthed, pear-shaped, simple rim, curved base, tubular handles on body	Exterior coarsely burnished, interior smoothed, no slips	1. h 20, rd 24, wth 0.7 / 5 2. h 19, rd 12, wth 0.6 / 2	Dimoula et al 2014; present study
7	Kovachevo, phase I	6000-5600	Flat, on a river terrace	Ovens and built hearths inside houses	Mineral inclusions, vegetal very rare	1. Open, conical, with vertical or outward rim and lugs 2. Hole-mouthed, globular or s-shaped, small lugs on or under the belly	Exterior smoothed or slipped and burnished, frequently barbotine decoration	wth ≥ 0.7 rd 12.5-25 h 10,5-28 Usually around 1,5 l, but some up to 12 l	Vieugué 2010
8	Slatina	6000-5500	Flat	Ovens and built hearths inside houses	Medium, mineral inclusions (sand)	1. Globular with restricted or upright concave rim (s-shaped), lugs on max. diam. 2. Dishes, convex bottom, thickened everted rim, with or without triangular lugs on the rim	1. Exterior smoothed or slipped and burnished, frequently barbotine or relief decoration 2. Exterior rough, unprocessed, interior smoothed	1. rd 12-30 2. Not specified	Nikolov 1992; Nikolov 1987
9	Yabalkovo	6000-5500	Flat	No house plan, isolated hearths and pits	1. Medium 2. Coarse (with lots of organics)	1. Globular, flat base, simple (restricted) or upright concave rim (s-shaped); impressed coil at mid-height of the walls 2. Oval -dish	1. Smoothed; relief and impressed decoration 2. No precision	1. rd 11-15, h 10-18 2. opening d (int.) min. 19, max. 25, depth (int.) 5; wth 1-6	Roodenberg et al 2014
10	Balgarchevo phase I	5700-5500	Flat, on a river terrace	Ovens and built hearths inside houses	Medium-coarse	1. Hemispherical or spherical bowls, lugs at mid-height of the walls 2. Dishes, convex bottom, thickened everted rim, with or without triangular lugs on the rim	1. Exterior-interior smoothed; rarely barbotine and interior. smoothed 2. Exterior rough, unprocessed, interior smoothed	1. rd 16-35 2. rd 35-42	Pernicheva-Perets et al 2011
11	Kremenik (Sapareva Banja)	5700-5400	Flat, on a river terrace	Houses; ovens interior	Medium-coarse	Dishes, convex bottom, thickened everted rim, with or without triangular lugs on the rim	Exterior rough, interior smoothed	rd 30-46, h 5-20	Georgiev et al 1986; Nikolov 1987
12	Karanovo, phases I-II/III	5600-5500	Tell	No house plans		Globular with restricted or upright concave rim (s-shaped),	Smoothed or barbotine		Nikolov 2002

Table 21.2. Summary of EN-MN cooking pottery characteristics.

Fig. 21.2 MN cooking pottery wares. a bowl from Lete I; b hole mouthed vessel from Lete I; c cooking dish from Ritini (© a, b PlantCult Project, A. Dimoula; c after Intze 2011, plate 9).

It is with the beginning of the 6th mill BC that there is uncontested evidence on the use of pottery for cooking, supported by content analysis (Whelton et al 2018). Cooking vessels of this period (Table 21.2) can be divided into three broad typological categories. The first includes open bowls, hemispherical or conical, with simple or outward rim and flat or curved base (average h 15-30, d rim 20-40, wall th 0.5-1 cm) (Fig. 21.2a). The second comprises hole-mouthed vessels, with a globular or pear-shaped body, with conical necks or simple rims and flat or curved bases (average h 10-30, d rim 10-25, wall th 0.5-1 cm) (Fig. 21.2b). Both types occasionally feature lugs, usually perforated, on their body. The third category includes large in diameter (30-60 cm) shallow vessels with everted rims and, sporadically, two large triangular lugs on the rim (Fig. 21.2c). Not all three categories are equally distributed in our study area: hole-mouthed vessels are recorded in practically all the sites, whereas open bowls are well-represented at the Greek sites but seem rare in Bulgaria. The third category is documented in the middle Struma valley, while two specimens have been recorded from sites in Pieria. It is possibly later in date than the other two and spread geographically in the following period (see Dimoula et al 2022).

The cooking pots we studied, from a pit house equipped with a thermal structure at Lete I (Tzanavari and Filis 2002, 2009; Tzanavari 2017; Dimoula et al 2014), belong to the first two categories (Fig. 21.2a and b). Petrographic analysis identified two fabric groups, both medium to coarse grained with a homogeneous groundmass containing well sorted silicates and micas, pointing to processing by sieving. The first group, more abundant, is characterized by the presence of gneiss fragments and their mineral components, while the second by the addition of phyllite/shale fragments (Fig. 21.3a and b). Both compositions refer to the geological setting of the site, though point to different raw material sources. The large inclusions were probably deliberately added to the clay, as indicated by their bimodal distribution and subangular shape, pointing to crushing. However, there are few cases where the large sized inclusions are also well sorted, possibly indicating coarse clay sieving. Finally, both fabrics contain organic material in the form of long plant stems, possibly deliberately added in the clay (Fig. 21.3c). Similar observations are reported from other sites, i.e. limited in number fabrics, coarse, porous and mineral tempered (Table 21.2).

The dominant technique for the construction of cooking pots at all sites is coiling, whereas cooking dishes could have been built with coils or slabs, with the help of a mould (see Dimoula et al 2020, 275). At Lete I, the exterior surfaces of

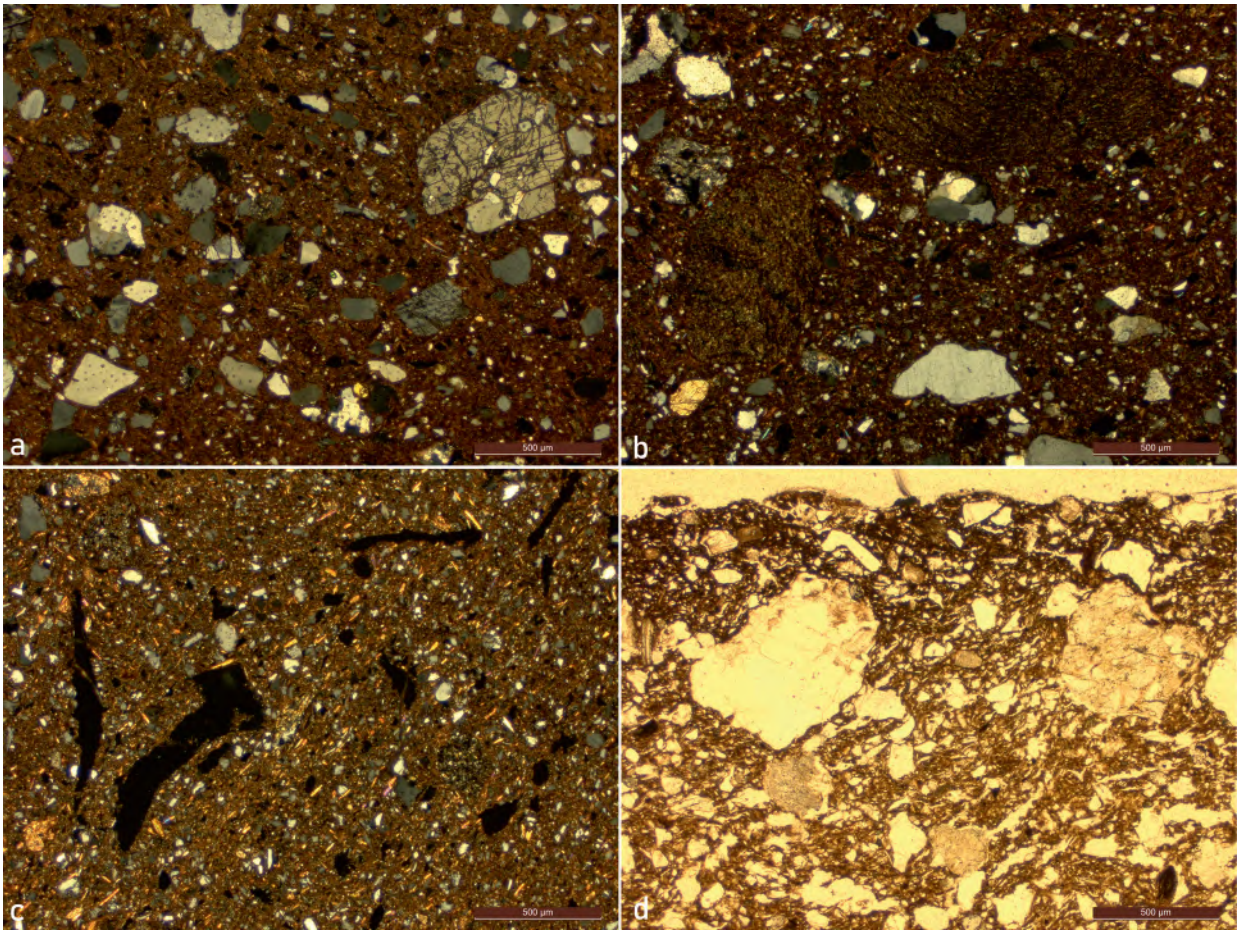

Fig. 21.3 Microphotographs of MN cooking pottery fabrics in thin section from Lete I. a coarse, gneiss inclusions (crossed polars, XP); b coarse, phyllite/shale inclusions (XP); c medium, organic inclusions (XP); d. absorption of charred material in internal vessel wall (plain polarized light, PPL) (© PlantCult Project, A. Dimoula).

cooking pots are unslipped and burnished, their interior simply smoothed, and decoration is absent. But roughly contemporary cooking pots from other sites have the exterior surface burnished, even slipped, or covered with impressed, incised or barbotine decoration (Table 21.2). The latter could have also had a functional role, preserving the outer surface from degradation, thus prolonging the vessels' duration, facilitating heat transfer or even vessel handling (Pierce 2005). Cooking dishes are smoothed or burnished on the interior, the outer surface commonly being left rough. Firing in oxidizing conditions and low temperatures (below 800°C) suggested by the analysis of Lete I fabrics, accounts for most ceramic assemblages.

Concerning use-wear traces, exterior sooting clouds are referred mainly on the base and belly of cooking pots, whereas interior carbonization is found commonly on the bottom. Evidence from Lete I cooking pots allows to refine the picture: flat bases are oxidized with sooting clouds starting higher, while curved ones are covered with sooting clouds, indicating placement among fuel in the first case and above fire for the second. It is worth mentioning that the majority of bowl curved bases are heavily worn on the exterior, possibly due to their extended use on stones or over the hearth (Fig. 21.4a and b). In contrast, the bases of the hole-mouthed jars with tubular lugs are commonly not worn, pointing to their hanging above fire. The vessels' interior has extensive carbonization, particularly on the bottom surface, but also on the lower walls. In thin section, it is clear that charred food particles have penetrated the vessel walls (Fig. 21.3d). The capacity of the open bowls is estimated to 5 l, while the hole-mouthed jars seem to be smaller, with 2 l capacity; but the fragmentary state of the material does not rule out the possible existence of bigger or smaller vessels, too.

Fig. 21.4 MN cooking pottery use-wear traces on bowl from Lete I. a interior, carbonization on bottom; b exterior, worn base (© PlantCult Project, A. Dimoula).

21.4 Middle/Late Neolithic I (MN/LNI, ca 5500/5400-4900/4800 BC)

The second half of the 6th and early 5th mill BC is described in Northern Greece as Late Neolithic I; in Bulgaria, the same interval is described as Middle (ca 5500-5300) and Late Neolithic (ca 5300-4900). This period is marked by an increase in the number and extent of sites, belonging to two types that coexist in the biggest part of the territory: tells and flat settlements. Tell sites mainly result from the building remains of above-ground built houses, constructed with wood and clay and containing thermal structures. Flat-extended settlements commonly comprise dug-in structures, houses or pits of various uses, with thermal structures often encountered in exterior spaces. On the other hand, examples of flat sites with rectangular houses are also present in inland or lakeside settlements. Cooking pots are found in all contexts, in house interiors and open-air spaces, near or away from thermal structures, as also related to depositional features, such as ditches and pits.

The main types of cooking pots can be broadly grouped in four categories (Table 21.3). The first includes open shapes, spherical, hemispherical or conical bowls with a flat base and simple or outward rim (average d rim 15-30 cm, capacity 2.5-8 l) (Fig. 21.5a). Shallower vessels are also present, such as basins, which can be confused with conical bowls when fragmentary, as also oval in plan shallow vessels (characterized as boat-shaped in Dispilio). The second category comprises hole-mouthed vessels, with globular or biconical body, flat base and simple rim (average d rim 15-30 cm, capacity 6-10 l) (Fig. 21.5b). The third includes legged vessels, open or hole-mouthed, with cylindrical, globular or s-profile shape, flat or curved base, and supported by three or four legs (average h 15-30, d rim 15-30, wall th 0,5-1.5 cm, capacity up to 8 l) (Fig. 21.5c). All the above types commonly feature lugs, tongue, mastoid or knobs, and rarely handles. Finally, widespread is the use of large in diameter and shallow cooking dishes (h <10, d rim 30-70, wall th 0.4-0.8 cm), circular or oval in plan, with curved or flat base, varied rim formation (simple, thickened, outturned), and occasionally having lugs on the rim (triangular or tongue-shaped) (Fig. 21.5d).

The distribution of the above types among the sites is by no means equal. The very generic image we have formed is that the second category of vessels, the hole-mouthed ones, prevail across the entire region. The first category, the open vessels, are also very common, but are met mainly in the central part of Macedonia, a possible result of their easier identification among fragmented assemblages, as the ones commonly met in pit features; a few almost complete vessels are known though from Dikili Tash, in eastern Macedonia (Tsirtsoni 2001, 30-31). Legged pots are frequent in the eastern and western parts, with three and four legs respectively, but are rather indiscernible in the central part, again possibly due to the high fragmentation of the material, i.e. there are many individual legs but not complete profiles. On the other hand, cooking dishes, the fourth category, are highly recognizable even in very fragmented condition due to their characteristic rough exterior ware. In eastern areas circular in plan dishes with curved bases are more common, while in western sites oval in plan dishes with flat bases predominate (Dimoula et al 2022).

The fabrics of the cooking pots are coarse to medium-grained with varied compositions related to the geological environment of each site (Table 21.3). Interestingly, the fabrics of each site do not follow a single recipe, but are commonly diverse in composition, reaching up to five fabric groups in cases. This points to the exploitation of different raw material sources and the application of different techniques in their processing, as described above for the earlier pots. The inclusions are predominantly mineral, but organic material, such as shells or plant remains, are met in the majority of the fabrics. Specifically, at Dikili Tash, which provided one of our case studies for the next period and is therefore

Fig. 21.5 LNI cooking pottery wares from Dikili Tash. a conical bowl; b hole mouthed vessel; c legged vessel; d cooking dish (©Ecole française d'Athènes/Dikili Tash research project. a, b, c P. Collet, d Z. Tsirtsoni).

interesting to consider in a long-term perspective, the cooking pots (conical bowls, hole-mouthed, tripods and dishes) are characterised by three fabric groups, all coarse-medium grained, with the majority containing igneous and metamorphic rock fragments (see Tsirtsoni and Yiouni 2002). Surface treatment of cooking pots in all sites includes smoothing and less commonly burnishing for both the exterior and interior. Only in the case of cooking dishes, the exterior surface is always left rough. Decoration very rarely includes limited plastic, impressed or incised interventions, or barbotine surfaces. Vessels are generally fired in varied conditions (oxidizing-reduced) and low firing temperatures, <850 °C. Previous use-wear analysis has shown that flat-based vessels, either open or hole-mouthed, were used either in contact with fuel, as evidenced by their oxidized bases, or in distance from fire, indicated by the presence of sooting clouds on their base (Urem-Kotsou 2006). Distance could be achieved by the support of a stand, stone or clay, or by hanging the vessel above fire, or by its placement on top openings of domed hearths (see e.g. Dimoula et al 2020, 277). In both cases sootings clouds are also developed on the vessel body. Similarly, legged pots were used with fuel or fire placed below their base, resulting in either oxidization or sooting clouds depending on the intensity of the fire. As for the interior, it has been observed that carbon deposits are accumulated on the vessel bottom, while low liquid contents are assumed to leave traces on the vessel walls and high liquid contents on the upper part, above liquid level (Urem-Kotsou 2006). Cooking dishes occasionally have sooting clouds on their exterior surface and below their rim, pointing to their placement among fuel. In contrast, their interior is commonly clean from fire traces, apart from very sporadic patches.

Map No	Site	Date (BC)	Type of settlement	Contexts	Fabrics	Shapes	Wares/Decoration	Dimensions (cm)/ Capacities (l)	References
10	Balgarchevo phase II-III	5500-5000	Flat, on a river terrace	Houses with thermal structures	Medium-coarse	1. Spherical bowls 2. Dishes, convex bottom, thickened everted rim, with or without triangular lugs on the rim	1. Exterior smoothed, or rarely coarse or barbotine; interior smoothed 2. Exterior rough, interior smoothed	1. rd 20-30 2. rd 30-40	Pernicheva-Perets et al 2011
12	Karanovo III-IV	5500-4900	Tell	Houses with thermal structures		Globular, hole-mouthed, flat base; no lugs or handles	Smoothed, impressed coil on rim and max. diam and impressed/ incised decoration	rd 11-25, bd 11-20, maxd 18-27, h 13-20	Hiller and Nikolov 2002, 2005
13	Makri, phase II	5500-5300	Tell	Houses, thermal structures	Coarse, metamorphic or igneous inclusions, organic material, firing between 750-850 °C	1. Hole-mouthed, biconical, globular, flat base, simple or outward rim, lugs on carination 2. Four-legged, open or hole-mouthed, curved base, simple rim, vertical handles	Smoothed, burnished, impressed, incised	1. h 20, rd 20 2. h 15, rd 20	Efstratiou et al 1998; Yiouni 1995
14	Paradimi, phases I-III	5500-5300	Tell		Coarse	1. Hole-mouthed, biconical, globular, flat base, simple rim, lugs on carination 2. Jar with vertical handles or lugs on shoulder 3. Four-legged, open or hole-mouthed, curved base, simple rim, vertical handles	Smoothed, burnished, impressed, incised	1.h 9-23, rd 9-23 2. h 15-30, rd 16-37 3. h 8-23, rd 13-29	Bakalakis and Sakellariou 1981
15	Promachon-Topolnica, phases II-III	?5500-4900	Tell	Houses, sub-terranean structures, thermal structures	Coarse, metamorphic, silicates	1. Hole-mouthed, biconical, globular, flat base, simple rim, lugs on carination 2. Tripod, hole-mouthed, globular, horizontal handles and lugs	Smoothed, coarse		Koukouli-Chrysanthaki et al 2007; Yiouni et al 1998
16	Sitagroi, phases I-II	5500-4900	Tell	Houses with thermal structures	Coarse, mineral and organic inclusions	1. Open or hole-mouthed, biconical, globular, flat base, simple rim, with or without lugs on carination 2. Shallow dish, flat or curved base, thickened rim, perforated lugs 3. Legged pots, fragments	1. Smoothed, impressed, incised, also on carination 2. Coarse exterior, smoothed interior	1. rd 24-25 2. rd 20	Keighley 1986; Gardner 2003
17	Dikili Tash LNI (ex-phase I)	5300-4800	Tell	Houses with thermal structures	Coarse, three fabrics, igneous and metamorphic inclusions, silicates, organic material	1. Open conical, flat base, simple rim, lugs or handles under the rim or in the upper part of the wall 2. Hole-mouthed, biconical or globular, flat base, simple rim, lugs or horizontal handles on carination 3. Tripod, cylindrical, curved or almost flat base, simple rim, lugs or horizontal handles under the rim or in the upper part of the wall 4. Shallow dish, curved base, outturned rim, no lugs	1-3. Smoothed, burnished 4. Coarse exterior, smoothed interior	1. h 19-23, rd 20-38, wth 0.6-1.2/ 7,5-13 2. h 12-25, rd 10-26, max d 16-33/ up to 10 3. h 15-20, leg h 4-10, rd 18-28, wth 0.5-1.5 / up to 8 4. h 10, rd 55-60, wth 0.4-0.8	Tsirtsoni 2000, 2001; Tsirtsoni and Yiouni 2002; Darcque et al 2007; Darcque et al 2020
18	Stavroupoli phase I	5500-4900	Flat	Rectangular houses, thermal structures interior and exterior	Coarse-medium, five fabrics, mainly basic and ultrabasic inclusions or schist	1. Open, spherical, hemispherical, conical, flat base, simple or outward rim, lugs 2. Hole-mouthed, globular, biconical, simple rim or low neck 3. Shallow dishes, hemispherical or conical, simple, thick or outturned rim 4. Basins, conical, flat base, simple rim, lugs 5. Legged pots, fragments	1-2. Burnished or smoothed exterior and interior rarely coarse 3. Coarse exterior, well smoothed interior	1. rd 16-30 / 2.5-8 2. rd 18-29 / 6-8	Lymperaki et al 2016; Urem-Kotsou and Dimitriadis 2002, 2004
19	Thermi	5500-4900	Flat	Pits and open cobbled areas, thermal structures	Coarse, mineral inclusions Medium, mineral and organic inclusions	1. Open, spherical, hemispherical, conical, flat base, vertical handles 2. Shallow dishes, flat base, simple, thickened, flat rim	1. Smoothed, coarse 2. Coarse exterior, burnished or smoothed interior	2. rd 20-50	Urem-Kotsou 1998; Elezi 2014
20	Olynthus	?5500-4900	Flat		Coarse	Tripod pot (leg height unknown), flat base, simple rim, four tongue lugs at the rim	Coarsely burnished	h 17.5, rd 20.5, bd 21, wth 0.5	Mylonas 1929
21	Kato Agios Ioannis	5500-4900	Flat	Pits	Coarse, mineral inclusions	1. Hole-mouthed, globular, biconical, flat base, simple rim, lugs 2. Shallow dishes, simple or thickened rim	1. Smoothed exterior and interior 2. Coarse exterior, smoothed interior	1. rd 18, bd 10 2. rd 54-64	Karanika 2014

Map No	Site	Date (BC)	Type of settlement	Contexts	Fabrics	Shapes	Wares/Decoration	Dimensions (cm)/ Capacities (l)	References
22	Makrygialos phase I	5450-4950	Flat	Pits, houses or disposal, thermal structures exterior, ditches	Coarse, shells and silicate inclusions, porous, low fired Coarse, silicate inclu-sions, porous, low fired	1. Open or hole-mouthed, hemispherical, conical, globular, biconical, flat base, tongue or mastoid lugs or knobs, strap handles, multiple pierced lugs 2. Shallow dishes, flat base, simple, thick or outturned rim, triangular or tongue lugs 3. Basins, conical, flat base, simple rim, lugs simple or tongue 4. Legged pots	1. Burnished exterior and interior, rarely coarse, very rarely impressed or barbotine 2. Coarse exterior, well smoothed interior, very rarely impressions on rim 3. Burnished exterior and interior	1. rd <20, 20-35, 36-43, 43-59 2. rd 30-41, 42-54, 56-59, >70 3. rd 15-25	Urem-Kotsou 2006; Saridaki 2019
23	Dispilio, east sector	5500-4800	Flat	Post-framed houses	Coarse, basic rock fragments	1. Open or hole-mouthed, flat base 2. Four-legged, open, spherical, s-profile, curved base, lugs 3. Shallow dishes, flat base, triangular lugs 4. Boat-shaped, flat base, simple rim, legged specimens	Smoothed, impressed, incised or plastic decoration	2. h 13-29, rd 9-24 4. l. 28.5, w. 13, wth 1-1.3	Sophronidou 2002; Sophronidou and Tsirtsoni 2007
24	Avgi, phases I-II	5500-4900	Flat	Houses, interior and exterior thermal structures	Coarse	Shallow dishes, simple, thickened or outturned rim, flat base, triangular lugs	Coarse exterior, smoothed or burnished interior		Katsikaridis 2021
25	Toumba Kremasti Koilada, phases I-III	5300-4900	Tell	Pits	Coarse	Shallow dishes, thickened rim, flat base	Coarse exterior, smoothed or burnished interior		Hondroyianni 2009
26	Megalo Nisi Galanis LN	5200-5000	Tell	No house plans, no structures	1. Coarse, non-calcareous clays, serpentine, schist, talc 2. Three fabrics: sand, schist, and micas	1. Hole-mouthed, carinated or squashed, one or more lugs attached to the lower part 2. Shallow dishes, fragments	1. Scraped or pitted interior, smoothed, slipped and lightly polished exterior 2. Smoothed or lightly polished interior, unprocessed exterior	1. /5 2. rd 35-45	Kalogirou 1994; Fotiadis et al 2000, 2019

Table 21.3. Summary of MN/LNI cooking pottery characteristics.

21.5 Late Neolithic II/Final Neolithic – Chalcolithic period (LNII/FN, ca 4900/4800-4000/3700 BC)

Different terms are used to describe the rest of the 5th mill BC in the different parts of the study area. In Greece, the years until 4600/4500 are usually termed Late Neolithic II, whereas the following centuries are usually termed Final Neolithic or Chalcolithic. In Bulgaria, the entire period is called Chalcolithic, and subdivided in Early-Middle (until 4600/4500 BC) and Late (after that). In both countries, the biggest part of the evidence concerns the years down to 4250 BC. The period between 4250 and 3800/3700 BC is still included in the Greek "Final Neolithic" but is actually rarely attested. In Bulgaria, where it is also rare, it is described, according to the authors as Late Chalcolithic, Final Chalcolithic or Transitional period.

Information on cooking pottery for these periods derives mostly from the eastern part of the Greek region and from Bulgaria (Table 21.4). Globular or biconical jars, either hole-mouthed or with an upright concave rim (s-shaped) appear to dominate the assemblages, in medium and small sizes, less large (average h 10-20/20-30 cm, rd 10-15/15-30 cm, capacity 1.5-8 l) (Fig. 21.6a, b, Fig. 21.7). The second in frequency category includes bowls, hemispherical or conical (average h 10-15/20-30 cm, rd 10-20/25-30 cm, capacity up to 9l). Both types have flat bases and commonly feature lugs or small handles, horizontal or vertical, and rarely spouts. After the mid 5th mill BC, small sized collared jars, with globular or piriform body, are attested, again flat based and with small lugs or horizontal handles below the rim (average h 10-20 cm, rd 7-11 cm) (Fig. 21.6b). Their use for cooking has not been formally proposed so far, but this seems to us as a plausible hypothesis, given especially contextual evidence from Dikili Tash, where such a vessel was found very close to one of the ovens of House 1 (see below).

However, the most striking change in the cooking assemblages of this period is the disappearance of legged pots and cooking dishes. A new utensil appears in some sites/areas that could compensate the disappearance of legged pots: the conical or cylindrical stand (Fig. 21.6c). Although its flat upper surface could have supported other vessels over fire, this is very unlikely as: a. most of these stands are decorated, b. none of them has been contextually associated with cooking pots, and c. cooking pot bases are usually much larger than the opening on top of these stands. Thus, they could be used for heating small quantities of foods, rather than for proper cooking.

To acquire more refined data for these phases, we studied cooking pots from two sites in north -central and eastern- Bulgaria, respectively Petko Karavelovo and Avren-Bobata, as well as from Dikili Tash in eastern Macedonia. At Petko Karavelovo (Chohadzhiev et al 2017, 2019), several burnt houses were investigated, rectangular in shape,

Map No	Site	Date (BC)	Type of settlement	Contexts	Fabrics	Shapes	Wares/Decoration	Dimensions (cm)/ Capacities (l)	References
12	Karanovo, phase V	4900-4500	Tell	Houses with ovens	Medium-coarse	Globular, flat base, with concave restricted or upright rim; no handles or lugs	Smooth interior/exterior, or smooth upper and rough lower part; applied coils or pellets	rd 13-25, maxd 17-36, h 12-25	Hiller and Nikolov 2005
12	Karanovo, phase VI	4500-4250	Tell	Houses with ovens	Medium-coarse	Globular, flat base, hole-mouthed or with concave restricted rim; four small lugs or impressed coils on the max. diam.	Smooth interior, barbotine/rough exterior, except for a smoothed band under the rim	rd 11-19, maxd 14-25, bd 10-13, h 9-19	Hiller and Nikolov 2005
16	Sitagroi Phase III	4900-4250	Tell	No house plan, one hearth	Coarse, mineral and organic inclusions	1. Globular/biconical, flat base, upright rim, two or four lugs on the belly 2. Conical stand, flat on top	1. Smoothed 2. Smoothed exterior, incised decoration, unprocessed interior	1. h 12--27, rd 16-24 2. rd 20	Evans 1986; Gardner 2003
17	Dikili Tash, phase LNII-early (ex-phase II)	4800-4500	Tell	Interior ovens, dug-in (?) house with interior hearth area	Medium-coarse	1. Globular, flat base, with concave restricted or upright rim; no handles/lugs 2. Globular, flat base, hole-mouthed, four lugs on max. diam. 3. Conical stand, flat on top	1. Smoothed interior/exterior, or well-polished exterior 2. Smoothed interior/exterior 3. Smoothed exterior, incised decoration, unprocessed interior	1-2. h 13-20, rd 12-22, maxd 17-27, wth 0,5-1 3. h 17, bd 31	Demoule 2004; Tsirtsoni 2000; Darcque et al 2011; Tsirtsoni et al 2018; Treuil et al 2020
17	Dikili Tash, phase LNII-mature (ex-phase II)	4500-4250	Tell	Above-ground houses with interior ovens	Medium-coarse	1. Hole-mouthed, globular, flat base, simple rim, mastoid or knobbed lugs and/or horizontal handles on carination 2. Piriform or collared globular pots, with small handles or lugs under the rim 3. Conical stand, flat on top	1. Smoothed interior, smoothed or polished exterior; impressed coil on the belly, or grooved decoration on the upper part 2. Smoothed interior/exterior or barbotine/ impressed 3. Smoothed exterior, incised decoration, unprocessed interior	1. h 10-15/21-27, rd 10-15/16-21, bd 16-17, maxd 14-18/24-36, wth 0.5-1.15 / 1.5-8 2. rd 8-11, maxd 14-21, h 14-17 3. h 25, bd 35, d. hole on top 6-10	Darcque et al 2011; Tsirtsoni 2016; Koukouli et al 2020; present study
17	Dikili Tash, phase FN/FCh	4250-3700	Tell	No house plan, no thermal structures	Medium; fabric analysis in progress	1. Globular with restricted opening, upright rim, no handles 2. Ovoid body, upright rim, two vertical handles on the shoulder 3. Open, s-shaped bowl, two vertical handles under the rim	1-2. Smoothed interior/exterior 3. Smoothed interior/exterior, ridged or impressed	1. rd 19-20 2. rd 22, maxd 28, h 22 3. rd 27, h 15	Tsirtsoni and Malamidou 2015-2016
27	Paradeisos	5th mill	Flat, on top of a natural hill	No house plan		Conical stand, flat on top	Smoothed exterior, incised decoration, unprocessed interior	bd 25, wth 1.1-2	Hellström 1987
28	Dimitra, phase III	5th mill	Tell		Medium-coarse	1. Open, hemispherical; two horizontal handles at the rim, or horizontal lugs at mid-height 2. Stands	1. Smoothed or polished exterior 2. Smoothed exterior, incised decoration, unprocessed interior	1. rd 11-17	Grammenos 1991
22	Makrygialos phase II	4900-4600	Flat	Pits and open areas with structures	Medium-coarse, mostly shells and/ or or sand, rarely limestone, oxidized or mixed firing conditions	1. Open or hole-mouthed, flat base, simple rim, mastoid or oblong lugs, ellipsoid or cylindrical handles, on rim or body 2. Dishes, convex base	1. Burnished or smoothed, rarely rough, few impressed or incised 2. Rough exterior, burnished interior	1. h 15-40, rd 12-38 2. rd >40	Vlachos 2009
26	Megalo Nisi Galanis, FN	4700-4500	Tell	No house plan	Coarse, two fabrics, silicates and metamorphic inclusions	1. Open, hemispherical, flat base, lugs 2. Hole-mouthed, globular, conical, piriform, flat base, handles, lugs	Smoothed	1. /Up to 9 2. /3-16	Kalogirou 1994; Fotiadis et al 2019
29	Agrosykia	mid 5th mill	Tell		Medium-coarse	Hole-mouthed or hemispherical; vertical handles under the rim, or lugs at the rim	Smoothed, coarse	rd 9-28	Aslanis 2007
30	Slatino	4900-4500	Flat	Houses with ovens	Coarse	Globular, simple restricted mouth or concave rim, flat base, no lugs or two lugs on the shoulder or the belly	Smooth interior/exterior	rd 9-15, h 10-15	Chohadzhiev 2006; Georgieva 2012
31	Dyakovo	4600-4250	Flat		Coarse	1. Hemispherical bowl, flat base; two lugs at mid-height 2. Conical bowl, flat base, one vertical handle and one lug under the rim 3. Collared-pots, with small handles on the shoulder	1-2. Smooth interior, rough or barbotine exterior with smoothed band under the rim and impressions between the two 3. Band with impressed or barbotine decoration on the shoulder	1-2. rd 12-17, h 12-15 3. Small to medium: rd 7, h 15	Georgieva 2012
32	Peklyuk	4600-4250	Flat?		Coarse	1. Globular, upright rim, without or with two lugs on max diam. 2. Collared-pots, with small handles on the shoulder	1. Smooth interior/exterior 2. Smooth exterior, barbotine lower part	1. rd 10-11, h 11-16 2. rd 7, h 18	Georgieva 2012

Map No	Site	Date (BC)	Type of settlement	Contexts	Fabrics	Shapes	Wares/Decoration	Dimensions (cm)/ Capacities (l)	References
33	Drama-Merdzhumekja	4900-4250	Tell	Houses with ovens.		Globular, flat base, hole-mouthed, or with concave upright rim (s-shaped); no handles or lugs; some specimens with spout	Smooth interior/exterior, or impressed/grooved exterior except a band under the rim; applied coils or pellets	rd 9-15, maxd 12-18, h 9-12	Fol et al 1989
34	Yunatsite	4600-4250	Tell	Houses with ovens	Coarse	1. Hemispherical/ conical bowl, flat base; two or four lugs at mid-height 2. Globular, flat base; two or four small lugs on the shoulder; one specimen with spout 3. Collared-pots, with small handles on the shoulder	1. Smooth interior, rough or barbotine exterior 2. Smooth interior, rough or barbotine exterior with a smoothed band under the rim and impressions between the two 3. Band with impressed or barbotine decoration on the shoulder	1-2. rd 14-16, h 10-15 3. rd 7-10, h 13-20	Georgieva 2012
35	Zaminets	4900-4000	Flat		Coarse	1. Hemispherical/ conical, flat base; alternating vertical handles and lugs at mid-height; "platform" running under the interior rim 2. Globular, beaded or upright rim, flat base, two or four lugs 3. Collared-pots, with small handles on the shoulder	1. Smooth interior, barbotine exterior with a smoothed band under the rim and impressions between 2. Smooth interior/exterior 3. Band with impressed or barbotine decoration on the shoulder	1. rd 24-28, h 26-30 2. rd 7-9, h 7-11 3. rd 7-9, h 10-15	Georgieva 2012
36	Krivodol	4600-4000	Tell		Coarse	1. Conical, slightly convex rim, flat base; alternating vertical handles and lugs at mid-height; spout under the rim with flat interior lug above the hole 2. Biconical, flat base, four lugs 3. Globular, upright rim, no or two or four lugs at mid-height; one specimen with spout on the shoulder 4. Globular, upright rim, flat or rounded base; two small vertical handles at the rim	1, 4. Smooth interior, barbotine exterior with a smoothed band under the rim and impressions between the two 2, 3. Smooth interior, rough exterior	1. rd 32, h 23 2. rd 9, h 7 3. h 9,5 4. rd 11, h 10-11	Georgieva 2012
37	Galatin	4600-4000	Flat	House	Coarse	1. Hemispherical bowl, convex rim, flat base; two flat lugs under the rim 2. Globular, flat base; two or four small lugs on the shoulder 3. Globular, flat base, upright rim; two vertical handles on the shoulder	1. Smooth interior, rough exterior 2-3. Smooth interior, barbotine exterior with a smoothed band under the rim and impressions between the two	1. rd 26, h 20 2-3. rd 15, h 15-20	Georgieva 2012
38	Devetaki	4500-4000	Cave		Coarse	Globular, upright rim, flat base; four small lugs on the shoulder or at mid-height	Smooth interior, barbotine exterior with a smoothed band under the rim	rd 12-15, h 15	Georgieva 2012
39	Golyamo Delchevo	4900-4300	Tell	Houses with ovens		Globular or biconical, flat base; no handles or lugs, applied pellets or impressed coils at mid-height or shoulder	Smooth interior/exterior or smooth interior, barbotine exterior with a smoothed band under the rim and at the base		Todorova H et al 1975
40	Petko Karavelovo	4900-4600	Tell	Houses with ovens	Medium-coarse, grog tempered, organic material	1. Globular or biconical, flat base, simple rim, lugs on belly 2. Bowl, hemispherical, simple rim, spout 3. Collared jar	Barbotine or smoothed exterior, smoothed interior, impressed, incised or grooved	1. wth 0.7, bth 1.5 2. wth 0.7 3. wth 0,8	Chohadzhiev 2017; present study
41	Avren-Bobata	4700-4300	Tell	Houses with ovens	Medium-coarse, grog tempered, organic material	1. Globular or biconical, flat base, simple rim 2. Wide belly and neck, simple rim, flat base, small vertical roll handles on upper part and small lugs above the belly	Smoothed exterior/interior	1. h 30, bd 30, wth 0.6-1 2. h >30, wth 1	Leshtakov P and Ivanova 2016; present study
42	Bezhanovo	4000-3700	Flat, on a river terrace	Above-ground house		1. Globular with restricted opening, upright rim, no handles 2. Ovoid body, upright rim, two vertical handles on the shoulder	Smoothed	1. rd 19-20 2. rd 21-24, maxd 30-33	Valentinova 2016
43	Dolno Dryanovo	4250-3700	Flat, rock-cut, mountain-ous			Globular or ovoid body, upright rim, two vertical handles on the shoulder			Todorova N 2016
44	Yagodina	4250-3700	Cave			Globular or ovoid body, upright rim, two vertical handles on the shoulder			Todorova N and Avramova 2016

Table 21.4. Summary of LNII/FN-Chalcolithic cooking pottery characteristics.

Fig. 21.6 LNII/FN-Chalcolithic cooking pottery wares from Dikili Tash. a hole mouthed vessel; b small sized collared jar; c stand (©Ecole française d'Athènes/Dikili Tash research project. a, b Ph. Collet; c C. Watroba).

Fig. 21.7 LNII/Chalcolithic cooking globular bowl from Petko Karavelovo (drawing and photo: after Chohadzhiev 2017, 32 Fig. 9).

constructed with wood and clay, and equipped with thermal structures; we studied vessels from three of them: House 10 (Chohadzhiev 2017; Chohadzhiev et al 2018), Features 154 and 155. The majority belongs to small and medium-sized globular-biconical pots with a thick flat base and simple rim, occasionally having small mastoid lugs on the belly (Fig. 21.7). Only one is a small-sized hemispherical bowl with simple rim and a cylindrical, obliquely cut spout under the rim, and a second preserves only the collared rim and not the body that could have been globular.

At Avren-Bobata, large rectangular houses have been investigated, equipped with thermal structures. We examined two vessels found near a large hearth in one of the houses (Leshtakov P and Ivanova 2016; Leshtakov P et al 2016, 2017, 2018). The first is a large sized hole-mouthed flat-based biconical-globular pot (similar to Fig. 21.7) and the second a flat-based pot with a wide belly, high neck, wide mouth with simple rim, small vertical roll handles on the upper part and small lugs above the belly.

Finally, we studied the cooking pots from a well-preserved house investigated in Dikili Tash, House 1, destroyed between 4350-4250 BC, and its surroundings (Darcque et al 2011, 2020). This is a rectangular building, constructed of wood and clay, and equipped with two thermal structures and platforms. More than 45 intact or almost intact vessels were found in its interior, and many more fragmented, 13 of which are regarded as cooking. The latter were located in several micro-contexts, some in relation to thermal structures and others not, pointing to their relation with various activity areas. With the exception of the small piriform collared jar mentioned above (Fig. 21.6b),[6] all other vessels belong typologically to a homogeneous group of hole-mouthed, globular, flat-based pots with simple rim, with four lugs, mastoid or knobbed, on the larger periphery of the belly, and/or

6 We did not take sample for petrographic analysis from this vase, as it is perfectly intact.

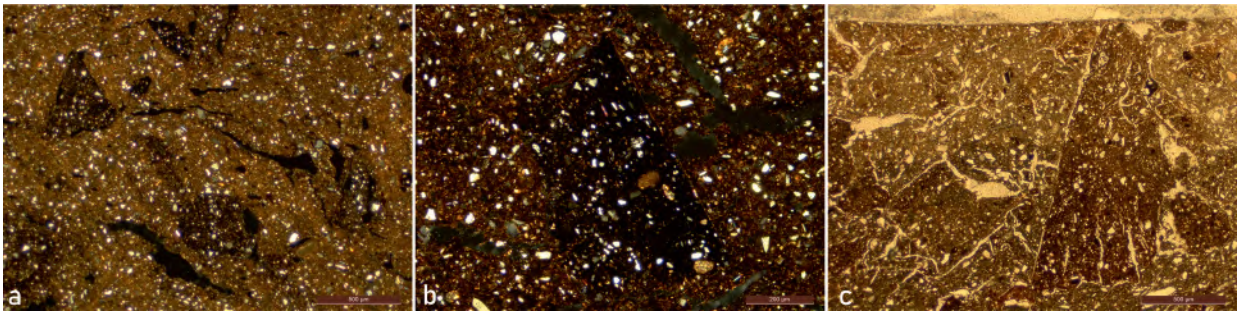

Fig. 21.8 Microphotographs of LNII/FN-Chalcolithic cooking pottery fabrics in thin section, tempered with grog and plant inclusions. a, b Petko Karavelovo (XP); c Avren (PPL) (© PlantCult Project, A. Dimoula).

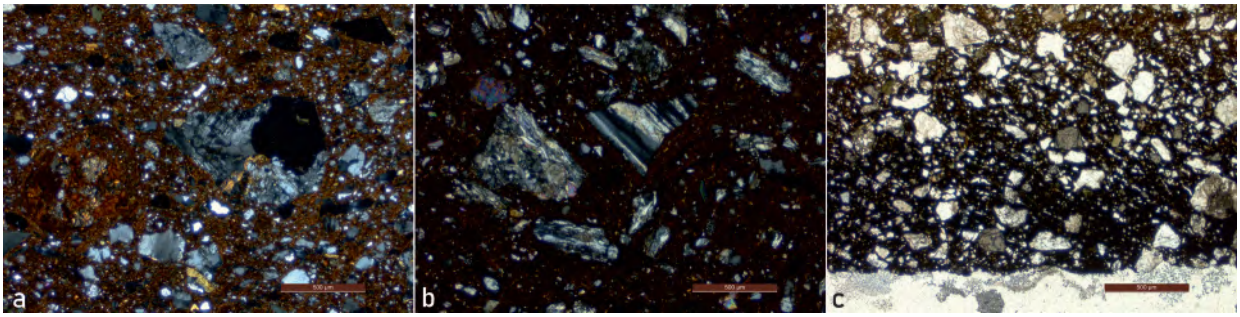

Fig. 21.9 Microphotographs of LNII/FN-Chalcolithic cooking pottery fabrics in thin section from Dikili Tash. a coarse, granodiorite inclusions (XP); b coarse, metamorphosed inclusions; c absorption of charred material in internal wall (PPL) (© PlantCult Project, A. Dimoula).

horizontal roll handles (Fig. 21.6a). Their bases are thick, as also is the wall in its largest periphery. Their sizes vary from small to medium-large (see Table 21.4) and their capacity between 1.5-8 l.

The results of the petrographic analysis of the cooking pot samples from the two sites in Bulgaria are quite similar. Both the Petko Karavelovo and the Avren-Bobata samples fall into single groups, medium to coarse grained, characterised by the addition of grog, i.e. crushed ceramics, in a rather fine-grained clay mass. Organic material is also present, in cases representing the deliberate addition of plant material, while the rare occurrence of shells, ostracods and foraminifera points to the river and marine deposits in the broader area of the sites. Both groups are considered as locally produced; rock fragments however are absent hindering a more precise geological characterization.

The Dikili Tash samples also belong to a single homogeneous fabric, which is identified as identical to the main local LN I fabric (Tsirtsoni and Yiouni 2002: Group 1). It is coarse-grained, non-calcareous and characterised by large-sized inclusions of igneous origin, mainly granodiorite fragments and others with micrographic texture, and their mineral constituents, silicates and hornblende (Fig. 21.9a). There is only one exception of a globular pot, which is typologically similar to others, but belongs to a completely different fabric, again coarse-grained, but including mica-schist fragments in a rather fine groundmass (Fig. 21.9b). This fabric is not identified within the previous LN I ones, but its composition refers to the geological setting of the site, though pointing to a different raw material source. Finally, it should be noted that both fabrics are characterised by the occasional presence of plant organic material in the clay mass. As for clay processing, the distribution of inclusions indicates the use of naturally coarse sediments for the majority of the samples, while only the individual sample exhibits the practice of tempering, evidenced by the presence of large subangular fragments in a fine clay mass. Similarly, vegetal inclusions are mainly natural occurrences, with only few examples pointing to possibly deliberate addition, based on their frequency and distribution.

The majority of the Petko Karavelovo samples have their exterior surface covered by barbotine up to their upper part, where there is a burnished band below the rim (Fig. 21.7). This surface treatment is very frequent in the area during the entire Chalcolithic period. Quite often the boundary between the two zones, the barbotine and burnished, is marked with a coil with impressions or incisions and/or a groove surrounding the vessel. The rest of the pots, as the ones from Avren-Bobata and Dikili

Tash, have coarsely burnished or smoothed exterior and interior. Firing temperatures appear to be low everywhere, although refiring due to destruction often confuses the image.

Similar is the problem with identifying use-wear traces for these sites. Fire destruction was severe, making almost impossible to establish if fire clouds are an effect of use or post-depositional. In most of the cases it is certain that the clouds are a result of fire destruction (e.g. indicated by the different colours of sherds mended to form complete pots). However, for few examples where sooting clouds concentrate on the base, the lower part and up to the mid-height of the vessel where the lugs are placed, it is possible that they comprise use-wear traces. The same accounts for the interior; in very few cases carbon deposits are observed in the bottom and lower walls of the pots. Finally, the majority of all the above pots we studied exhibit dark interior edge in thin section, something not observed on the exterior edges (Fig. 21.9c). This indicates repeated use of low liquid content permitting the penetration of charred material in the vessel wall (Skibo 2013).

After 4250 BC, evidence is scarce and habitational contexts like those described above are missing. At Dikili Tash, the remains of a Final Neolithic/Final Chalcolithic level (4200-3800/3700 BC) were unearthed immediately above the destruction layer of House 1, consisting of two deep pits and the surrounding floor, filled with a homogeneous fill of fragmented vessels, architectural debris, and bones, both burnt and unburned (Tsirtsoni and Malamidou 2015-2016). None of the vessels can be formally identified as cooking, but some of the retrieved globular pots with upright rim, or s-shaped jars or bowls with two vertical handles on the upper part, could be used for this purpose. The detailed technological analysis of this material is still in course. Similar vessels are reported from coeval contexts in sites from the areas of South and NW Bulgaria (Table 21.4). No securely dated sites exist in both Northern Greece and Bulgaria for the period between 3700 and 3600 BC.

21.6 Proto-Bronze and Early Bronze Age (EBA, ca 3600-2000 BC)

Entering the Early Bronze Age, substantial changes are observed in many aspects of material culture, and particularly in the morphological and technological characteristics of pottery as compared to the Neolithic/Chalcolithic. Unfortunately, the exact pace of these changes is not clear, due to the poor knowledge of assemblages from the previous centuries. Yet, in the EBA sites, either tells or flat, households appear to be the central units of social life in both northern Greece and Bulgaria (Andreou 2010). The majority of activities, including food preparation, appear to have taken place in house interiors, which were equipped with various types of thermal structures. Outer areas with hearths, pits or ditches are attested more rarely.

The early phases of the EBA, i.e EBA I (3300-2900 BC), are represented only in sites in eastern Macedonia and Bulgaria, while the intermediate "Proto-Bronze" stage (3600-3300 BC) is attested so far in the single example of Drama-Merdzhumekja in Bulgarian Thrace (Table 21.5). The majority of sites in both countries belong to the EBA II-III periods (2900-2000 BC). However, the vessel repertoire appears to be strikingly homogeneous in all subperiods. Thus, the commonest vessels are deep, open or wide-mouthed, with ovoid, conical, globular or s-profile shape and exclusively flat bases (Fig. 21.10a, b). Their rims are either simple vertical or outward and less frequently inward. They often feature one or two pairs of handles and/or lugs, placed on the shoulder or the belly, frequently joined by a coil with impressions or incisions. Such coils are decorative but would also aid handling, and are found even when handles or lugs are absent. Decoration with impressions or incisions is also found on the rim, while in Bulgaria rows of perforations below it are also common. Spouts are rare. The dimensions of the vessels cover a wide range, with rd between 10-50 cm and h equal to the rd or x1.5. Still, the majority appears to fall into the average of rd 20-30 cm, with the pots from Bulgaria referred to more frequently as elongated, also encountered in northern Greece. The second type of cooking pots in use, though not that common, are bowls, conical or hemispherical, with inward rim or s-profile and flat base (Fig. 21.10c).

Another type of cooking vessel from this period (after 2900 BC) is the shallow (h <10 cm), large in diameter (>40 cm) and flat based cooking dish (Fig. 21.10e). Such vessels commonly have a row of perforations below the rim, but plain unpierced specimens are also found, while they can exceptionally feature spouts. Interestingly they are found in sites in northern Greece but they do not seem to be found in Bulgaria. They are widely distributed in southern Greece as well, where they are usually mentioned as "baking pans" and connected with the so-called "cheese-pots" of the previous Final Neolithic period. Accordingly, they can be considered as a southern trend with limited diffusion to the North, but we cannot exclude the possibility of a "revival" of the even earlier local type of Neolithic cooking dish or a mixture of two (Dimoula et al 2022).

The technological features of EBA cooking pots appear to exhibit a respective homogeneity, although analytical data are generally lacking. Their fabrics are reported as coarse-medium grained with mineral inclusions and organic material. Their surface is commonly smoothed, less frequently coarsely burnished or left rough and rarely striated.

The cooking pots we studied from Archondiko (phase IV, end of 3rd mill BC) and Sokol (start of 3rd mill BC) follow the above general typological characteristics; the only exceptional shape being a rather small-sized jug from Sokol, with a flat base, obliquely cut mouth and a vertical strap handle (Fig. 21.10d). The results of the petrographic analysis of the Sokol cooking pots suggest two fabric

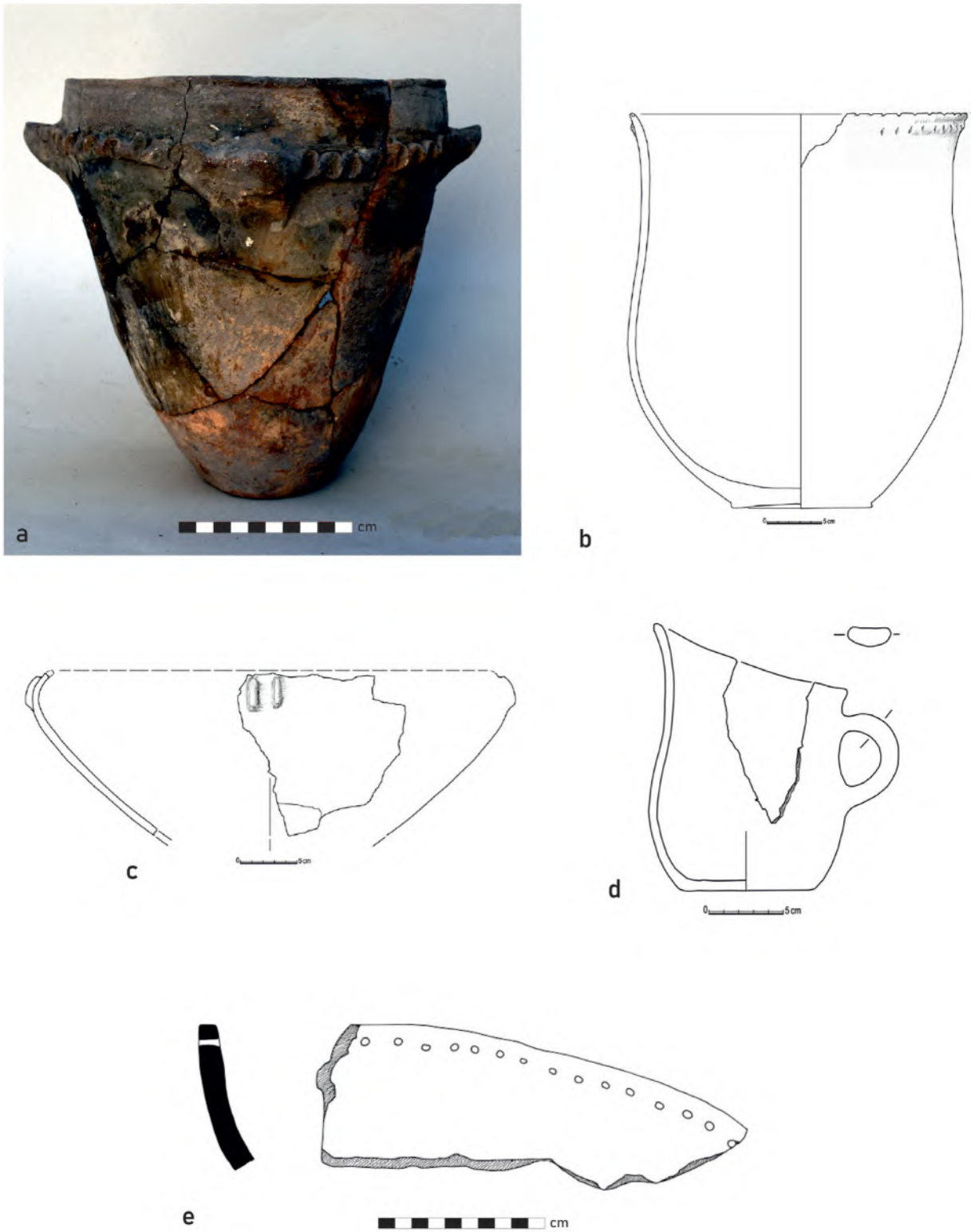

Fig. 21.10 EBA cooking pottery wares. a deep flat-based vessel from Archondiko; b deep flat-based vessel from Sokol; c bowl from Sokol; d jug from Sokol; e. cooking dish from Dikili Tash (© a PlantCult Project, A. Dimoula; b-d Sokol research project, N. Todorova and V. Petrova; e after Malamidou 2019, Planche 19).

Map No	Site	Date (BC)	Type of settlement	Contexts	Fabrics
7	Kovachevo	1st half of 3rd mill	Flat	No features	Coarse-medium
12	Karanovo phase VII	2500-2200	Tell	Houses	
16	Sitagroi phase IV	3300-2900	Tell	Long houses with thermal structures	Coarse, sand
16	Sitagroi phase Va	2900-2600		Apsidal building, thermal structures	Coarse, sand
16	Sitagroi phase Vb	2600-2300		Interior spaces	Coarse, sand
17	Dikili Tash EBA (ex-phase IIIA)	3300-2900	Tell	Interior and exterior spaces, thermal structures	1-2. Coarse, silicate, calcitic and organic inclusions 3. Coarse
17	Dikili Tash EBA (ex-phase IIIB)	2900-2300		Interior spaces, thermal structures	Coarse
27	Yunatsite	2900-2300	Tell	Buildings	Coarse
33	Drama Merdzhumekja (NW slope)	ca 2300-1900	Tell	Ditch	Coarse
33	Drama Merdzhumekja (NE slope)	3600-3200	Tell	Pits	Medium-coarse
45	Skala Sotiros	ca 2900-2000	Flat	Interior and exterior spaces, thermal structures	Coarse
46	Kryoneri	?-2400/ 2100	Flat, on a terrace	House debris	Coarse
47	Sidirokastro phase B	3300-2900	Cave	Interior spaces, thermal structures	Coarse
47	Sidirokastro phase A	2900-2600		Interior spaces, thermal structures	Coarse
48	Pentapolis phase I	?-2900-2500	Tell	Interior spaces, thermal structures	
48	Pentapolis phase II	2500-2100		Interior spaces, thermal structures	Coarse
49	Axiochori	3rd mill (no dates)	Tell	House debris, thermal structures	Coarse
50	Sindos	3100-2100	Flat	Pits	Coarse
51	Agios Athanasios	2490-2190	Flat, on natural hill	Interior and exterior spaces, thermal structures	Medium-coarse, single local fabric with igneous inclusions, low temperatures, one import
52	Mesimeriani Toumba	2200-2000	Tell	Interior spaces, thermal structures	Coarse-medium
53	Agios Mamas-Olynth Layer 18	2060-2010	Tell	Interior spaces, thermal structures	Coarse
54	Kastanas Layers 28-22	end 3rd mill	Tell	Interior spaces, thermal structures	Coarse
55	Perivolaki	3rd mill (no dates)	Tell	House debris	Coarse
56	Torone phases I-III	3rd mill (no dates)	Flat	Interior spaces, thermal structures	Coarse-medium

Table 21.5. Summary of Proto-Bronze and EBA cooking pottery characteristics.

Shapes	Wares/Decoration	Dimensions (cm)/ Capacities (l)	References
Conical, ovoid, handles under the rim, small lugs	Plastic bands, horizontal on rim or upper part	h 15, rd 15-30, bd 10	Kulov 2011
Ovoid, s-profile elongated, vertical handles on/under the rim or on body	Smoothed, plastic bands vertical or horseshoe-shaped	h 15-35, rd 15-25, bd 10-15	Hiller and Nikolov 2002; Nikolov 2011
Ovoid or conical body, flat base slightly incurving rim	Coarse burnishing, incisions on rim	rd 15-40/ 3-10	Sherratt 1986; Gardner 2003
Ovoid or conical body, flat base, handles or lugs	Smoothed or coarse burnishing, impressions or incisions or cordon on rim or shoulder	rd 15-40/ 3-10	Sherratt 1986; Gardner 2003
Ovoid cylindrical or conical body, incurving or outcurving rim, flat bases, handles or lugs	Smoothed or coarse burnishing, impressions-fin-gernail or dots, cordons, on rim or shoulder	rd 12-40/ 3-10	Sherratt 1986; Gardner 2003
1. Open conical, flat base, lugs under the rim 2. Restricted mouth, hemispherical, two lugs under the rim 3. Open, s-shaped with vertical handles	Smoothed	rd 20-25 cm	Malamidou 2019; Tsirtsoni 2016; Koukouli et al 2020; present study
1. Open conical, lugs under the rim 2. Restricted mouth, hemispherical, two lugs under the rim 3. Open or restricted, s-shaped with vertical handles 4. Pans, with or without perforations below rim	Smoothed or coarse burnishing; impressions or incisions on rim	rd 30-50	Malamidou 2019
Ovoid, s-profile, conical elongated, handles under the rim/ upper part	Smoothed, rough	h 25-55, rd 20-35, bd 10-15	Yunatsite vol. II, 2007
Conical, hemispherical elongated, handles on upper part	Smoothed	h 30, rd 25, bd 12	Lichardus et al 2001
Ovoid, conical, elongated, globular, tubular handles on rim, vertical handles on upper part	Smoothed, plastic bands horizontal, rows of impressions under the rim	h 20-40, rd 15-30, bd 8-12	Gleser and Thomas 2012
Ovoid, conical body, simple rim, flat base, vertical strap handles on belly			Papadopoulos et al 2001
Ovoid body, vertical rim, flat base, vertical strap handles on shoulder	Smoothed; impressions on rim		Malamidou 2016
1. Conical 2. Restricted mouth, globular or hemispherical	1. Smoothed; row of incisions on rim 2. Smoothed	1. rd 30, h 20-24 2. rd 7-20, h 7-12	Siros and Mitelesis 2016
Globular body, outward rim, no handles pres.	Smoothed; plastic band with impressions on rim		Siros and Mitelesis 2016
Rare-not specified			Grammenos 1981
Ovoid, flat base, vertical convex walls, two vertical strap handles below rim	Smoothed; impressed band under rim	rd 15, h 18	Grammenos 1981
1. Conical, ovoid body, simple or outward rim, flat base, ledge lugs o knobs on shoulder 2. Pans conical or hemispherical, pierced below rim	1. Smoothed or rough or coarse burnishing Impressions or incisions or cordon on rim or shoulder 2. Rough exterior, smoothed interior		Aslanis 1985
1. Ovoid, conical, globular, s-profile, simple or outward rim, vertical strap handles on belly, lugs on shoulder 2. Pan, plain	Smoothed or rough or coarse burnishing	1. rd 15-30 / 2.5-8.5 2. rd 40	Andreou 2000
1. S-profile, ovoid-globular body, outward rim, flat or discoid base, vertical strap or ellipsoid handles on rim and shoulder, lugs on belly 2. Ovoid body-tall neck, outward rim, flat base, vertical ellipsoid handles on body, lugs on belly 3. Ovoid body, inward rim, flat base 4. Conical body, flat base, pierced below rim, spout 5. Shallow, conical body, flat base, spout	Smoothed or burnished, rarely striated Incisions, impressions or plastic on or below rim or belly	1. rd 11-24, 24-40 / 0.5-6, 6-10 2. rd 13-52 / 1-8, 5-37 3. rd 14-19, 20-30, 32-42 / 1-7 4. h 15,5, rd 31.5 5. h 9.5	Mavroidi 2012
Ovoid, conical, globular body, outward or inward rim, flat base, horizontal handles or tongue lugs below rim, spout	Smoothed, rough, rarely striated Impressions or incisions on rim, cordon below	Different sizes and capacities, indicatively h 15-30, rd 20-30, bd 10	Grammenos and Kotsos 2002
1. Conical, ovoid, globular body, s-profile, vertical or outward rim, flat base, vertical handles, strap or roll, or tongue lugs on shoulder or belly, spout 2. Pans, plain or pierced below rim, spout	1. Smoothed, rough Impressions or incisions on rim, cordon below 2. Rough exterior, smoothed interior	1. Average rd 15-30, h 20-40 2. rd 40	Aslanis 1985; Hänsel and Aslanis 2010
1. Conical, ovoid, globular body, s-profile, vertical or outward or beveled rim, flat base, vertical handles or tongue lugs on shoulder 2. Pans pierced below rim	Smoothed, rough, rarely striated Impressions or incisions on rim, cordon on shoulder	rd up to 35	Aslanis 1985
1. Conical, ovoid, globular body, simple or outward rim, flat base, tongue or horn lugs o knobs on shoulder 2. Pans, plain or pierced below rim	1. Smoothed or rough or coarse burnishing Impressions or incisions on rim cordon on shoulder 2. Rough exterior, smoothed interior		Heurtley 1939; Aslanis 1985
1. Conical, ovoid body, s-profile, simple or outward rim, flat base, vertical strap handles or lugs on shoulder 2. Pans, plain or pierced below rim	1. Smoothed or rough or coarse burnishing Impressions or incisions on rim cordon on shoulder 2. Rough exterior, smoothed interior	Average rd 15-20, h 15-30, bd 10	Morris 2009/10

Map No	Site	Date (BC)	Type of settlement	Contexts	Fabrics
57	Kritsana	3rd mill (no dates)	Tell	House debris	Coarse
58	Archondiko phases III-IV	2135-1980	Tell	Interior spaces, thermal structures	Coarse-medium, one main and two minor local groups; high iron clays, metamorphic, igneous and sedimentary rock fragments, organic inclusions, porous, low temperatures
59	Kitros-Louloudia	3rd mill (no dates)	Flat	Houses, pits	Coarse
60	Servia	2900-2000	Flat	Pits, interior floors, yards	Coarse
61	Armenochori	3rd mill (no dates)	Tell	Interior and exterior spaces, thermal structures	Coarse
62	Sokol, level IV	3200-2600	Tell	Interior and exterior spaces, thermal structures	Coarse, two fabric groups, high iron clays, granitoid or sandstone, organic inclusions, low fired, <850°C
63	Nova Zagora	2500-2300	Flat	Interior and exterior spaces, thermal structures	Coarse-medium, mineral inclusions
63	Nova Zagora phases I-II	2400-2100	Tell		Coarse
64	Dyadovo levels XIV-IX	3100-2900	Tell		Coarse, local granitoid inclusions
64	Dyadovo levels I-II	2400-2100	Tell		Coarse
65	Ezero levels XIII-V	3100-2500	Tell		Coarse
65	Ezero levels I-III	2500-2200	Tell		Medium-coarse
66	Galabovo levels I-III	?2100-1900	Tell	House interiors	
67	Karasura Kaleto	3rd mill	Tell and periphery		Coarse
68	Cherna gora I	2300-2000	Enclosure	Dwelling -ditch	Coarse-medium
69	Sveti Kirilovo	2300-2000	Tell		Coarse
70	Dubene-Sarovka	1st half of 3rd mill	Flat	Houses	Coarse
71	Sozopol	mid 3rd mill	Flat, submerged	Posts	Coarse, mineral inclusions, shells
72	Kiten-Urdoviza	mid 3rd mill	Flat, submerged	Posts	Coarse-medium, mineral inclusions, shells

Table 21.5. continued.

Shapes	Wares/Decoration	Dimensions (cm)/ Capacities (l)	References
1. Conical, ovoid body, simple or outward rim, flat base 2. Pans conical or hemispherical, pierced below rim or simple	1. Smoothed or rough or coarse burnishing Impressions or incisions or cordon on rim or shoulder 2. Rough exterior, smoothed interior	2. rd 40	Heurtley 1939; Aslanis 1985
1. Conical and ovoid body, simple, inward or outward, or beveled rim, flat or disc base, vertical handles or tongue or horn-shaped lugs on shoulder 2. Hemispherical or s-profile bowls	Smoothed, rough, coarse burnishing, rarely striated Impressions or incisions on rim, cordon below	Average rd 10-20, 20-35, 35-50 bd 5-7, 8-12, 13-15, wth 0.5-1.2, bth 1-1.3 /1-20, 30-50	Deliopoulos 2014; Dimoula et al 2022b
Ovoid, conical body, simple rim, flat base, vertical strap handles on belly, knobs	Smoothed or coarse burnishing		Besios 2010
1. S-profile with globular body, ovoid with tall neck and vertical ellipsoid handles or ledge lugs, conical with simple or inward rim, flat base 2. Pans with curved base, conical body and spout, often pierced around the rim, internal ledge lug	1. Coarse burnishing, rough; impressions or incisions on rim, cordon below 2. Rough exterior, smooth interior for pans	1. Average rd 20-25 2. over 60	Ridley and Wardle 1979
1. Ovoid, globular, conical body, s-profile, simple or outward rim, flat base, vertical strap handles, horizontal tubular, tongue or disc lugs on shoulder 2. Pan with curved base and pierced below rim	Coarsely smoothed or burnished; incisions, impressions or plastic on rim and shoulder	1. h 17-28, 33-43 2. h 9	Heurtley 1939; Chrysostomou 1998
1. Ovoid, s-profile, flat base and simple flaring rim; row of holes below rim 2. Bowls, hemispherical with simple rim, conical with incurving rim and twin vertical elongated lugs 3. Jug, open, ovoid, flat base, obliquely cut mouth, simple flaring rim, vertical ellipsoid handle on shoulder and belly	Coarsely burnished exterior, well smoothed interior	1. h 33-35, rd 28-30, bd 12-15 2. h 15, rd 35 3. h 17, bd 8	Semmoto et al 2016; present study
Conical, ovoid body, s-profile, simple or outward rim, vertical handles or tongue or horn-shaped lugs	Smoothed, coarse burnishing, various plastic bands on rim or shoulders	rd 20-30	Kancheva-Russeva and Leshtakov 2008
Ovoid, s-profile, vertical handles on shoulders	Smoothed or burnished upper part; coarse or rarely striated – lower; plastic bands		Leshtakov 1992
Ovoid, s-profile, globular or ovoid body with cylindrical neck	Plastic bands, incisions on rim, row of perforations under the rim	h 30-35, rd 22-35, bd 10-15	Semmoto 2008; Kamuro 2005; Semmoto et al 2015
Ovoid, s-profile elongated, small vertical handles on the rim	Smoothed or burnished upper part; coarse or rarely striated – lower; plastic bands		Leshtakov 1992
Ovoid, s-profile	Smoothed; plastic bands, incisions on rim, row of perforations under the rim	h 15-20, rd 15-20, bd 10	Georgiev et al 1979
Ovoid, s-profile elongated, small vertical handles on rim, lugs	Smoothed or burnished upper part, coarse or rarely striated lower part, plastic bands, knobs	h 25-35 (55), rd 20-25 (35), bd 10-15	Leshtakov 1999
Ovoid, conical elongated, cylindrical neck, vertical handles or lugs under the rim or on shoulders; handles on body	Smoothed, plastic band vertical or horseshoe-shaped	h 15/20 -45/50, rd 15-35, bd 7-15	Leshtakov 1993, 2002, 2015
Ovoid, conical, elongated, small tongue lugs	Plastic bands vertical, horizontal or horseshoe-shaped	h 25, rd 20-30, bd 10	Georgieva 1994
Elongated ovoid, with neck, handles in the middle	Smoothed, plastic bands, horizontal under the rim or vertical, small lugs	h 30-35, rd 12-2, bd 8-12	Leshtakov 2006
Ovoid with cylindrical neck	Smoothed upper part, coarse lower, horizontal plastic band in the middle		Leshtakov 1992
Conical, ovoid, elongated, short neck, handles under shoulders	Smoothed	h 20-35, rd 18-22, bd 10-12	Nikolova 1999
Open-mouth, s-profile		h 20, rd 20-30, bd 10	Draganov 1998; Dimitrov et al 2020
Conical, s-profile, handles on shoulders	Single/double rows of impressions or strokes under rim or in the middle, plastic bands horizontal	h 15-40, rd 20-30, bd 10-15	Leshtakov 1994; Dimitrov et al 2020

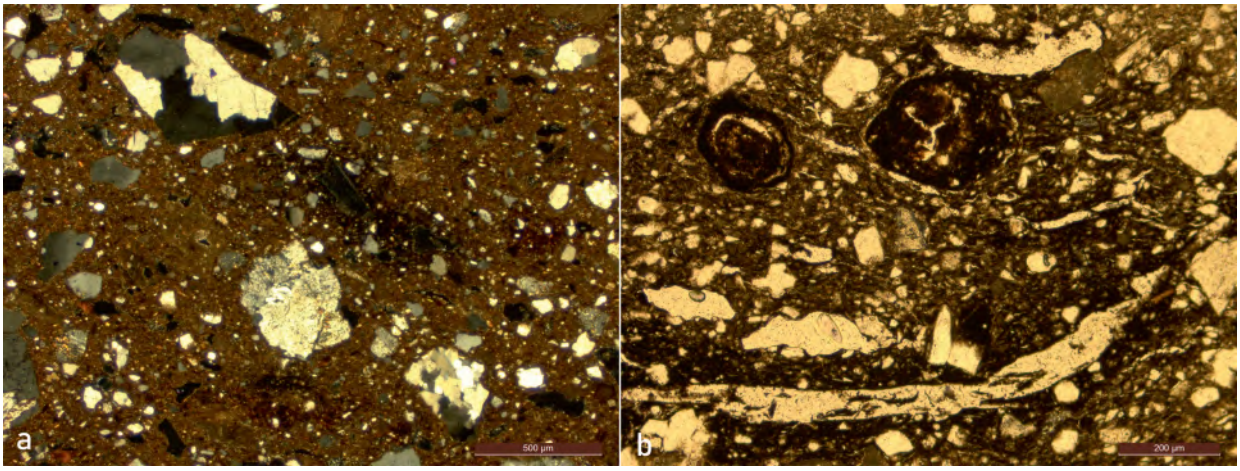

Fig. 21.11 Microphotographs of EBA cooking pottery fabrics in thin section from Sokol. a coarse, granitoid and sandstone inclusions with organic material (XP); b plant inclusions (PPL) (© PlantCult Project, A. Dimoula).

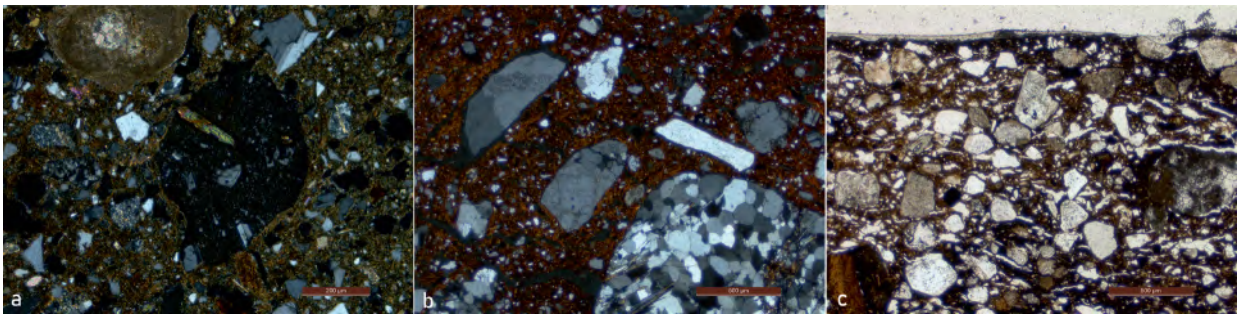

Fig. 21.12 Microphotographs of EBA cooking pottery fabrics in thin section from Archondiko. a coarse, igneous inclusions (XP); b mineral temper (XP); c absorption of charred material in internal wall (PPL) (© PlantCult Project, A. Dimoula).

groups, characterized by coarse-grained high iron content clays[7] tempered with mineral and organic inclusions, as indicated by their shape and distribution. These comprise granitoid rock fragments and/or sandstone together with plant stems or seeds. Such rock formations are located in the hilly environment of the site (Leshtakov K et al 2019), though pointing to two different raw material sources.

The results from Archondiko also point to the use of coarse-grained clays with a high iron content and inclusions comprising altered metamorphic and igneous rock fragments and their mineral constituents, together with organic material, shells and plant parts (Dimoula et al 2022b). However, these probably comprise natural sediments encountered in the geological environment of the site, where fluvial and torrential systems transport and mix different deposits with marine material (Ghilardi et al 2008). In minor fabric groups the processing of natural sediments by either sieving or tempering is evidenced. The presence of different fabrics indicates the use of different clay sources or/and the limited circulation of cooking pots within a broader region.

Both the Archondiko and Sokol pots were built with the coiling technique, while drawing should have been practiced to join the coils, as indicated by the orientation of elongated inclusions observed in many samples, parallel to vessel walls. The pots were fired in mixed to reduced conditions and relatively low temperatures (<750 °C) with short firing duration, as indicated by the common presence of gray cores in the samples.

Although fire traces are frequently mentioned in the literature on EBA cooking pots, their exact location on the vessel is rarely known. Use-wear analysis from Archondiko Phase III cooking pots suggests that they could had been used over the upper opening of U-shaped hearths attested on the site (see Papadopoulou et al this volume), while their interior often preserves organic deposits on the rim or on the belly, indicating respectively liquid foods, i.e. soups, or thicker foods, i.e.

7 The results of chemical analysis, via EDXRF, of EBA pottery samples from Sokol, have shown that CaO content is below 3 wt % for the majority of the samples (Semmoto et al 2016, 156-157, Fig. 4.2).

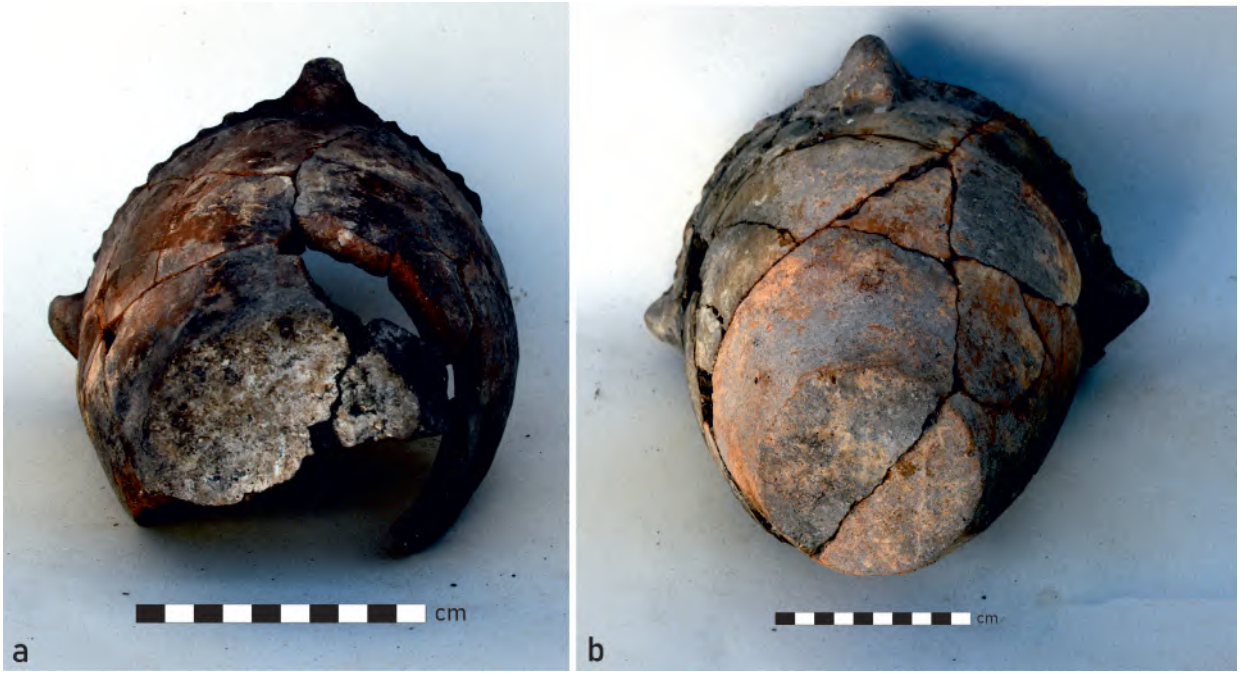

Fig. 21.13 EBA cooking pottery use-wear traces from Archondiko. a exterior, base with sooting clouds; b exterior, oxidized base (© PlantCult Project, A. Dimoula).

porridges (Deliopoulos et al 2011, 225-226). Liquid foods and vetch seeds are reported as contents of the pots found on and around the hearth of the contemporaneous House 1 in Agios Mamas-Olynth (Hänsel and Aslanis 2010, 73-87). As for the capacities of the vessels the majority varies between 1-10 l, fewer between 10-20 l and rarely between 30-50 l.

Evidence is less clear for phase IV of Archondiko, as pots are heavily affected by the fire that destroyed the houses. The lower part and base of the vessels are either oxidized or have sooting clouds, indicating that they were either used among fuel, where high temperatures are developed, or fire was placed below the base of the vessels and clouds were formed (see Dimoula et al 2020) (Fig. 21.13a, b). In the upper part, sooting clouds are scattered on the vessel belly and area below the rim, including handles and coils. The Sokol samples are even more severely affected by fire destruction. They have extensive sooting clouds alternating with oxidized areas on the exterior surfaces, while the interior surface is commonly almost black.

Under the microscope the majority of the samples from both sites have a dark internal margin, pointing to the penetration of charred elements in the vessel wall (Fig. 21.12c). This has been considered as a result of cooking with medium quantity of liquid (Skibo 2013, 96-98). More particularly, food particles in wet conditions penetrate the unslipped porous surface of the vessel and are subsequently charred after continuous use, mainly through simmering or the preparation of thick dishes, where liquid evaporates. On the contrary, the internal surfaces of the bowls from Sokol are completely clean of such traces, pointing to other functions or other cooking methods, such as boiling.

21.7 Middle Bronze Age (MBA, ca 2000-1600 BC)

Archaeological evidence on the MBA habitation in northern Greece and Bulgaria is rather limited. Scarcity of evidence is more pronounced in Eastern Macedonia and Thrace, whereas in Central and Western Macedonia several sites founded at the end of the EBA are occupied throughout to the LBA period. Coastline sites rise as nodes in Aegean and Balkan networks, facilitating the introduction of wheel-made pottery from the South (Aslanis 2014). Food preparation activities continue to take place mostly in the interior of houses, without again excluding outer areas.

The typological and technological characteristics of cooking pots (Table 21.6) follow the EBA tradition of the coarse flat based handled pithoid jars, to which some coarse bowls and jugs are occasionally added (Aslanis 2017; Deliopoulos et al 2011). By contrast, no cooking dishes are reported. But this period sees also the introduction of a new cooking pot type, the pyraunos, i.e. a deep vessel with attached pedestal with openings for air circulation (see Fig. 21.16a), under which fuel is placed (Hochstetter 1984; Morris 2009/2010). Our study

Map No	Site	Date (BC)	Type of settlement	Contexts	Fabrics	Shapes	Wares / Decoration	Dimensions (cm)/ Capacities (l)	References
53	Agios Mamas Layers 17-11	2025-1725	Tell	Interior spaces, thermal structures	Coarse-medium	1. Conical, ovoid, globular body, s-profile, vertical or outward rim, flat base, vertical handles, strap or roll, on shoulder or belly, lugs or knobs on rim or shoulder, spouts 2. Pyraunos fragment	Smoothed, rough, rarely striated Impressions or incisions or cordon on rim or shoulder	Average rd 10-30	Aslanis 2017; Horejs 2007
56	Torone phase IV	MBA (no dates)	Flat	Interior spaces, thermal structures	Coarse	1. Ovoid body, funneled rim, vertical strap handles 2. Pyraunos, ovoid body, funnelled rim, curved base, two horizontal roll handles on shoulder, pedestal attached below handles	Smoothed, impressed cordon on shoulder	h 35.5, rd 25.6	Morris 2009/10
58	Archondiko phase II	2015-1890	Tell	Interior spaces, thermal structures	Coarse-medium	Conical or ovoid body, simple, inward or outward, or bevelled rim, flat or disc base, vertical handles or tongue or horn-shaped lugs on shoulder	Smoothed, rough, coarse burnishing, rarely striated Impressions or incisions on rim, cordon below	Average rd 10-20, 20-35, 35-50 bd 5-7, 8-12, 13-15/ 1-20, 30-50	Deliopoulos 2014
73	Toumba Thessaloniki Layers 14-9	ca 2000-1700	Tell	Exterior areas	Coarse-medium	1. Ovoid body, outward rim, two vertical strap handles below rim 2. S-profile bowls	Smoothed, burnished	rd 20-30	Psaraki and Andreou 2010
74	Valtos-Leptokarya	1885-1695	Flat	Interior and exterior spaces	Coarse, single fabric, low iron clays, metamorphosed, igneous and organic inclusions, oxidising conditions	1. Ovoid body, funneled rim, two vertical strap handles, two double mastoid lugs on shoulder 2. Bowl with globular body, outward rim, flat base, tongue lugs on shoulder 3. Jug with ovoid body, flat base, vertical strap handle on rim and belly	Well smoothed	1. pr. h 20, rd 20/ 3-6 2. h 11, rd 26/ 2-3 3. h 20, rd 12 /1.5-2	Dimoula et al 2022c
75	Razkopanica	end 3rd-start 2nd mill	Tell	Houses; exterior spaces	Coarse	Conical, ovoid, ovoid with neck, S-profile; handles under the rim on neck or on shoulder	Horizontal plastic bands	h 15-20/60-65 bd 7-9/15-18 rd 15-20/20-35	Detev 1950, 1981

Table 21.6. Summary of MBA cooking pottery characteristics.

included the cooking pot assemblage from an MBA house in Valtos Leptokarya in Pieria (Poulaki-Pantermali et al 2007). This comprises cooking jars, bowls and jugs (Fig. 21.14), while the typical in Macedonia pithoid jar (see Fig. 21.10a) appears to be absent (Dimoula et al 2022c). The jar is ovoid with funneled rim and has a pair of vertical strap handles alternating with double mastoid lugs on the shoulder (Fig. 21.14a). The bowl is s-profile with large tongue lugs on the shoulder, while the jug has ovoid body and flat and thick base (Fig. 21.14b, c). Their capacity varies from 1.5 to 6l. Such types of vessels occur in coarse fabrics in contemporary sites in Macedonia (Aslanis 2017; Psaraki and Andreou 2010), but are also widely present at sites in Thessaly (Maran 1992; Hanschman 1981).

The petrographic analysis of the above pots points to the use of a single recipe, with raw materials deriving from the broader environment of the site (Dimoula et al 2022c). Fabrics are coarse grained, with high iron content clays tempered with mineral and occasionally organic material. Vessels are made with the coiling technique and their surfaces are well smoothed, without any decorative elements. They are fired in rather homogeneous oxidizing firing conditions, but in different firing temperatures, below and above 850 °C. As for their use-wear traces, the vessels are heavily damaged by fire destruction and are generally characterized by oxidized bases and sooting clouds developed on the belly, handles and rims. This could tentatively point to a use among fuel. Thin sections of the jar and bowl have dark internal margins, indicating cooking of thick liquid foods, in contrast to the jug sections that point to boiling.

21.8 Late Bronze Age (LBA, ca 1600-1100 BC)

In the Late Bronze Age, and especially after the mid–2nd mill BC, evidence of habitation in northern Greece is abundant, with the tell settlement supported by terraces being the dominant type (Andreou 2014). Intra-site organization comprises building complexes separated by streets and small courtyards; thermal structures are found in both interiors and exteriors. In southern Bulgaria, lower mounds are encountered with buildings comprising massive stone structures, as well as flat hilltop sites; flat sites in plains are more rare, probably due to problems of conservation or archaeological recognition (Table 21.7). A significant difference for both regions, in comparison to the previous periods, is the presence of spaces and vessels designed to store large quantities of foodstuff. Finally, another important aspect is the introduction and adaptation of Mycenaean type pottery, pointing to diverse communication ways with southern Greece (Andreou 2003; Jung 2003).

Cooking pots (Table 21.7), especially in the early phases, continue the previous traditions of the pithoid flat

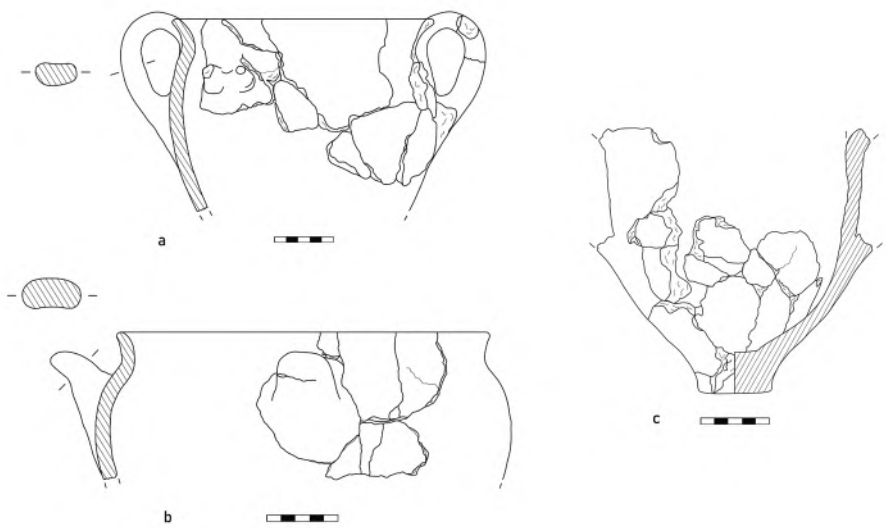

Fig. 21.14 MBA cooking pottery wares from Valtos-Leptokarya. a jar; b bowl; c jug (© PlantCult Project, D. Chondrou).

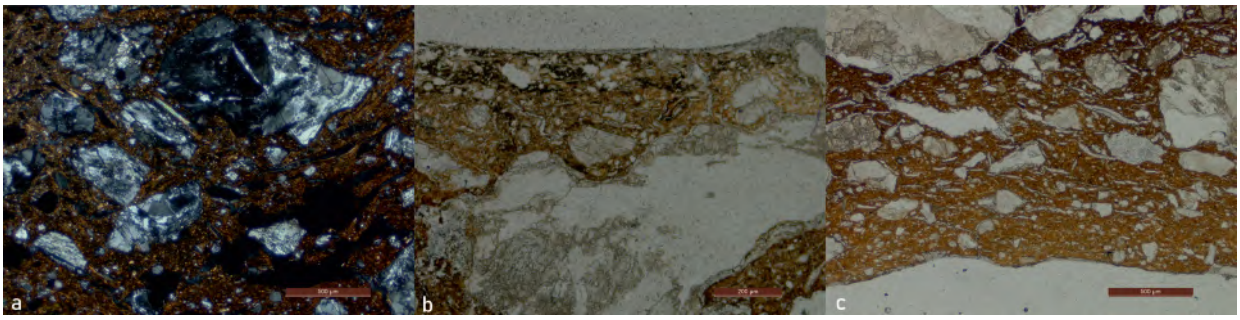

Fig. 21.15 Microphotographs of MBA cooking pottery fabrics in thin section from Valtos-Leptokarya. a mineral and organic temper (XP); b absorption of charred material in internal wall (PPL); c absence of absorption of charred material in internal wall (PPL) (© PlantCult Project, A. Dimoula).

based handled ovoid or conical vessels (Malamidou 2019; Deliopoulos et al 2011, 227), but in later phases the majority are wide-mouthed, with ovoid or globular body, s-profile, outward rim or low neck, and flat or curved base (Hochstetter 1984, 121-136; Horejs 2005, 72-74; 2007, 129) (Fig. 21.16b). They often feature vertical strap or roll handles attached on the rim, shoulder or belly. Decoration is again limited to impressed or incised patterns on plastic coils around or below the rim, and very rarely other elements. Vessel sizes vary from medium to large (average rd 15-30, 30-50 cm), and accordingly their capacity (1-15 to 40 l). Apart from the above handmade cooking pots, there are scant examples of wheel thrown ones, belonging to the late LBA phases of Toumba Thessaloniki and Kastanas (Andreou 2009; Jung 2003). They are either narrow or wide mouthed with globular body, funneled rim, horizontal handles and flat base. Pyraunoi represent up to 15% of cooking pot assemblages.[8] The vessels have similar characteristics to the jars described above, while the pedestal acquires different forms (conical, cylindrical or bell-shaped: Horejs 2007, Tafeln 78, 36, 152; Leshtakov 2019) and is attached to different parts of the body (shoulder, belly or lower part of the vessel: Hochstetter 1984, Tafeln 16, 45, 102) (Fig. 21.16a). The central opening is mostly arched, but generally the shape, size and placement of the openings on the pedestal walls vary. Pyraunoi are commonly large vessels (average rd 20-50 cm) with large capacity 10-40 l.

The third type of LBA cooking pots, met in considerably lower frequency than the previous types, is the shallow cooking dish.[9] At Archondiko such vessels bear perforations under the rim, like those of the EBA (Fig. 21.16c). LBA cooking dishes have thick flat bases and short walls, while their sizes vary from small to large (rd 10-40 cm) with low capacity (1-5 l). Finally, there are extremely rare examples of tripod handled cooking pots (a Southern Greek trend), with a globular body and curved

8 E.g. in Agios Mamas roughly 1500 jars and 250 pyraunoi are published, while in Archondiko 125 jars and 20 pyraunoi (Horejs 2005; Deliopoulos 2014).

9 It represents roughly 1% of the cooking pot assemblage in Agios Mamas, reaching 5% in Kastanas (Horejs 2005; Hochstetter 1984).

Map No	Site	Date (BC)	Type of settlement	Contexts	Fabrics	Shapes	Wares / Decoration	Dimensions (cm)/ Capacities (l)	References
17	Dikili Tash LBA (ex-phase IV)	1600-1100	Tell	Apsidal building with hearth	Coarse	1. Conical or ovoid body, simple rim, two vertical roll handles on the upper part 2. Ovoid body, outward rim, flat base, vertical or horizontal handles, strap or roll or crescent shaped, or knobs below rim 3. Dish asymmetrical, closed at one side, basket-handle	1-2. Smoothed; Impressed or incised decoration or cordon below rim and/or shoulder or belly, plastic elements or grooved, often in combination 3. Roughly smoothed	1. rd 30-50 2. various dimensions, a complete example rd 20, h 23 3. bd 54x59	Malamidou 2019
28	Dimitra	1400-1050	Tell	Interior spaces	Coarse	Ovoid body, simple rim, flat base, two vertical strap handles on shoulder	Smoothed, rough; impressed		Grammenos 1997
76	Stathmos Angistas	1200-1000	Tell	Interior spaces	Coarse	Ovoid or globular body, outward rim, two vertical roll handles or tongue lugs on shoulder	Rough; impressed on rim		Koukouli-Chrysanthaki 1980
52	Mesimeriani Toumba, phases 3-4	1674-1115	Tell	Apsidal building	Coarse	1. Ovoid or conical body, flat base, outward rim, handles or lugs below rim 2. Bowls conical with flat base and inward rim	Smoothed		Grammenos and Kotsos 2002
53	Agios Mamas-Olynth Layers 10-2	1600-1200	Tell	Interior spaces, thermal structures	Coarse and porous; different fabrics for jars and pyraunoi	1. Ovoid or globular body, narrow-mouthed, simple or outward rim 2. Ovoid or globular or conical body, wide-mouthed, s-profile, outward rim or funnelled, rarely simple or inward, two vertical or horizontal, strap or roll handles, or tongue lugs or knobs on upper part or belly 3. Pyraunos, s-profile or narrow mouthed, cylindrical or curved pedestal 4. Tripod, globular body, simple or outward rim, curved base, two vertical ellipsoid handles 5. Baking pans	Smoothed or rough; impressed or incised or cordon on rim and below	1-2. Average rd 15-30-40 3. h 35-39, rd 18-26, pedestal opening 12x10 4. rd 12	Horejs 2007
54	Kastanas Layers 19-12	1600-1100	Tell	Interior spaces, thermal structures, external areas-court-yards	Coarse Wheel-made examples	1. Globular or ovoid, wide mouth, s-profile or conical neck, flat base, vertical or horizontal handles, strap or roll, below rim or belly, tongue lugs or mastoid or knobs or crescent 2. Globular body, narrow mouth, low neck, simple or outward rim, flat or curved base 3. Pyraunos, ovoid or globular body, s-profile, simple or outward rim, vertical handles, roll or strap, on shoulder, or tongue lugs 4. Pans, simple rim	Smoothed, rarely burnished; impressions or incisions or cordon on upper part		Hochstetter 1984; Jung 2002
58	Archondiko Phase I	1510-1400	Tell	Interior spaces	Coarse-medium,	1. Conical or ovoid body, simple or outward rim, disc or flat base, rarely handles or lugs below rim or on belly 2. Pyraunoi, conical or ovoid body, simple or outward rim, flat or curved base, only tongue lugs 3. Pans pierced below rim 4. Bowls, hemispherical or s-profile, simple or outward rim, flat base, handles or lugs	Smoothed or rough, rarely burnished Impressions or incisions or cordon on rim or upper part	1. Average rd 26-40 or 10-28/ 15-40 or 1-15, max. 70 2. rd 22-24, h 26-28, ped d 28-30, h 30 or rd 48-53, h 45, ped d 55-60, h 35/ 10-20, max 40 3. rd 14-22/ 1.5 4. rd 15-46/ 1.5-20	Deliopoulos 2014
73	Toumba Thessaloniki Layers 5-4	1300-1150	Tell	Interior and exterior spaces, thermal structures	Coarse, three local fabric groups, ultrabasic-pyrox-enites, altered igneous-gabbro, acid-intermediate metamorphic igneous inclusions, oxidised or mixed conditions, short duration, low firing temperatures <750°C; different fabrics for jars, pyraunoi and pans; wheel made examples	1. Ovoid, globular, conical body, s-profile, simple, outward or funnelled rim, one or two vertical roll or strap handles, or tongue lugs on upper part, flat or curved base 2. Pyraunos, ovoid body, funnelled rim 3. Pans, flat base, simple rim	Smoothed, rough, rarely burnished; incised, impressed, grooved, cordon	1. rd 10-20-40 2. rd 30-40 3. rd 30-40	Kiriatzi 2000
77	Assiros Phases 9-5	1350-1050	Tell	Interior spaces, thermal structures	Coarse, smoothed, cordon	1. Globular or conical body, wide or narrow mouth, flat base, simple rim, one or two vertical roll handles 2. Pyraunos, globular or conical body, flat or curved base, simple rim, vertical handles or flat lugs below rim	Smoothed or rough; incisions or impressions or cordon on upper part	rd 10-20	Wardle et al 1980

Map No	Site	Date (BC)	Type of settlement	Contexts	Fabrics	Shapes	Wares / Decoration	Dimensions (cm)/ Capacities (l)	References
78	Angelochori Phase II	1495-1290	Tell	Interior and exterior spaces, thermal structures	Coarse, two fabrics, non-calcareous, igneous rocks or schists-phyllites, different fabrics for pyraunoi and jars, import, different temperatures	1. Conical or ovoid, simple flat rim, narrow flat or curved base, handles but more frequently large lugs on the upper part. 2. Pyraunoi, the above accompanied by a pedestal with openings, conical or bell shaped, or slab legs. 3. Globular, s-profile, low neck, outward rim, flat or curved base	1. Smoothed, rough 2. Smoothed, rough, plastic decoration around pedestal opening 3. Well smoothed, burnished	1. rd 20-40, bd 5, wth 1-1.3, bth 1.5-2.5 2. rd 15-20, wth 0.5-0.8	Dimoula et al 2022b
79	Rema Xydias	1489-1296	Flat	Apsidal building, external areas, enclosures	Coarse, two fabrics, low iron content, high grade metamorphic-gneiss, schist, serpentinite, and igneous fragments, organic material, oxidised conditions, different temperatures	1. Ovoid body, simple flat rim, narrow flat or curved base, two vertical strap handles or lugs 2. Tripods or flat-based jars, globular body, outward rim, concave neck, vertical strap handles, some have leg attachment points 3. Pyraunoi, ovoid or globular body, pointed or curved base, simple rim or concave neck, vertical strap handles, pedestal	Smoothed exterior, better smoothed interior	1. h 21-33, rd 21-24, wth 0.5-1 / 3-13 2. h 15-20, rd 18-20, wth 0.3-0.6 / 3-6 3. h 29-32, rd 18-25, wth 0.5-1 / 5-15	Dimoula et al 2022c
80	Pigi Artemidos	1390-1100	Flat	External structures, architectur-al remains	Coarse, same as Rema Xydias, import from Thessaly	Same as Rema Xydias	Same as Rema Xydias	Same as Rema Xydias	Dimoula et al 2022c
81	Trimpina	1600-1400	Flat	Pits	Coarse, same as Rema Xydias, import	1. Globular, s-profile or low neck, outward rim 2. Wheel-thrown globular body, funnelled rim, vertical cylindrical handle on shoulder 3. Pyraunos, ovoid body, outward rim, vertical grooved handle, curved pedestal	Same as Rema Xydias	Same as Rema Xydias	Dimoula et al 2022c
82	Kamenska Cuka	1400-1100		Stone building	?	Elongated ovoid, lugs		h 25-30, bd 10, rd 15	Stefanovich and Bankoff 1998
83	Koprivlen Phase 1-2	1500-1200	Flat	Dwellings	Coarse, rock fragments, grog, organics	Elongated s-profile; ovoid with short wide neck; two handles on the widest part of the body, lugs	Smoothed, intentionally coarse, notches or impressions on or under the rim, plastic horizontal bands	h 20-50, rd 20-40, bd 10	Alexandrov 2002
84	Zaportite sai	LBA (no dates)	Flat		Coarse-medium	Ovoid elongated; S-profile elongated	Smoothed, plastic bands horizontal	rd 15-20/ 25-30	Иванова, Тодорова 2008
85	Vratitsa	LBA (no dates)	Flat	No features	Coarse	1. Ovoid with short neck, elongated ovoid; S-profile-elongated; 2. Pyraunoi	Well smoothed outside, uneven inner surface; Plastic bands – various types, horse-shoe	1. rd 10-12/ 20-25 / 35 2. rd 30-35	Hristova 2011; Leshtakov 2019
86	Ada tepe	1500-1100	Hill-top	Houses	Coarse	1. Ovoid with short neck; elongated s-profile; 2. Pyraunoi	Smoothed, rarely plastic bands	rd 20-40, bd 10-12 h 25-30;	Nikov et al 2018; Horejs 2017; Leshtakov 2019
87	Kush kaya	1500-1200	Hill-top	Houses	Coarse	Kitchen ware – mentioned not described			Popov 2009; Popov et al 2018
88	Tatul	LBA (no dates)	Peak sanctuary	Thermal features	Coarse	Pyraunoi, handles on the upper part	Smoothed, plastic bands	rd 35 -60, h 40 <10	Овчаров и др. 2008; Leshtakov 2019
89	Chokoba 18A	1700-1300			Coarse, tempered, non-calcareous clays with igneous inclusions, plant material, firing below 800 °C	1. Ovoid or conical jars, flaring or simple rim, tongue lugs, crescent shaped handles 2. Pyraunoi with bell-shaped or conical pedestal	Smoothed or coarsely burnished exterior, smoothed interior, plastic, impressions or incisions		Leshtakov 2010, 2011, 2019; Leshtakov et al 2019; present study

Table 21.7. Summary of LBA cooking pottery characteristics.

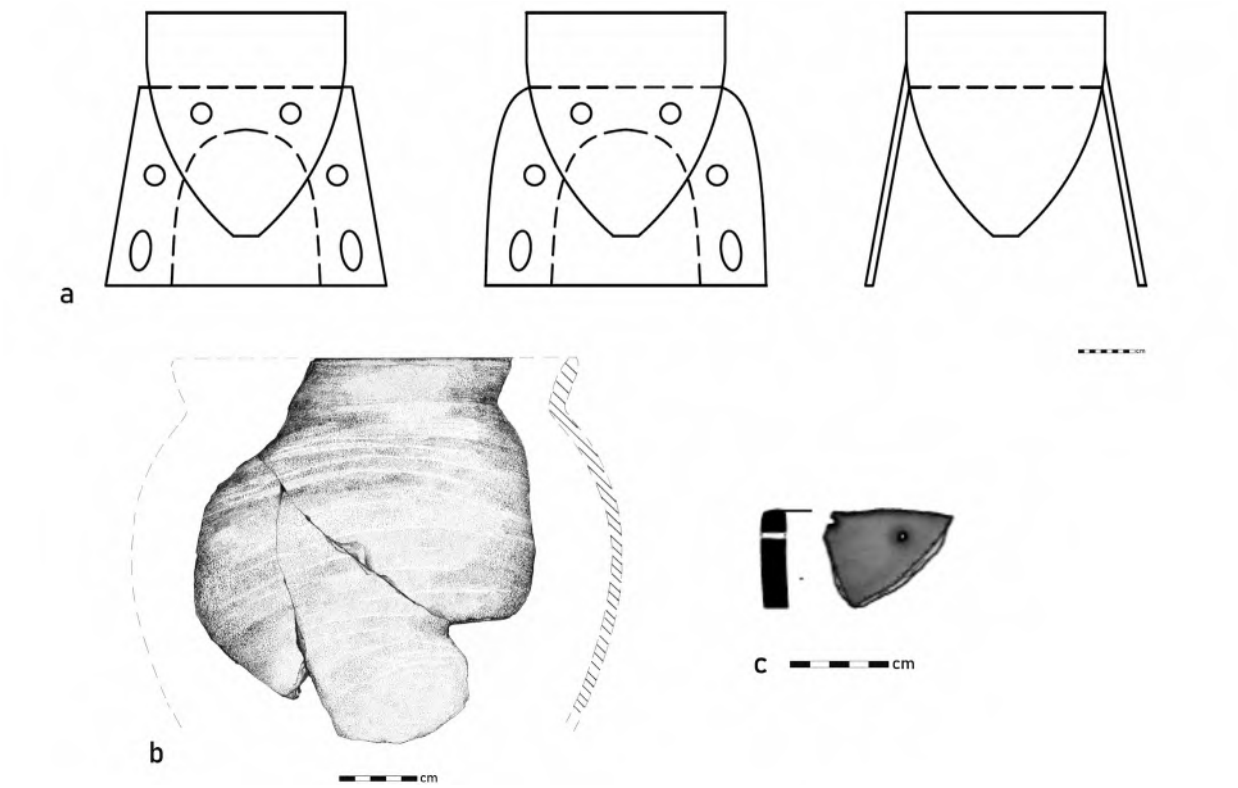

Fig. 21.16 LBA cooking pottery wares. a pyraunoi with different pedestals from Angelochori; b globular jar from Angelochori; c cooking dish from Archondiko (© a PlantCult Project, A. Dimoula; b Angelochori research project, E. Stefani; c after Deliopoulos 2014, Plate 148A).

base; there are also mentions of bowls used for cooking. The latter are flat based, conical, hemispherical or with an s-profile featuring handles or lugs.

The cooking vessels we studied from Angelochori (Phase II) derive from the interior and exterior spaces of two habitation units (A and D), the first preserving two thermal structures (Stefani 2010, 169, 140-141). Our study identified two types of cooking pots equally represented in all spaces (Dimoula et al 2022b). The first is pyraunoi, consisting of an ovoid or conical vessel, with a flat on top rim, handles or large lugs placed underneath, and a narrow flat or curved base, accompanied by a pedestal attached below the handles. Three types of pedestals were identified (Fig. 21.16a): the first and second have conical or bell shape, they are equipped with a central arched opening and the walls are pierced with small openings, circular or ellipsoid in shape. The third has the form of two slab legs (width 12 cm) attached to the periphery of the vessel. The only decoration met is plastic motifs surrounding the central opening. These vessels are large-sized with rim diameter varying between 20-40 cm. The second type of cooking vessel identified at Angelochori is that of a globular jar, s-profile or with a low neck and outward rim and flat or curved base (Fig. 21.16b). These are smaller in size vessels with rim diameter 15-20 cm and apparently smaller capacity.

Roughly contemporary to Angelochori is the flat site of Chokoba 18A in the Thracian plain, featuring shallow dug-out structures with thermal structures (Leshtakov K and Tsirtsoni 2016; Leshtakov K 2010, 2011). The cooking pots studied are either ovoid or conical with flaring or simple rim, below which a plastic coil with impressions or incisions is frequently applied. Crescent shaped handles are met, as well as tongue lugs, even in the interior of vessels. The same types of vessels are sometimes supported by an attached pedestal, bell-shaped or conical, with arched opening and circular holes. As at Angelochori, there are cases where plastic motifs adorn the pedestal's central opening (Fig. 21.17).

Quite different is the image acquired from the three sites studied in the coastal region of Macedonian Olympus (Dimoula et al 2022c), covering the entire LBA. The earliest samples come from two pits in the site of Trimpina (Koulidou et al 2012) and include two types, jars and pyraunoi (Fig. 21.18). The handmade jars are wide mouthed with globular body, s-profile or with low neck. In addition, a wheel thrown cooking jar was found, with globular body, funneled rim and a vertical cylindrical handle on

Fig. 21.17 LBA pyraunoi from Chokoba 18A. a part of pedestal with plastic decoration around the central opening; b part of pedestal with ventilation holes (© PlantCult Project, A. Dimoula).

Fig. 21.18 LBA cooking pottery wares from Trimpina. a pyraunos; b wheel-thrown jar (© a PlantCult Project, photos A. Dimoula, drawings D. Chondrou).

the shoulder, which was probably legged (Fig. 21.18b). The pyraunos has an ovoid vessel with outward rim, vertical grooved handle, below which a curved pedestal with circular holes is attached (Fig. 21.18a).

The other two sites, Rema Xydias and Pigi Artemidos, are roughly contemporary (15th-12th c BC). In Rema Xydias, the cooking pots from an apsidal building equipped with a central circular thermal structure were studied, along with its external areas and the adjacent enclosure walls (Koulidou et al 2014). In Pigi Artemidos, architectural features are ambiguous, however we studied the cooking pots found on an open-air stone built structure of unkown use, along with the ones found among various architectural remains (Koulidou 2010, 2012). The cooking pots from both sites can be grouped in three categories (Dimoula et al 2022c). The first is that of large jars with ovoid body, simple flat on top rim, below which vertical strap handles are attached, and narrow flat or curved base (Fig. 21.19a). The second comprises smaller globular jars with thinner walls, outward rims with concave necks, accompanied by vertical strap handles. Some of these vessels preserve traces of the attachment point of legs on the lower part, thus they are interpreted as tripods (Fig. 21.19b). The ones that do not preserve this part could also be interpreted as flat-based jars. Finally, the third category includes pyraunoi, with either ovoid or globular body, pointed or curved base, simple or concave neck and two vertical strap handles, below which the pedestal is attached (Fig. 21.19c).

Regarding the technological characteristics of LBA cooking pots, information is rather scarce. Nonetheless, in all publications cooking fabrics are referred to as coarse-medium grained, and generally porous. Detailed data are available only for Toumba Thessalonikis indicating the use of mostly non-calcareous clays, containing either altered basic or ultrabasic igneous or acid metamorphic rock fragments, all components encountered in geological formations adjacent to the site, though in different locations (Kiriatzi 2000, 173, 189). The results of the petrographic analyses we conducted confirm this appreciation, further indicating that their composition varies according to the geological environment of each site. The Angelochori

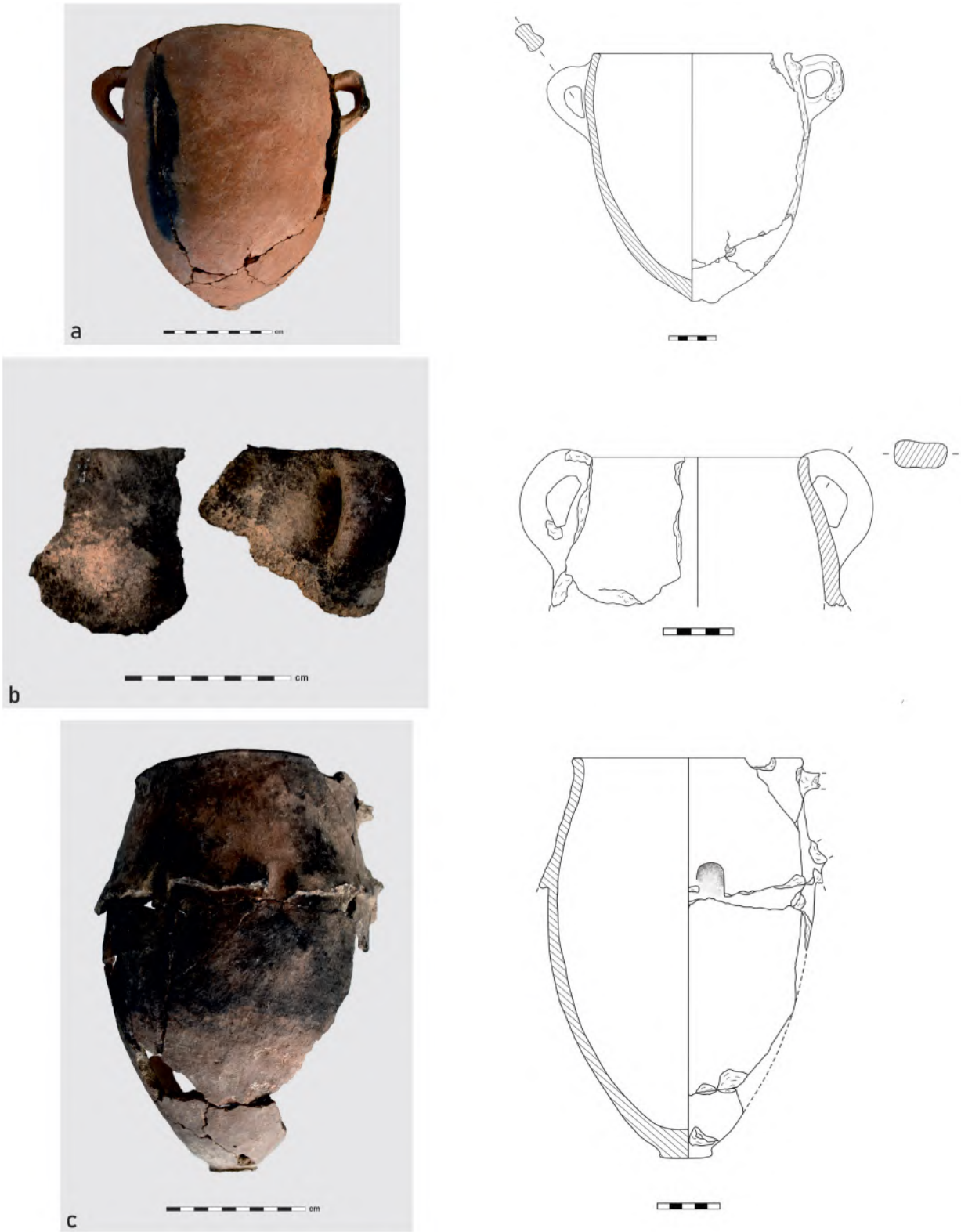

Fig. 21.19 LBA cooking pottery wares from Rema Xydias. a large jar; b tripod jar; c pyraunos (© a PlantCult Project, photos A. Dimoula, drawings D. Chondrou).

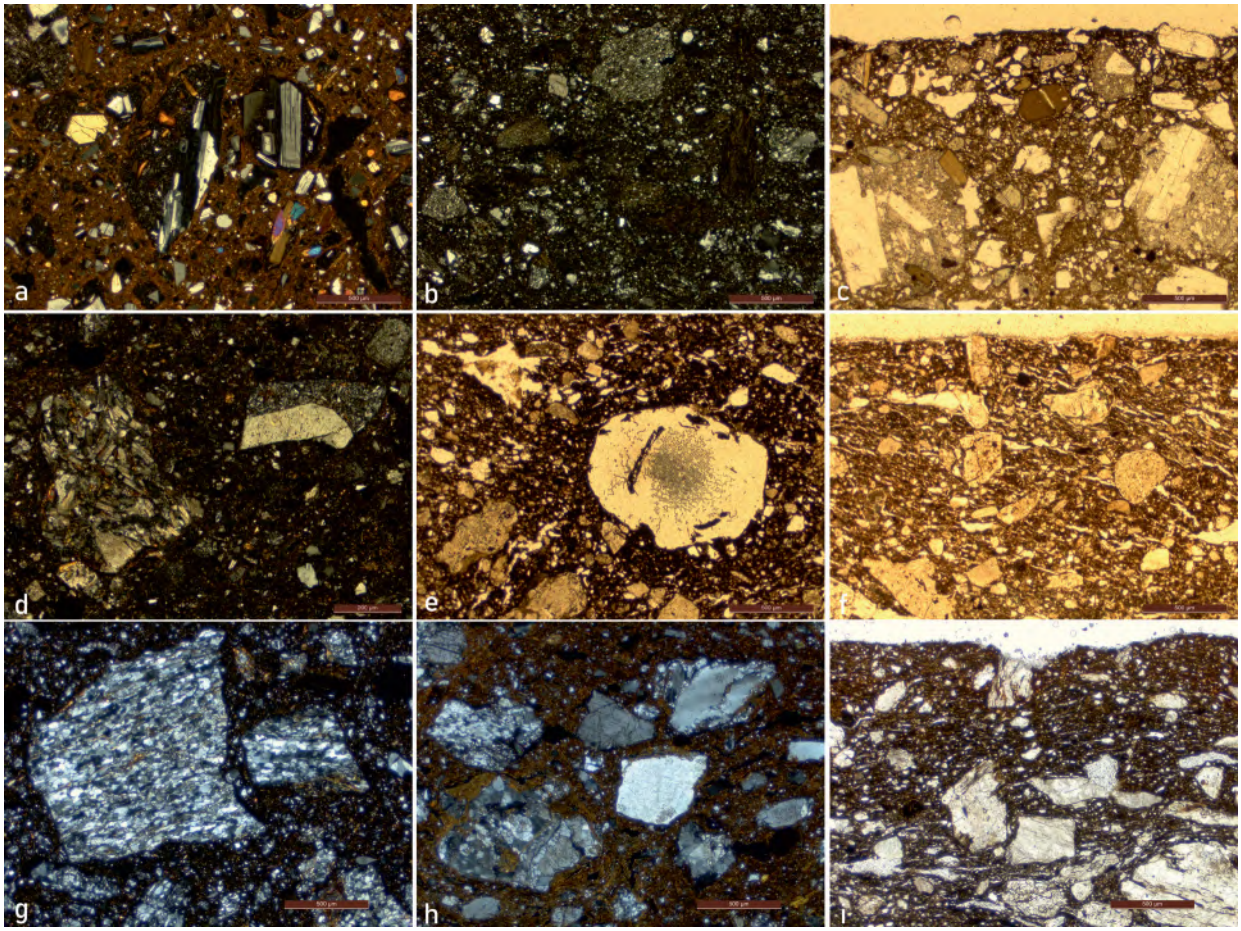

Fig. 21.20 Microphotographs of LBA cooking pottery fabrics in thin section. a coarse, igneous inclusions, from Angelochori (XP); b coarse, metamorphic inclusions, from Angelochori (XP); c absorption of charred material in internal wall, from Angelochori (PPL); d coarse igneous inclusions, from Chokoba 18A (XP); e coarse, plant inclusions, from Chokoba 18A (PPL); f absorption of charred material in internal wall, from Chokoba 18A (PPL); g coarse groundmass, metamorphic inclusions, from Rema Xydias (XP); h fine groundmass, metamorphic inclusions, from Pigi Artemidos (XP); i absorption of charred material in internal wall, from Rema Xydias (PPL) (© PlantCult Project, A. Dimoula).

cooking fabrics are characterised by the use of non-calcareous clays that contain either intermediate igneous (andesite, trachyte) or metamorphic (schist and phyllite) rock fragments, again found in the geological environment of the site but in different locations (Dimoula et al 2022b) (Fig. 21.20a, b). The Chokoba 18A cooking fabrics have non-calcareous clays and contain altered igneous rock fragments (andesite, tuff), the sources of which have been identified in the vicinity of the site (Leshtakov et al 2019, 38) (Fig. 21.20d). Finally, the cooking fabrics from the Pieria sites have a low iron content and contain high grade metamorphic (gneiss, schist, serpentinite) and less igneous rock fragments (Fig. 21.20g, h). These derive from the formations developed in the east piedmont of Mount Olympus in the broader area of the sites, with very few exceptions (Dimoula et al 2022c).

As for the ceramic paste preparation most fabric groups from all sites exhibit a clear distinction between the clay fraction and the mineral inclusions that are commonly angular-subangular in shape, pointing to the practice of clay tempering with crushed rocks or the mixing of two different clay types, a medium grained and a very coarse loose one (Fig. 21.20). Moreover, some fabric groups evidence the practice of organic material addition in the clay paste (Fig. 21.20e). In the Pieria samples the organic component appears to be a natural constituent of a possibly surface clay sediment, while in the Chokoba samples, the presence of organic material is regular, pointing to the deliberate addition of plant stems or seeds in the clay mass, as identified from the shape of their pores. For the first time, different fabrics are used for the production of different shapes. The case was already suggested for Toumba and Agios Mamas

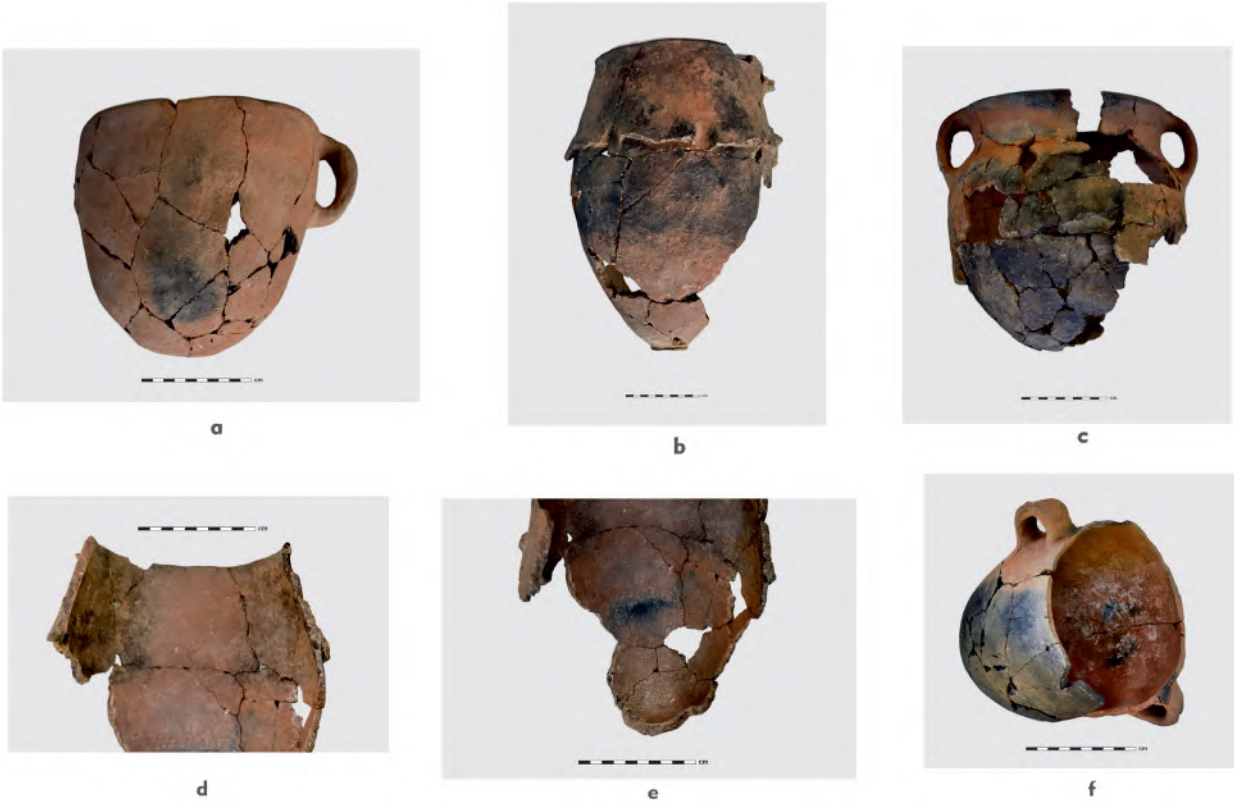

Fig. 21.21 LBA cooking pottery use-wear traces from Rema Xydias. a. large jar; b, c pyraunoi; d internal sooting clouds above liquid level; e abrasion traces on bottom; f attrition traces on internal wall (© PlantCult Project, A. Dimoula).

(Kiriatzi 2000; Horejs 2007, 150), but is now confirmed in Angelochori, where pyraunoi and jars are produced with completely distinct fabrics (Fig. 21.20a, b), as well as in the sites of the Olympus area (Fig. 21.20g, h).

The only building technique attested in all assemblages is coiling, supported by the common orientation of elongated particles in thin section either parallel to vessel walls or random, with coils joined through vertical drawing (see Berg 2008, 1178). In the seldom case of the wheel thrown jar from Trimpina, orientation is diagonal to vessel walls (see Roux and Courty 1998, 753-755). Vessel surfaces are smoothed or coarsely burnished, while the interior appears to be better processed, possibly due to the vessels' use. Vessels appear to be fired in different conditions and temperatures, possibly related to open firing. The majority is estimated to have been fired in low temperatures (<800 °C for Chokoba and Olympus fabrics) but also higher ones have been observed (>800 °C for Angelochori and Olympus fabrics).

As for use-wear traces, information on which is generally absent from the relevant literature, our study has shown that large convex based jars from the Pieria sites have mostly oxidized bases, indicating use among fuel, either supported by a pedestal or hung, with the flames licking the vessel walls (Fig. 21.21a). The tripod pots have sooting clouds on the body and upper part, while the lower part is commonly burnt, indicating direct contact with fire (Fig. 21.19b). In the case of pyraunoi, the interior of the pedestal bears dense sooting clouds, as fuel is placed underneath trapping fire and smoke. On the other hand, the bases are commonly oxidized, indicating that they were in contact with the fuel. Sooting clouds are also developed above the pedestal ventilation holes, through which smoke passes (Fig. 21.21b, c). Vessels' interior is commonly clean from traces, with some exceptions. In one jar from Rema Xydias extended attrition traces, in the form of flaking, were recorded (Fig. 21.21f), while in one pyraunos sooting clouds develop above content level (Fig. 21.21d) and there are abrasion traces on the bottom, in the form of scraping, pointing to the use of a pointed stirring tool (Fig. 21.21e). Thin section analysis suggests wet food cooking according to the penetration of charred material in vessel walls (Fig. 21.20c, f, i).

21.9 Discussion

21.9.1 Cooking pots in research and across space

Bibliographical research on prehistoric cooking pots, conducted in the context of the PlantCult project, has provided ample data, characterized though by asymmetries among regions and between periods. This is directly linked to the state and directions of research, but is also related to the quantity of cooking pots included in the assemblages, their degree of preservation, along with the presence or absence of identifiable characteristics to support their use. Targeted studies on use traces, mainly fire clouds and food carbonization, are quite recent and limited, as are also fabric or content analyses. As such, for the early periods of the Neolithic data is quite limited (Table 21.2). For the late Neolithic phases data is more abundant, since extensive areas have been excavated and cooking pots appear to be more numerous and distinct (Table 21.3, 4). Still, LN I data come mostly from the Greek areas (Table 21.3), while LNII/FN (Chalcolithic) data mostly from Bulgaria (Table 21.4). In the early phases of the EBA information derives solely from the eastern areas of Macedonia and Bulgaria, while in the later EBA phases there is a remarkable increase of data across all regions, related to the wealth of domestic contexts (Table 21.5). This image changes abruptly in the MBA in both countries, with information being scant and deriving mostly from coastal sites in northern Greece (Table 21.6). For the following LBA phases, there is sufficient data from the large tells in central and eastern Macedonia, while more limited is the information from Bulgaria (Table 21.7). Finally, as a general comment on the state of pottery research, it should be mentioned that for the Bronze Age periods typological data on cooking pots prevail, while for the Neolithic periods analytical data on fabrics are more common.

All types of prehistoric cooking pots are found in all types of settlements, either tells or flat extended or caves, and all types of contexts (Table 21.2-7). They are found in house interiors, built over or below ground, but also in open-air areas, in yards and streets, as also in outdoor features such as pits or ditches. They are often associated with thermal structures, interior or exterior, but this cannot be set as a rule, as they are also found in the absence of such facilities. In the macro scale a slight shift in contexts can be observed in the course of Prehistory. Neolithic cooking pots are associated with either above ground buildings or pit structures, with thermal structures found in the interior and/or in open-air spaces. In the Bronze Age above ground buildings equipped with thermal structures prevail, but courtyards or pits are still in use.

21.9.2 Cooking pots in types and across time

The cooking pots of all periods and regions under study have certain characteristics in common which are directly related to their function. As such, the majority are deep vessels, to contain sufficient quantity of food. There is also a minority of shallow ones with large diameter, but the intermediate shapes are generally absent. Moreover, their mouth is either wide or open, not closed, apparently related to content monitoring. As for rims they are generally simple or outward, suitable for cooking use, as inward rims would incommode food and tool handling. Their bases are either flat, to stand on a heated surface, or curved, to be supported above fire. The latter is sometimes achieved by manufacture, with attached legs or pedestal below the base. Finally, they commonly feature lugs or handles for their handling over or off fire. Beyond these very general attributes, the results of this study have shown that although cooking pots are characterized by a relative homogeneity across space, they exhibit significant variability across time, two arguments that will be discussed in parallel.

The use of pottery for cooking appears to be infrequent in the second half of the 7th mill BC, while cooking pots are clearly recognized in ceramic assemblages after the transition to the 6th mill BC, when house equipment becomes generally more apparent in the archaeological record (e.g. storage vessels, see Urem-Kotsou 2017) (Table 21.2). Still, the cooking types of these early phases do not comprise distinct categories, but are rather typologically common with other use classes. Thus, if their dimensions are also taken into account, bowls could also be large-sized tableware, jars could be storage or transport vessels and dishes could be large plates. Moreover, they commonly do not feature robust lugs or handles, rather useful accessories in cooking, but small ones, often perforated and pointing to hanging. It is actually their fabric and use-wear traces, in combination with their contexts, that indicates their use. These observations make us deduce that early potters did not manufacture specific ceramic types for cooking pots, but rather produced coarse and/or large sized versions of the available repertoire.

In contrast, entering the Late Neolithic period (LNI) potters appear to develop the above earlier types and produce specific cooking pot types (Table 21.3). Thus, shapes are more standardized, mainly hole-mouthed, probably for sustaining heat, and less open, where food monitoring is easier, with exclusively flat bases, larger-sized lugs and rarely handles. Two types that deserve further discussion are cooking dishes and legged pots. The first develop upon the MN dishes, acquiring larger dimensions and discrete typology. Legged vessels appear to be an innovative type, possibly elaborating the practice of supporting a vessel over fire, and materializing it by attaching legs -elements also met in other ceramic classes- below the already known deep shapes, open or hole-mouthed.

Interestingly, the use of dishes and legged pots appears to cease during the later phases of the Neolithic (LN II-FN), when the hole-mouthed types and, less, the bowls continue to be in use (Table 21.4). This selective rejection and maintenance of cooking pot types is difficult to explain, especially since it is not associated with changes in other cooking equipment classes or food ingredients (see Dimoula et al 2022). Nonetheless, the vessels of this period appear to be even more standardized, with various size formats, small to large. The small collared or the large handled jars of the late 5th-early 4th mill BC could be considered as forerunners of the following EBA shapes, but the nearly a millennium gap between the assemblages of the two periods does not allow for any firm statement.

In the EBA phases, the repertoire of cooking pots is altered, with the initiation and prevalence of the tradition of "pithoid" jars, continuing rather unchanged throughout the MBA and also in the early phases of the LBA in Greek Macedonia, and the entire LBA in Bulgaria. The use of bowls and/or jugs is occasionally documented, but it is not clear if they were intentionally manufactured for cooking or if they were circumstantially used during their lifecycle. On the other hand, the new types introduced during these periods appear to be a result of contacts with other areas, such as the South for cooking dishes and north-eastern European areas for pyraunoi.

It is in the second half of the 2nd mill BC that the preceding "pithoid" cooking pot types are gradually replaced by globular wide-mouthed pots, somehow reminiscent of the "chytrae" of the historical periods. This could be related to contacts of the region of Macedonia with Southern Greece, where such characteristics are common, mostly in wheel-made formats. Perhaps the societies of the region, which were acquainted with southern or Mycenaean pottery types, as evidenced by the presence of imports or local reproductions, imitated or borrowed generic characteristics and incorporated them into the local pottery traditions (Kiriatzi and Andreou 2016).

A characteristic example which demonstrates clearly how complex interaction networks are, and how they develop in parallel towards various directions and in various extents and intensities, is that of the coastal region of Macedonian Olympus. As discussed above, the LBA cooking pot assemblages from sites there include cooking pots related with diverse traditions: local jars, pyraunoi that attest for affiliations with northern areas, but also tripods, a type actually abandoned after the LN I period in the region and found in the Mycenaean sites of south and central Greece. Tripods are generally absent further north, with very limited examples in some coastal sites, while pyraunoi are largely absent further south, with very limited examples in central Greece (Dimoula et al 2022c).

21.9.3 Cooking pots in fabrics

Cooking pottery fabrics across the regions and periods under study share specific technological attributes, directly associated with their intended manufacture, or selection among others, for repeated use over fire. Thus, they are generally coarse grained and moderately porous, have minimal surface treatment and are fired in relatively low temperatures (<850°C). However, our detailed technological study demonstrates that beyond this first level of homogeneity, there is much variability in materials and techniques among regions and periods, related to a degree to the available sources in each site's environment, but predominantly to potters' perceptions and choices.

Accordingly, the 7th-early 6th mill BC fabrics are coarse-medium grained, due to the presence of various mineral inclusions, and relatively porous, as a result of kneading or tempering, but also due to the common presence of organic inclusions, charred during firing and creating voids. Clay processing techniques include both the removal of inclusions, through handpicking and occasionally sieving, but also their addition through tempering. Vessel surfaces are very rarely slipped, which diminishes porosity, and are usually well smoothed or burnished. Most importantly though, the cooking pot fabrics of this period, as the shapes discussed in the previous chapter, are common with other pottery classes, such as tableware (Dimoula et al 2014; Saridaki 2011, 2019). This supports the argument that MN cooking pots were possibly not produced as a separate category, but rather comprised coarse versions of existing types.

In LN I the composition and structure of cooking pot fabrics is quite similar to that of the MN, though with a greater differentiation in fabrics, indicating the application of various recipes. Moreover, in the majority of cases there is no particular relation between vessel fabric and shape/ware, meaning that fabrics used for the manufacture of cooking pots were also used for other pottery classes or the opposite (Tsirtsoni and Yiouni 2002). An exceptional case is that of Makrygialos (Table 21.3) where cooking pot fabrics are characterized by the broad presence of shells, inclusions that are believed to improve the thermal properties of cooking vessels (Tite and Kilikoglou 2002).

The relation of a single clay recipe for the production of cooking pots evolves in the later phases of the Neolithic. Thus, in the case of Dikili Tash, from the three fabrics used in LN I only one continues to be in use in the LN II/Chalcolithic, perhaps chosen as more suitable for cooking pot manufacture over the others, without excluding other factors, such as sources manipulation or simply a matter of taste. In the contemporary sites in north Bulgaria, recipes are also homogeneous. In this period the practice

of burnishing also ceases, with smoothing being the predominant surface treatment technique.

For the EBA the results of our study suggest that limited fabrics are related with cooking pottery production. In Archondiko the majority comprises natural coarse sediments and less processed raw materials, as is the case in Sokol. However, the texture of all fabrics points to rather rough processing of materials, i.e. use of surface clays with organic and calcific material. The impression acquired is that the fabrics create or follow the "crude" appearance of the pots of this period, in comparison to the previous neatly made -from a present viewpoint- Neolithic pots. Of course, these pots are perfectly functional over fire, which possibly means that potters or people emphasized this aspect over aesthetic ones. Moreover, it is during this period that fabrics develop to be more "specialized", meaning that they are not associated with all pottery classes, but the spectrum is limited to specific use categories. As such, the fabrics used for the production of cooking pots are also used for storage vessels or coarse tableware, possibly also used in cooking, but not for other uses, such as transport or liquid storage (Dimoula et al 2022b).

For the following MBA phase, our analysis suggested the use of a single fabric for the production of different types of cooking pots. During the LBA cooking pot fabrics are again limited, but their processing appears to be elaborate, with tempering or clay mixing being the predominant practices. Furthermore, the innovation of this period, not observed in any of the previous ones, is the relation of specific fabrics with specific cooking pot types. Thus, pyraunoi and jars are commonly linked to separate clay recipes, which possibly indicates a further specialization in the relationship between fabric and use.

21.9.4 Cooking pots in use

The use-wear traces identified on the prehistoric cooking pots under study share common patterns among regions and periods, as is the case for their types and fabrics. Starting with exterior fire traces, either soot or decolorization, which attest for the placement of the vessel over fire (Skibo 2013), the results of our analysis suggest three modes.

The first is placing the base of the vessel among fuel and/or fire, either on a hearth floor or over ground. This mode can be associated with flat-based vessels, comprising the vast majority of the material, or with curved-based ones, possibly supported by some means, such as stones evidenced in MN Lete I (Fig. 21.4b), or sunk in coals, that could be the case for curved-based cooking dishes, as the ones from LN I Dikili Tash (Fig. 21.5d).

The second is raising the vessel above fuel/fire, which is achieved by various means. These include hanging, as is possible in MN Lete I (Fig. 21.2b), using supports of different material (stone, clay or metal), as is possible in LBA Rema Xydias (Fig. 21.19a), or using thermal structures with high walls and opening on top, where the vessel is placed, such as in EBA Archondiko (Fig. 21.13a). These ways would be expected to be related mostly with curved-based vessels, but our study has shown that flat-based ones are also commonly used in a raised position. The latter is also achieved by vessel manufacture with the attachment of legs or pedestal, as is the case for the LN I Dikili Tash (Fig. 21.5c) and LBA Rema Xydias (Fig. 21.19b) tripods or the pyraunoi from LBA Angelochori and Chokoba 18A (Fig. 21.16a, 17). In these cases, the bases are again either flat or curved, while they can also be placed among piled fuel, if the first cooking mode is to be conducted.

Finally, the third mode is the placement of the vessel next to fuel and fire, which is indicated by traces but quite difficult to ascertain, as most vessels do not appear to have been related to a single cooking mode, but were rather versatile.

Nonetheless, the types of bases, i.e. flat vs curved, but predominantly the position of the vessel in relation to fuel and fire, i.e. among or above them, can be tentatively associated with different cooking methods, namely with steady temperature slow cooking vs high temperature quick boiling, according to a recent series of pilot cooking experiments (see Dimoula et al 2020). The collected evidence suggests that the three cooking modes, and thus different cooking methods, basically coexist in the regions and periods under study. At this point, it is interesting to comment that the majority of prehistoric cooking vessels feature lugs in various shapes and sizes, mostly unperforated, which can be related with vessel lugging over a flat surface. On the other hand, handles, which can be linked to lifting, are present, but not frequent; they actually become a norm in the Late Bronze Age phases, when curved bases are also generalized, possibly to meet the need of lifting such vessels over fire.

Moving to the interior traces, which are mostly related to temperature and contents, the results of our study indicate various patterns. As such, many of the vessels have their interior clean from traces, which suggests high liquid presence and vessel wall temperature not exceeding 300 ^{o}C. On the other hand, respectively many vessels are characterized by internal carbonization, located mainly on the base and lower walls and less on the upper part (Fig. 21.4a), related to vessel wall temperature exceeding 300°C, but also the practice of dry cooking or limited presence of liquid. We believe that the latter is the case for the majority of the vessels under study, since they exhibit penetration of charred material in their wall, documented clearly by dark interior margins in thin section, directly

linked to continued simmering of thick food (Skibo 2013). This general image accounts for all regions and periods under study, and is in accordance with the generalized use of deep vessels, pointing to the broad practice of wet cooking with either maintenance of liquid, such as soups or stews, or its deliberate evaporation, such as porridges or mushes. Only for the shallow cooking dishes baking use, for either pies or bread, can be supported, without excluding the wet cooking use, especially for the curved-based ones.

A final point of interest concerns the sizes and capacities of prehistoric cooking pots in our study area (Table 21.2-7). In the early phases of the Neolithic the majority are medium-sized (2-5 l), in LN I medium and large sizes prevail (2-10 l), while in the later phases of the Neolithic/Chalcolithic medium and large sizes (1.5-9 l) are also accompanied by small sized pots (<1 l). Throughout the Bronze Age periods sizes are varied, from small to very large (0.5-10, up to 50 l). Thus, from the later Neolithic phases and throughout the Bronze Age different in size vessels participated in cooking, indicating perhaps different scales of food preparation, e.g. personal to communal, or even a more sophisticated cuisine, e.g. preparation of different dishes in small or large-sized vessels.

21.10 Conclusions

This diachronic overview of prehistoric cooking pottery in northern Greece and Bulgaria, drawing data from both bibliographical research and analysis of original archaeological material, sheds light to many aspects of its production and use, setting the agenda for future research. In terms of archaeological practice, our study showed that the positive identification of cooking pottery requires a series of parameters: secure contexts to support cooking activity, well preserved vessels to have a complete image of the morphological details (e.g. combination of base and handle types) and the use-wear traces developed along the surfaces, along with analytical data on fabric, to restore technological choices and use effects. This study demonstrated that the combination of the above observations does not only establish cooking use but provides further refined information on the rather complex relation between pottery fabrics, shapes and wares, intended functions and actual uses of vessels, together with their association with heat sources and contents.

As such, the results of this study suggest that although prehistoric people utilized fabrics and shapes/wares whose attributes responded to a use over fire, these were not necessarily restricted to cooking but were possibly shared with other use categories, such as storage or tableware. These versatile vessels were in use throughout the periods and regions under study, while they were accompanied by especially designed cooking vessels, such as the supported or the shallow ones, only in specific -and interestingly not consecutive- periods. Moreover, it becomes apparent that it is potting traditions and choices, together with available resources, that designate cooking pottery technology and production, with use having a secondary role.

Thus, as stated in the beginning, the evolution of cooking pottery is by no means linear, from simple to complex forms and technologies, but rather a tangly scheme involving use transformations and adaptations, preservation of traditions and innovations, rejections and revivals. The most diverse cooking sets in terms of sophisticated shapes develop in the Late Neolithic and the Late Bronze Age; in terms of sizes and capacities in the Late-Final Neolithic/Chalcolithic and throughout the Bronze Age; in terms of specialized fabrics in the Bronze Age. Finally, elaborate cooking sets do not necessary rime with complex architecture, neither the opposite, but are possibly related to the dynamics of social groups in every period. Our study aspires to pave the way for further research, analyses and experiments, on the parameters that affect the relationship of prehistoric societies with food and cooking.

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