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# Archaeological Investigations at Chobareti in southern Georgia, the Caucasus

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## Abstract

*Once a restricted military zone, the Akhaltsikhe-Aspindza region within the Samtskhe-Javakheti province of Georgia is now the focus of archaeological investigations. This paper brings together the main data from three years of fieldwork at the ancient site of Chobareti, situated at 1610 metres above sea level, which has so far revealed a Kura-Araxes settlement and burials, and a late Antique/Medieval stronghold.\**

## Introduction

*(Kakha Kakhiani and Antonio Sagona)*

A glance at any map of excavated sites in the southern Caucasus will show clearly the relative rarity of controlled excavations in the Samtskhe-Javakheti region of Georgia, which shares modern geo-political borders with Armenia and the north-eastern tip of Turkey, in the Lake Çıldır district. Compared to the neighbouring province of Kvemo-Kartli, boasting such prominent attractions as the hominid site of Dmanisi, the cluster of Neolithic settlements in the vicinity of Marneuli, and the rich barrow burials in the neighbourhood of Trialeti, our excavated evidence from Samtskhe-Javakheti is slight (see Bedianashvili below). Moreover, excavations came late to the region. Following a series of field surveys intermittently conducted over several decades, the first serious effort to excavate an ancient site was carried out by Taniel Chubinishvili in the 1950s at Amiranis Gora, a Kura-Araxes settlement and cemetery situated in the vicinity of Akhaltsikhe. Some 15 years past before Otar Djaparidze investigated the Middle Bronze Age barrow burials in the Meshketi region, and Otar Gambashidze began his extensive Meskhet-Javakheti archaeological expedition, a combination of survey and excavations. One of the main reasons for the lag in archaeological activity in Samtskhe-Javakheti during the Soviet era was its geographical proximity to Turkey. As a restricted military-border zone, it was difficult even for Georgian archaeologists to work there.

Many separate areas of Georgia undoubtedly deserve prompt attention, and regions of Aspindza and Akhaltsikhe, which encompass the upper Kura (Mtkvari) and Uraveli river valleys, can be counted among them (Fig. 1: 1). With excellent links to both east and west, including the Chikiani obsidian source around Lake Paravani, with direct mountain passes to the rich highland plains of north eastern Anatolia, and with a series of trails that strike northwards to Shida Kartli and southwards across the highlands to north-western Armenia, this region of the southern Caucasus has always enjoyed certain natural advantages, derived most especially from its strategic situation.

\* We would like to thank Giulio Palumbi who reviewed this lengthy paper and provided very useful feedback.

This report sets out to provide a summary framework within which three seasons of work at the site of Chobareti can be studied, by establishing firm stratigraphic, chronometric and palaeo-environmental contexts for the material culture of the communities that lived at this site. It does not set out to provide a synoptic review of the periods in question, an important exercise that will be left for later studies. Chobareti was discovered in 2008 during the construction of the 32 km Aspindza-Akhalsikhe gas pipeline, a section of a larger network of gas pipelines being laid in southern Georgia.<sup>1</sup> The series of archaeological excavations recorded here, conducted under the auspices of the Georgian National Museum, began as a one-month salvage operation in 2009 (1–26 August). Further work was conducted during a short field season in 2011 (21–31 August), when palaeo-environmental researchers from led by Erwan Messager from Université de Nice Sophia Antipolis joined the project to recover samples. The size of the team and the parameters of activities at Chobareti expanded in 2012, when the University of Melbourne incorporated the project into its broader Georgian-Australian Investigations in Archaeology (GAIA) project. This latest field season successfully ran between 1<sup>st</sup> and 30<sup>th</sup> June.

For permission to work at the site we are deeply indebted to Professor David Lordkipanidze, General Director of the Georgian National Museum, who has supported and encouraged our research from the beginning, and Zurab Makharadze, Head of the Otar Lordkipanidze Centre for Archaeology, Georgian National Museum. In addition to those people who have contributed their own sections to this article, Kakha Kakhiani and Antonio Sagona extend thanks to the other members of our team — trench supervisors, surveyors, geophysicist, and architects — listed here in alphabetical order, all of whom did a very great deal to help us while we were at the site: Merab Dzneladze (2009); Elguja Ghligvashvili (2009); Leri Jibladze (2009); Levan Jorjadze (2009); Zuka Mchedlishvili (2012); Aleks Michalewicz (2012); Guillermo Narsilio (2012); Cliff Ogleby (2012); Aleksandre Orjonikidze (2009); Isabel Pacheo (2012); Emily Poelina-Hunter (2012); Eldar Rubinov (2012); Vaja Sadradze (2009); Belle Shapardon (2012); Aastha Sharma (2012); Nika Tskvitinidze (2012); and Rod White (2012). During each of the three seasons workmen were employed from nearby villages of Chobareti and Zveli, who assisted us with digging, sieving and pottery washing. We are grateful both for their commitment to the project and for the warm hospitality they and their families extended to us. Finally, we are very appreciative to the funding bodies, which made the field seasons and post-excavation analyses possible. In 2012, the project was principally funded by a generous grant from the Australian Research Council.<sup>2</sup>

## A History of Archaeological Research in the Akhalsikhe–Aspindza regions

(*Giorgi Bedianashvili*)

Broadly speaking, Akhalsikhe–Aspindza region, within the Samtskhe-Javakheti province, is one of the richest in Georgia in terms of historical monuments. One of the most prominent and well-known sites is Vardzia, the extensive Mediaeval cave city. Scientific interest in antiquities in this area began in the last quarter of the nineteenth century. At that time only archaeological materials that were revealed by chance were studied. Specialists such as Dimitri Bakradze collected and

<sup>1</sup> The preliminary results of the 2009 excavations at Chobareti, published in Georgian (Kakhiani *et al.* 2011), have been incorporated into this paper in revised form.

<sup>2</sup> Australian Research Council Discovery Project — DP120103142.

recorded artefacts then lodged them with the newly established museums of the Caucasus, enriching their collections. One such case occurred in the Akhaltsikhe region, close to the River Ockhe, where in 1886 pottery and coins were found during construction works.<sup>3</sup>

More intensive scientific research in this region dates to 1941, when Giorgi Nioradze of the Georgian State Museum studied archaeological objects found by chance during the reconstruction of the railway, and conducted an archaeological survey in the Kura River ravine, from Borjomi to Akhaltsikhe. As a result of Nioradze's survey, materials previously unattested in this region were revealed. Close to Akhaltsikhe, in the village of Slesistsikhe and the area surrounding Buza, he recorded cist graves containing assemblages belonging to the classical period.<sup>4</sup>

A second archaeological survey took place from 1953 to 1955, a joint expedition of the Vardzia Museum-Reserve and the Tbilisi Pushkin Pedagogical Institute, directed by Chubinishvili. This survey differed from the previous one in being more concentrated on the Akhaltsikhe and Aspindza region. Reviewing archaeological materials stored at local museums, Chubinishvili observed an absence of Palaeolithic artefacts. However, the abundance of natural stone materials for manufacturing tools and the evidence of caves led him to believe that traces of human occupation in ancient times would eventually be found. The earliest materials his survey described were Eneolithic (Chalcolithic) stone mattocks from the villages Zveli and Tmogvi. Also identified were bronze materials from Khizabavra in the Aspindza district; the items included bronze mattocks, a zoomorphic figurine and a spearhead.<sup>5</sup> Chubinishvili's survey also recorded *kurgans*, megalithic buildings and cist graves around the village Nakalakevi, at a place called Bertakana. In Uraveli Gorge, east of St Elia Mountain, the multilayer sites Lodobana and Datkobilikanebi weredetected. Also worthy of mention is the site of Zadengora, close to the village of Berana, which contained materials dated to the third millennium BC as well as to the classical and early medieval periods.<sup>6</sup>

In 1953, near the village of Agara, 5–7 km southwest of Vardzia at an altitude of 2000 m, the expedition observed an ancient settlement close to the River Dumeila. It featured a complex stone construction system, situated on the terrace and containing about 60 stone structures with oval-shaped pits up to 3.3 m deep and 2.5 m wide. Based on ceramic materials collected at the site, Chubinishvili distinguished two periods: Eneolithic and Iron Age.<sup>7</sup> Another site detected during the survey was located close to Akhaltsikhe at Amiranis Gora (altitude 1061 m). At a depth of 1.5 m, damaged cist graves were found. After the graves were cleaned, they were found to contain human bones and ceramic material, resembling finds from the Kiketi and Dabla-Gomi sites and belonging to the Eneolithic (Chalcolithic) period.<sup>8</sup>

This discovery prompted a survey of Amiranis Gora in 1955 and 1956, which became the basis of the first systematic archaeological excavations in the Meskheti region. Beginning in 1958 under the direction of Chubinishvili, about 2000 sq. m was excavated, revealing dwellings, shrines and burials. The greater part of the materials dated to the third millennium BC; however,

<sup>3</sup> Djorbenadze 2005, p. 217.

<sup>4</sup> Nioradze 1944, pp. 219–220.

<sup>5</sup> Chubinishvili *et al.* 1957, p. 126.

<sup>6</sup> Chubinishvili 1963, p. 11.

<sup>7</sup> Chubinishvili *et al.* 1957, p. 120.

<sup>8</sup> Chubinishvili *et al.* 1957, p. 122.

Late Bronze Age and classical-period as well as late medieval layers were also attested.<sup>9</sup> Despite the ubiquity of Kura-Araxes sites in the Meskheti region, for a long time Amiranis Gora remained the only comparatively well-studied settlement. Its building architecture, metal objects and funeral rites are still the subject of many general studies on Kura-Araxes culture.<sup>10</sup>

The next stage of archaeological research in the Meskheti region was conducted between 1970 and 1977, in the form of a joint expedition of the Georgian State Museum and Tbilisi State University directed by O. Djaparidze. By the time it began, rich Middle Bronze Age Trialeti culture *kurkans* were already well known in the neighbouring Tsalka region and were attracting many specialists.<sup>11</sup> The main aim of Djaparidze's campaign was to investigate the distribution of Middle Bronze Age *kurkans* of this kind in the Meskheti region, where at that time the situation was poorly known.<sup>12</sup> Several concentrations of *kurkans* were attested around the villages close to Vardzia. The northernmost distribution of burials was observed in the villages of Gunde and Zveli; further north, closer to Akhaltsikhe, none was found. Archaeological excavation of the barrows was conducted in Akhchia, 6 km distant from Vardzia on the left bank of the River Kura; at Bertakanebi, located close to Tmogvi on the right bank of the Kura; at Chachkrebi in Beri Gorge; and in the valley of Niala on the left bank of the Kura River.<sup>13</sup>

Burials at those sites exhibited not only the large stone mounds typical of Trialeti culture, but also a very specific grave architecture characteristic of the local area. The barrows had stone cromlechs, inside which the stone burial chamber was placed. The burial chambers mainly had eastern-style *dromoi*. Meskheti *kurkans* contained somewhat different assemblages from those found in the *kurkans* on the Tsalka plateau. For these reasons the authors came to consider them evidence of a Meskhetian variation of Trialeti culture.<sup>14</sup>

Besides Middle Bronze Age materials at the above-mentioned sites, a later period was attested as well. *Sondages* made close to Bertakanebi, on the hilltop opposite Tmogvi castle, revealed large stone walls, around which medieval-period ceramic material was collected. Similar hilltop stone constructions were discovered between the villages of Niala and Lebi. In addition, in the territory of Bertakanebi, stone circles (about 40–70 m in diameter) with ash-filled pits inside were noted. Ceramic material collected from the settlement was from the Late Bronze Age to medieval periods. Several medieval-period graves were also located inside the stone circles.<sup>15</sup>

More systematic archaeological investigation of the Aspindza-Akhaltsikhe region was undertaken by the Samtskhe-Javakheti expedition of the Archaeological Research Centre, directed by Otar Gambashidze. This expedition continued from the mid-1970s almost up until the 1990s. During this time, the expedition surveyed and excavated sites belonging to a range of time periods. The earliest artefact attested in the Akhaltsikhe-Aspindza region comes from the village Khaki, in the valley of Tsikhis Keli. It is an andesite hand-axe of Acheulean-Mousterian type from the Lower Palaeolithic period. In the same territory, material belonging to the so-called

<sup>9</sup> Chubinishvili 1963, pp. 15–17.

<sup>10</sup> Orjonikidze 1997, p. 2.

<sup>11</sup> Kuftin 1940.

<sup>12</sup> Djaparidze *et al.* 1981, pp. 6–18.

<sup>13</sup> Djaparidze *et al.* 1981, pp. 19–135.

<sup>14</sup> Djaparidze *et al.* 1981, pp. 170–172.

<sup>15</sup> Djaparidze *et al.* 1981, pp. 136–143.

early farming culture (Eneolithic/Chalcolithic) was observed. Ancient mounds (*tepes*) were also surveyed in Khaki.<sup>16</sup>

Meanwhile, the Aspindza district yielded several group of barrows belonging to the late phase of the Middle Bronze Age and the early Late Bronze Age. These structures were similar to those excavated from 1970 to 1977 by Djaparidze. One barrow type was comparatively small — the cromlech type; another had a stone or earth mound. Barrows excavated in the village of Oqrokana dated to the seventeenth to sixteenth-century BC, similar to those found in the territory between the villages Saro and Khizabavra.<sup>17</sup> Sites representing a wider timeframe were found in the village of Saro itself, at Berbukeri cemetery. Besides Late Middle Bronze Age barrows, there were burials of the Late Bronze, Iron Age and Hellenistic period. In the southern part of Saro, the team investigated a castle and collected Late Bronze Age pottery sherds from the surface, whereas in the village Khizabavra, an ancient settlement was observed in an area known as Gomebi.<sup>18</sup>

A more intensive distribution of barrows was noted in the village of Zveli, and also at Gokhebi and Koshkebi in the territory between Zveli and Chobareti. Zveli barrows are of the same type as those found in the territory of Vardzia. Based on the materials found in the burial chambers, two periods were distinguished: the mid-second millennium and the first half of the first millennium BC. Both inhumations and cremations were found in the barrows.<sup>19</sup> Two elements led Gambashidze to postulate Aegean influence at Zveli: the rectangular burial chamber with false arch roofing, typical of Zveli barrows, and the presence of cremation, which is uncommon throughout the Caucasus.<sup>20</sup> Also in Zveli, in a place called Gokhebi, a settlement of the late phase of the Middle Bronze Age was attested with the discovery of a discoid-headed bronze pin typical of that period.<sup>21</sup>

Gambashidze's expedition investigated sites from other periods in Zveli as well. Two kilometres east of the village, on the left-hand side of the road to Aspindza, it surveyed a valley of barrows. Then, in Gogotubani, 500 m southwest of Zveli, there was a medieval-period settlement, and in the area of Rabati in Zveli, ceramic material belonging to the Kura-Araxes culture was collected; at this site, first attested by Chubinishvili in the 1950s, the team also identified the existence of Middle Bronze and Late Bronze Age deposits on top of the Kura-Araxes period.<sup>22</sup> Zveli, too, had a settlement of the third millennium BC, at a place called 'Samarkhi kanebi', represented by red-black Kura-Araxes ceramics.<sup>23</sup>

An Early Bronze Age site was also observed close to Zveli and Chobareti, in the village of Muskhi, on the hills called 'Fuga'.<sup>24</sup> Besides this site, another settlement yielded a bronze axe considered a prototype Colchian axe and dated to the fifteenth century BC.<sup>25</sup> Also in Muskhi,

<sup>16</sup> Gambashidze *et al.* 1980, pp. 83–84.

<sup>17</sup> Gambashidze *et al.* 2004, p. 50.

<sup>18</sup> Gambashidze *et al.* 2004, pp. 47–49.

<sup>19</sup> Gambashidze and Kvijinadze 1979, pp. 55–60; Gambashidze *et al.* 1980, pp. 80–81; Gambashidze and Kvijinadze 1981, p. 64; Gambashidze *et al.* 2004, p. 44.

<sup>20</sup> Gambashidze 1983, pp. 1–16.

<sup>21</sup> Gambashidze and Kvijinadze 1981, p. 64.

<sup>22</sup> Gambashidze *et al.* 1985, p. 36.

<sup>23</sup> Gambashidze *et al.* 1980, p. 82.

<sup>24</sup> Gambashidze and Kvijinadze 1982, p. 30.

<sup>25</sup> Gambashidze and Kvijinadze 1981, p. 64.

a medieval church and several associated graves were excavated.<sup>26</sup> Intensive excavation was conducted at Tsnisi in the Akhaltsikhe district, where at the cemetery 52 cist graves of the Hellenistic period (fourth to third centuries BC) were studied. Of note is the only example of a jar grave in this region. The cemetery was destroyed by medieval-period buildings, which were investigated as well.<sup>27</sup>

Gambashidze's expedition also investigated other places in the Akhaltsikhe-Aspindza area. An early medieval settlement was recorded in Uraeli Gorge in the Akhaltsikhe region.<sup>28</sup> In the same district, a settlement with pits filled with charcoal and sherds was located at a place called 'Kvaegji khevi', and another settlement was also discovered during the reconstruction of the main road in the village of Rustavi.<sup>29</sup> At Toki in the Aspindza district, stone constructions were assigned to the different periods of the Bronze Age on the basis of surface material.<sup>30</sup>

The westernmost distributions of Middle Bronze Age barrows typical for the territory around Vardzia (Akhchia and Bertakanebi) and also Zveli can be placed 20 km west of Akhaltsikhe, in Ude in the Adigeni district. Here Gambashidze's expedition surveyed a group of barrows with stone mounds. Since graves of this type were considered a Meskhetian variation of Trialeti culture *kurghans*, Gambashidze considered the Ude barrows the western limit of Trialeti culture.<sup>31</sup> Ude is also known for the discovery of a Late Bronze/ Iron Age hoard in 1956, containing hundreds of iron and bronze objects typical of western Georgian Colchian culture. Among them were rectangular bronze buckles with incrustation similar to those found at the Koban necropolis in North Ossetia.<sup>32</sup>

More recent archaeological research in the Akhaltsikhe-Aspindza region was associated with the BP pipeline. In 2003–2006, during the construction of the pipeline across southern Georgia, a number of salvage archaeological excavations were conducted.<sup>33</sup> An important part of these rescue operations took place in the Akhaltsikhe region. The earliest archaeological materials attested were found at Choreti, close to Vale in the western part of the region, where an Acheulian camp of the Lower Palaeolithic period was excavated.<sup>34</sup> Choreti also has an early medieval settlement and a cemetery where 17 graves were investigated.<sup>35</sup> Eneolithic material was found below the medieval deposits at the settlement.<sup>36</sup>

Close to Vale, excavations at Orchosani revealed mainly rectangular buildings associated with the Kura-Araxes horizon. The excavator, Aleksandre Orjonikidze, also likened certain of the ceramic forms to Bedeni pottery, while he compared another part of the ceramic assemblage with examples from Western Georgia and from the Maikop culture typical of the Northern Caucasus. A bronze mattock found at Orchosani is also comparable with Maikop culture.<sup>37</sup> Early Bronze Age occupation was attested at Tiseli seri, close to Tiseli village, located between the Akhaltsikhe and Borjomi

<sup>26</sup> Gambashidze *et al.* 1984, p. 18.

<sup>27</sup> Gambashidze *et al.* 1984, p. 19.

<sup>28</sup> Gambashidze *et al.* 1980, p. 85.

<sup>29</sup> Gambashidze and Kvijinadze 1981, p. 64.

<sup>30</sup> Gambashidze *et al.* 2004, p. 50.

<sup>31</sup> Gambashidze *et al.* 1980, p. 84.

<sup>32</sup> Chubinishvili *et al.* 1957, pp. 116–117.

<sup>33</sup> Erkomaishvili 2010, pp. 12–14.

<sup>34</sup> Grigolia 2010, pp. 52–60.

<sup>35</sup> Chikhladze 2010, pp. 472–478.

<sup>36</sup> Baramidze and Plhakadze 2010, pp. 454–465.

<sup>37</sup> Orjonikidze 2005, pp. 46–50; Orjonikidze and Jobladze 2010, pp. 133–136.

regions, where rectangular buildings as well as 10 graves were excavated. In contrast to Orchosani, the material revealed at Tiseli seri, in both the settlement and the graves, belongs only to the Kura-Araxes culture and dates to the third millennium BC.<sup>38</sup> The later periods are also represented. At Klde, near Akhaltsikhe, classical remains were found — a settlement and 94 burials — whereas close to the village Tiseli, there is a Medieval settlement dating to the fifteenth to sixteenth centuries BC.<sup>39</sup>

Among the most recent discoveries in the Akhaltsikhe region are those from Atsquri, investigated as part of the BP pipeline rescue excavations. A seventh–eighth century church, its wine cellar, and also a grave were excavated. Another wine cellar, this time datable to the tenth–sixteenth centuries, was recorded at a place called ‘Navenakhari’. Here, the association of wine presses and vats with an altar and bakery not only provide a complete picture of the wine making process, but it also lead the author to conclude that wine making was a ritual activity in the region.<sup>40</sup> Atsquri is also known for its Middle Bronze Age barrow of the Trialeti culture, where mass burial was practiced, not unlike the one found at Zveli.<sup>41</sup>

Finally, in the Aspindza-Akhaltsikhe region and generally for the whole of southern Georgia, underground tunnel complexes termed ‘Darani’ are very common, represented at almost all settlements. These complexes date to the Late Medieval period and are connected to the Ottoman invasions. One of such tunnel complex was investigated at Lepisi close to Agara 13 km west of Vardzia. Here 12 tunnels and associated rooms build with stones were recorded. To judge by the ceramics the *darani* at Lepisi can be placed in the sixteenth to seventeenth centuries AD.<sup>42</sup>

## Site Description

(*Kakha Kakhiani and Antonio Sagona*)

The ancient site of Chobareti, located about 1.2 km north of the village of the same name, is conspicuously situated on one of the peaks of the Chobareti mountains, about 1610 m above sea level, and visible from every direction across the countryside (Fig. 1: 2). It comprises the southern slopes of two small hills and the saddle in between. The northern slopes, overlooking the Kura Valley and the village of Rustavi beyond, are steep and covered with dense vegetation. A lush turf covers much of the site and diminishes the visibility of surface sherd scatter, making it difficult to determine the size of the occupation, but the pipeline cutting indicates that it extends approximately 700–800 m along its east-west axis. From the top of the saddle to the pipeline the site measures around 80 m, though ancient occupation may well extend further down the slope beyond the cutting. A series of distinctive wide terraces run across the site of Chobareti. There are five terraces from the top of the saddle (Terrace 1) to the pipeline (Terrace 5), and others are also clearly visible lower down towards the valley floor. When exactly this physical modification of the topography was undertaken is difficult to determine. From our excavations we can ascertain that some of the prehistoric buildings were themselves terraced with their back wall built up against the mountain slope, but we cannot say at this stage whether the mountain slope was first modified at the same time, in the late fourth millennium BC.

<sup>38</sup> Gogochuri and Orjonikidze 2010, pp. 110, 132.

<sup>39</sup> Mindorashvili 2010, pp. 502–525.

<sup>40</sup> Licheli 2010, pp. 526–546.

<sup>41</sup> Licheli and Rusishvili 2010, pp. 205–228.

<sup>42</sup> Burdiladze 2010, pp. 74–82.

The eastern knoll (our 2012 Upper Operation) appears to have been artificially levelled, too. Known as ‘Satikne’ by the locals, it is marked by a modern cross, which has been erected not far from the place where the villagers frequently sacrifice animals on the Day of the Ascension. Remnants of a fortification wall, in the form of irregular field-stones, run along the south-eastern edge of the summit, indicating that substantial defensive structures must have once crowned this part of the site. Within the fortification walls, on top of the hill, stone foundations of rectilinear structures protrude from the surface. A Soviet military trench, dug in 1956 along the inside of the fortification wall, afforded the clearest indication of the built environment in this area prior to our excavations. The trench exposed dry set, stone-walls several courses high.

Looking down from the ancient site, it is possible to see a number of small mounds dotting the landscape beyond the pipeline. Some of these mounds may well be barrow burials (*kurgans*), given they are sprinkled across the valley floor around the village of Zveli and in the high pastures (*yayla*) above Chobareti village, about 2.5 km directly opposite the site to the south.

### Excavation and Post-Excavation Methodology

(*Antonio Sagona*)

The Chobareti project adopted a flexible methodology when it began. At the outset this was determined largely by the fact that the site is located along the corridor of a gas pipeline and therefore was initially tailored to the restrictions of salvage operations. In 2009, attention was focused on the damaged features exposed by the pipeline cutting. The principle aim was to record and excavate the pits, tombs and buildings that were cut and clearly delineated in the corridor wall. Two years later, four 5 × 2 m trenches were opened on the saddle to test the extent of the site and determine its suitability for a fully-fledged research project (Fig. 2). In addition, trench numbers were assigned retrospectively to the 2009 features, resulting in a tally shown in Figure 3.

Feature	2009 Trench	2011 Trench	2012 Square
Structure 1	Trench 6		
Structure 2	Trench 16		
Structure 3	Between Trenches 11 & 12		
Pit 1	Trench 6		
Pit 2	Trench 7		
Pit 3	Trench 9		
Pit 4	Trench 11		
Pit 5	Trench 10		
Pit 6	Trench 10		
Pit 7	Trench 11		
Pit 8	Trenches 11–12		

Feature	2009 Trench	2011 Trench	2012 Square
Pit 9	Trench 12 (Terrace 5)		
Pit 10	Trench 13		
Pit 11	Trench 16		
Pit 12	Trench 17		
Pit 13	Trench 6		
Pit 14	Trench 12		
Pit 15	Trench 6		
Burial 1	Trench 8		
Burial 2	Trench 12		
Burial 3	Trench 17		
Burial 4	Trench 17		
Burial 5	Trench 17		
Burial 6	Trench 5		
Burial 7	Trench 11		
Burial 8	Trench 6		
Burial 9	Trench 4		
Pit 16		Trench 1	
Pit 17		Trench 1	
Pit 18		Trench 1	
Stretch of wall		Trench 2	
Stretch of wall		Trench 3	
Structure 4	Structure 4	Structure 4	F42 & G42
Fortification wall			B48
Rectilinear building(s)			D49 & D50
Cultural material, but no discernable floor			N49.1
Cultural material, but no discernable floor			L47.4

Fig. 3. Chobareti. A list of features discovered in the 2009, 2011 and 2012 excavations.

In 2012 the methodology changed. In the first instance, a uniform grid of 10 × 10 m was laid across the site. These grid-lines are labelled west to east by letter and south to north by number. Each square is further sub-divided into four 5 m squares (.1,.2,.3,.4 from the north-west corner in a clockwise direction). Each minor square, D50.3, for instance, formed the initial, stratigraphic designation of all finds.<sup>43</sup>

<sup>43</sup> Barker 2003; Roskams 2001.

A structured approach is used to record information during excavation and in the post-excavation process. This was reinforced, in 2012, by the use of recording sheets pre-printed on archival (acid free) paper, sand-coloured to cut down glare, which were stitch-bound into hard-cover notebooks. While it is common practice to use individual sheets on site, we have found that sheets are less likely to be damaged if they are bound together, they will not fly away in the wind, and they do not need to be continually ordered into a sequence. Moreover, bound notebooks can better accommodate daily images of excavated features that complement the descriptions and sketch plans.

The design of the notebooks is shown in **Figure 4**. Each Locus/Stratigraphic unit is recorded on two double-sided sheets of paper, which contain the core elements of stratigraphic excavations, including Area, Square, Locus/Stratigraphic Unit [SU], space for a detailed description of the Locus (written in English and Georgian), and a listing of pottery bags, objects, and samples (organic and inorganic) pertinent to the Locus. The stratigraphic relationship of that Locus with surrounding loci is also noted following the principles of the Harris Matrix. A day plan is always drawn, and photographs of the trench and/or loci are taken daily and included in the notebook at the end of each day. Our notebooks also have pages designed specifically for burials, used successfully in our earlier excavations at Samtavro cemetery. Locus sheets are signed and dated by the interpreter. Georeferencing digital vertical photographs and tracing off relevant features using AutoCAD produced the 2012 trench plans (**Figs 22, 27**).<sup>44</sup>

Labels (the tough, acid free Tyvek variety) also contain the core stratigraphic criteria, unique numbers that, as in the notebooks, are visually distinguishable: Locus numbers are boxed in a rectangle, pottery bag numbers are encircled, and sample numbers are prefixed with 'S'. Each label is dated and initialled. Details of all artefacts, pottery fragments and samples are uploaded on respective databases. Pottery fragments are, in the first instance, categorised according to ware types, and then further sub-categorised using a range of criteria (see Catalogue, below). All pottery sherds are counted and weighed, and important diagnostic pieces are drawn. Certain fragments, which bear important elements and taken out of the bags (after being counted and weighed), are given individual numbers. These are listed as SPF (Special Pottery Find). Our long-term aim is to develop a comprehensive ceramic sequence for the Samtskhe-Javakheti region based on excavation and survey data.<sup>45</sup>

## Field Results

*(Kakha Kakhiani and Antonio Sagona)*

In view of the varied methodology adopted at Chobareti over the 2009, 2011 and 2012 excavations, ranging from rescue operations to research-focused investigations, it is best here to summarise the annual results independently. Only one feature, Structure 4 (named in 2009), has been investigated

<sup>44</sup> We wish to thank Cliff Ogleby for rectifying and georeferencing the aerial photographs, and Mia Hutson for producing the drawings.

<sup>45</sup> Finds from the Chobareti excavations are housed at the Otar Lordkipanidze Centre for Archaeological Research (Tbilisi), and the recently re-furbished Akhaltsikhe museum.

in each of the three years. It is discussed in the 2012 summary below. In future field seasons, we will continue the grid system established in 2012.

#### LOWER OPERATION: THE SADDLE

##### *The 2009 Investigations*

In 2009 salvage operations focused on the following features most of which were exposed by the pipeline cutting: the partial remains of four buildings, fifteen pits, nine tombs. These features are located on the saddle and the pits and Structure 4 can be attributed to the period 3300–3000 cal BC on the basis of eleven radiocarbon readings, discussed below. We have no absolute dates for the burials as yet, but it is worth noting the black and red vessels found among the few ceramics containers recovered. Given that the ceramics from Structure 4 and the pits are predominately pale brown in colour, it is possible that some of the burials are of a later date, following a recent view that the concept of the black and red firing was introduced into the southern Caucasus.<sup>46</sup> Moreover, the type of decoration on the ceramics, rare though it is, also hints at two different periods. The pale brown vessels have the occasional incised pattern scratched on its surface after firing (Figs 30: 1; 53: 1; 55: 1), and also solid knobs, some with a central depression (Fig. 30: 5, 7). A black and red jar found in Burial 8, on the other hand, has an impressed design of oblique lines and dimples on its neck and shoulder (Figs 32: 4; 53: 6). After a substantial amount of data on the ceramics has been gathered, we will also investigate if there are any functional differences between the two Kura-Araxes assemblages.

##### Buildings

Each of the four buildings was badly damaged, either by erosion or the pipeline cutting, making it almost impossible to determine accurately their size. Even so, enough has survived to establish that they were terraced structures, built into the slope of the land in such a way that the roof of the lower building provided a porch for the upper structure. Tariel Chubinishvili reported rectilinear terraced buildings from his 1950s excavations at Amiranis Gora, about 2.5 km north-east of Akhaltsikhe, though his published plans are not very clear.<sup>47</sup>

Structure 1 lay 50 cm below the modern surface (Fig. 5). It was part of a dwelling with a well-trodden earthen floor, yellow-brown in colour, 2–4 cm thick. A 4.3 m stretch of the floor survived, running from east to west, darkened in parts by a violent fire that consumed the building. The floor was bounded along its northern edge by a stone wall. Built up against an earthen face in a terrace fashion, the stone wall was one course wide (ca. 30 cm), and a stretch 1.5 m in length was preserved; its height survived no more than 40 cm. Stones from the structure's collapsed walls were found strewn across the floor, mixed with pottery sherds, bones of small and large animals, fragments of lime plaster and the occasional chunk of charcoal. A pit (no. 13) was dug into the southeast corner of the floor and found covered with substantial slabs of stone. Among its content was a near complete hemispherical bowl (Figs 40: 5; 54: 6).

<sup>46</sup> Kiguradze and Sagona 2003, p. 93; Palumbi 2008, fig. 6.61.

<sup>47</sup> Chubinishvili 1963.

At about the same depth below the surface was Structure 2, also terraced into the hill (Fig. 5). Only a small portion of the building remained, having been mostly destroyed by the pipeline cutting. Its rear wall was better preserved than that of Structure 1, and built of small basalt stones laid upon a whitish surface of virgin soil. Pit 11, also damaged, was situated at the eastern end of the wall and filled with charcoal, ash, animal bones and ceramic sherds.

Another building (Structure 3) was situated on Terrace 4. It lay beneath the pipeline, making it unsafe to excavate properly (Fig. 6). What survived indicated that it was originally a substantial structure. The rear (northern) wall was stone built, two or three courses wide, and survived to a height of 1.3 m; it measured 3.7 m in length. Portions of side-walls, 60 cm and 70 cm in length, were also recovered, suggesting that the original plan of the building was probably rectangular. On the floor close to the edge of the scarp, were a number of ceramic sherds. Behind the back wall, higher up the slope, were three pits (nos 7, 8, and 14) and Burial 7.

### Pits

A distinctive characteristic of Chobareti is its number of pits. Apart from Pits 11 and 13, which are associated with buildings, the rest are situated on Terrace 5 (Pits 2, 3, 5–11, and 14) and the lower Terrace 4 (Pits 1, 4, 12–13, and 15). Although we might be tempted to attribute the fill of all these pits to ‘rubbish’ — material which is discarded because it has little use, cannot be recycled, or has the potential to be a hazard — we have to be mindful that pits in antiquity may well have served purposes other than as the repository of refuse. There are two basic approaches to the study of rubbish. One conforms to our Western rationality and interprets it from a functionalist perspective, as part of discard behaviour.<sup>48</sup> Another more recent approach maintains that certain objects, once they leave the household domain, may still carry meaning for the living community. These objects do not conform to our notions of ‘rubbish’ (unwanted waste), but are disposed in a structured and purposeful manner.<sup>49</sup> Essentially, this approach moves away from modern perceptions of rubbish as a material category that is totally separated from the social processes of the living. It also calls into question the distinction that is often made by archaeologists between ‘secular’ and ‘sacred’, and ‘practical’ and ‘ritual’, arguing that in certain societies these distinctions are meaningless.<sup>50</sup>

Although, we only have a limited number of pits from Chobareti most of which have been damaged, it is worth considering that they might well have been purposefully dug for reasons other than waste, or simply for the storage of grain, and that their deposits were deliberately structured. This could explain the number of intact vessels in Pit 4 (Fig. 36: 3–6), a projectile point (Fig. 36: 2) knapped from obsidian (a rare commodity at Chobareti), animal bones, and even the considerable quantities of ash. Perhaps most poignant of all is the reuse of Pit 12 as a burial, and the superimposition of Burial 8 on Pit 15. It can be argued that pits experienced cyclical depositions of objects, which once had ‘social lives’ within the households.<sup>51</sup> Moreover, this ‘disposal’ of objects, especially through burning, might be viewed as a transformative act, part of the social

<sup>48</sup> See, for example, the seminal, processualist studies by Schiffer (1987).

<sup>49</sup> Chapman 2000; Martin and Russell 2000; see also Nekhrizov and Tzvetkova 2012.

<sup>50</sup> Brück 1999.

<sup>51</sup> Appadurai 1986.

practices of the ancient community.<sup>52</sup> Thus, the life of a pit — from its creation through the deposition of its fill to eventual burning — can be viewed as its rites of passage. This interesting question of the nature of ancient discard behaviour need not detain us here, suffice to say that as time progressed, pit-digging in the southern Caucasus increased and became very widespread, reaching a climax in the second half of the third millennium BC during the Bedeni horizon.<sup>53</sup>

For now, we list the Chobareti pits, their dimensions and contents, leaving a more detailed analysis of their purpose for a future study. Details of illustrated diagnostic finds are listed in the Catalogue at the end of this paper. A complete quantitative analysis of the pottery sherds from the pits will be provided in a future report.

Pit 1 (Fig. 7): located 35–40 cm below the surface, may well have been associated with Structure 1; about a third of the pit survived and was situated beneath a cluster of stones, some quite large; pear-shaped in section and its upper part was cut away; originally dug into pale brown soil speckled with small stones; a fill of ash, charcoal, cattle bones, and pottery sherds (Fig. 35), including a black burnished tall necked jar (Figs 35: 3; 54: 2); a scatter of medium-sized stones at its base; dimensions: 90 cm (pres. neck diam.), 1.40–1.50 m (pres. base width 60 cm), and 1.10 m (depth).

Pit 2 (Fig. 7): badly damaged, around 50–60 cm below the surface; pear-shaped, it was originally cut into a stony, white matrix, which lies immediately below the dark brown topsoil; discoloured in the lower half from burning; full of ash that was mixed with charcoal, pieces of basalt and pottery sherds; dimensions: 70 cm (pres. neck diam.), 1.30 m (base diam.), and 1.4 m (pres. depth).

Pit 3 (Fig. 7): pear-shaped, located 35–40 cm below the surface; contained some ashy soil, several ceramic sherds, and a broken, translucent grey obsidian projectile point (Figs 36: 2; 54: 3); dimensions: 70 cm (pres. neck diam.), 1.50 m (pres. base diam.), and 80 cm (pres. depth).

Three pits (4–6) were found in close proximity to each other. Pit 4 (Fig. 8): cylindrical, widening slightly at the bottom; badly damaged by the cutting, it was found at a substantial depth of 2.5 m below the surface; five near complete or intact ceramic vessels (Figs 36: 3–6; 54: 1, 4) — including a handle jar with an incised design pendant from the shoulder — were deposited in the pit; the pit was also full of ash, cattle bones, charcoal pieces, pot sherds from a variety of forms, including trays (Fig. 37: 4, 5) and lids (Fig. 38: 2), hearth fragments (Fig. 38: 1, 3), both portable and fixed circular hearth, and a few slabs of basalt were placed at its base; dimensions: 1.20 m (pres. neck diam.), 1.40 m (pres. base diam.), and 1.30 m (pres. depth).

Pit 5 (Fig. 8): located at a depth of 60–70 cm below the surface on Terrace 5; though damaged, its form was clearly pear-shaped; contained ashy soil, charcoal pieces, bone fragments of large domestic animals, ceramic sherds (Fig. 39: 1, 3), and a portable hearth fragment with an incised design (Figs 39: 2; 54: 5); dimensions: 80 cm (neck diam.), 1.10 m (base diam.), and 1.10 m (depth).

Pit 6 (Fig. 8): also situated on Terrace 5, at a depth of 60–70 cm; cylindrical in form, narrowing slightly at the neck; its cross section revealed stone slabs that sealed the opening; it cut through two soil deposits — its mouth belongs to the dark topsoil, whereas the bulk of the pit

<sup>52</sup> Stevanović 1997.

<sup>53</sup> A good example of intense pit digging is the site of Berikldeebi, in Shida Kartli, where no less than 233 pits were exposed. See, Djavakhishvili 1998; Mindia Jalabadze and Antonio Sagona are preparing a final report on Berikldeebi.

was dug into a deposit of whitish soil; a layer of small stones defines the juncture between the two deposits; contained some ash, charcoal pieces, cattle bones and pot sherds; dimensions are: 60 cm (neck diam.), 1.10 m (base diam.), and 1.70 m (depth).

Pit 7 (**Fig. 9**): bell-shaped, located at a depth of 35–40 cm; replete with mixed debris of ash, small pieces of basalt and pot sherds (**Fig. 39: 4–9**); dimensions: 90 cm (neck diam.), 1.20 m (base diam.), and 1.00 m (depth).

Pit 8 (**Fig. 9**): unusually deep, reaching 1.75 m in depth, 40–60 cm below the surface; cylindrical in form, its opening was sealed by a number of stones; fill of ashy soil and pot sherds (**Fig. 40: 1**); dimensions: 90 cm (neck diam.), 1.11 m (base diam.), and 1.75 m (depth).

Pit 9 (**Fig. 10**): shared attributes with Pit 6 — cylindrical with a splayed mouth; found at a depth of 1.10 m below the surface; contained ashy soil mixed with cattle bones, pot sherds, and fragments of a horse-shoe-shaped stand; dimensions: 1.05 cm (neck diam.), 75 cm (base diam.), and 90 cm (depth).

Pit 10 (**Fig. 10**): cylindrical, badly damaged; located at a depth of 70 cm; filled with an ashy, stony soil, which formed a distinct band in its cross section; dimensions: 1.45 m (diam.), and 1.20 m (depth).

Pit 11 (**Fig. 10**): cylindrical; only the base was preserved, and measured 60–70 cm in diameter and 26–27 cm in depth; located 70–90 cm below the surface; filled with animal bones and a cluster of pottery sherds (**Fig. 40: 2–3**) along its western side.

Pit 12 (**Fig. 10**): located at a depth of 3m below the surface on Terrace 4; approximates a circle, with a 1.20–1.30 m diameter; re-used as a tomb (Burial 5); contained a deposit of ashy soil about 80 cm to 1 m thick; a paving of broken pottery sherds provided a surface on top of which lay the skeletal remains of an individual; other fragments probably belonged to the original deposition in the pit (**Fig. 40: 4**).

Pit 13 (**Fig. 11**): associated with Building 1; pear-shaped; slabs of basalt covered its opening; contained several fragments of basalt, some ashy soil, animal bones, and a damaged hemispherical bowl (**Figs 40: 5; 54: 6**) and decorated lid (**Fig. 40: 6**); dimensions: 50 cm (neck diam.), 70 cm (base diam.), and 90 cm (depth).

Pit 14 (**Fig. 11**): drop-shaped, rather narrow compared to its depth; located on Terrace 5; a heap of small stones, measuring 8.5 cm in diameter, rather than slabs sealed its mouth; filled with ashy soil, animal bones and pottery sherds (**Fig. 40: 7**); dimensions: 85 cm (neck diam.), 80 cm (base diam.), 1.80 cm (depth).

Pit 15 (**Fig. 11**): pear-shaped; bore traces of a violent fire; found beneath Burial 8; originally cut into brown stony soil; filled with grey ashy soil, chunks of charcoal, animal bones and pottery sherds.

## Burials

Of the nine burials uncovered in the course of the 2009 excavations, seven were stone cist tombs (Burials 1–4, 6–8). Burial 5 was placed inside a re-used circular pit (Pit 12), not an uncommon practice, whereas Burial 9, a jar burial placed beneath the floor of Building 5, is an unusual custom.<sup>54</sup>

In building the stone-walled tombs, a pit was dug into the earth and their walls were constructed with basalt rocks of varying sizes, laid horizontally in the dry stone technique. The top of the tombs were sealed with short timber beams and covered with stone slabs. All tombs had an

<sup>54</sup> For the re-use of pits, see Abramishvili *et al.* 1980, pp. 85–88 (Ghramakhevistavi), Sadradze *et al.* 2007, p. 31 (Tserovani).

entrance, located either on the eastern (Tombs 1–3, 7 and 8) or southern side (Tomb 4), blocked by a substantial slab of stone, which was removed if other occupants had to share the space at a later time. Tomb 2 was the only example of re-use. The remains of earlier individuals were pushed aside, unceremoniously it seems, and the recently deceased was placed in a crouched position. The dimensions of the tombs varied, and generally fell within the following ranges: 1.3–2.5 m (length), 1.1–2.0 m (width), and 110–80 cm (depth). No preference is shown in orientation in any of the tombs, with individuals placed either on their right or left sides, and heads pointing east (Burials 1–3, 8), south (Burial 4), or north (Burial 7). Grave goods were modest. Burial 1, for instance, yielded a ceramic vessel and a spindle-whorl, Burial 4 a spindle-whorl, and Burial 8 a jar. Attention should be drawn, though, to the practice attested in Burials 2, 5 and 8 of paving the earthen floors with fragments of large ceramic containers, presumably part of a specific burial rite.<sup>55</sup>

Burial 1 was well constructed with medium-sized basalt field-stones of varying thicknesses and sizes (Fig. 12). The stones were laid horizontally in a dry stone manner and small stones filled the gap between the tomb walls and the earthen pit. The pipeline cutting damaged the tomb's southern part and roofing, but its dimensions could be easily determined: 2.1 m (length), 1.3 m (preserved width), and 1.3 m (depth). The tomb was orientated along an east-west axis. An upright, basalt slab, resting on an oblong stone laid horizontally, placed on the inside of the chamber, served as the entrance; a small pit lay beneath the threshold. This combination presumably facilitated the removal of the slab. Another small pit was dug against the northern wall. The tomb belonged to a male about 30–35 years old.<sup>56</sup> He was placed on his right side with head pointing east, and accompanied by a red and black ceramic container and a bone spindle-whorl, both facing the deceased (Fig. 31: 4–5).

Burial 2 resembled Burial 1 in some of its features (Fig. 13). It was built with basalt field stones, which were generally more uniform and larger in size than those used for Burial 1. This tomb was cut into the whitish matrix that lies beneath the brown top soil and it was also orientated east-west. Although the modern cutting damaged its southern side, its dimensions were evident: 2.5 m (length), 1.8 m (preserved width), and 90 cm (depth). Its roof comprised slabs of stone supported on the sidewalls and partly on wooden beams, judging by traces of wood found in the fill. An upright slab and a horizontal threshold comprised the tomb's entrance. Four individuals were buried in this tomb. Two males, about 20–25 years and 50–55 years old, were probably the earliest occupants. Their remains were pushed into the north-west corner when the third individual, a 25 year old male, was laid to rest. Shortly after burial his remains were moved to the western part of the chamber. The articulated nature of some of the bones, suggest that certain ligaments were still intact, and the body had not decomposed fully. The last individual to be placed in the tomb was a female (40–45 years old). She was found in the north-east corner of the tomb, lying on her left side, in a crouched position, with head pointing to the east. The earliest burials were laid on a floor of ceramic sherds, which, like the bones of the deceased, were shoved aside. The sherds on the floor belonged to ovoid-bodied jars (Figs 31: 7, 53: 3; 32: 1), which may have been purposefully broken.

<sup>55</sup> The practice of paving floors with ceramic sherds is also attested at Sos Höyük VA and İkiztepe, where they were used in domestic contexts, see Sagona and Sagona 2000, p. 60; figs 32–33.

<sup>56</sup> L. Bitadze determined the sex of individuals at Chobareti.

Burial 3 recalls some of the same constructional features (Fig. 14). Its walls were with two courses of large, well defined rectangular stones. An upright slab sealed the entrance. The roof was a combination of horizontally laid narrow stone slabs and wooden beams. Orientated along a north-east to south-west axis, the pipeline cutting damaged the tomb's southern side. The tomb was found 35–40 cm below the surface, and its preserved measurements are 1.8 m (length), 1.1 m (preserved width), by 85 cm (depth). The skeletal remains were of a juvenile, lying on his left side, with head pointing to the north-east. No grave goods were found in the tomb, though they might have been placed there originally.

Burial 4 was asymmetrical in plan, conforming approximately to a rectangle, orientated south-east to north-west (Figs 14–15). It was found at a depth of 70 cm. Despite damage to its southern side, its size could be discerned: 1.35 m (length), 1.0 m (preserved width), and 1.0 m (depth). Unlike the other tombs, its entrance was situated on its southern side. The walls of the tomb were dry set with field stones of varying sizes. A 30–40 years old male was placed on his right side, in a crouched position, with his head pointing to the south-west. The only object found in the tomb was a bone spindle-whorl placed behind individual's back (Fig. 31:6).

Burial 5 was placed in Pit 12, which measured about 1.2 m in diameter (Figs 14–15). A 30–35 years old male was placed in a crouched position on a floor of pottery fragments, with his head pointing north. Beneath the sherds was around a metre of ashy soil. The deceased was not buried with any grave goods.

Burial 6 was almost completely destroyed, except for a small portion along its northern edge, found at a depth of 1.2 m (Fig. 16). The tomb was built of small basalt stone and was empty of grave goods. Its preserved dimensions were 90 cm (width) and 35 cm (depth). The skeletal remains were in poor condition and did not enable the age and sex of the individual to be determined.

Burial 7 conforms to the same plan and mode of construction as the other stone-built chambers (Fig. 16). It was rectangular and built of medium-sized basalt stones. Its roof was damaged, but was presumably built with a combination of horizontal slabs and wooden beams. An upright slab positioned within its north-north-east wall formed its entrance. Inside were the remains of a 5 years old child, laid to rest in a crouched position, with head pointing to the north-north-east. There were no accompanying grave goods in the tomb. Tomb dimensions: 1.4 m (length), 1.1 m (width), and 70 cm (depth).

Burial 8 was generally well preserved. Its walls were built with a combination of upright slabs of basalt, horizontally laid slabs and an in-fill of smaller stones (Figs 17–18). Rectangular in shape its roof comprised two large slabs laid horizontally, originally supported by a beam or beams. Its orientation was east-west, and it was located at a depth of 75–80 cm. In size, it conformed to the general range — 1.5 m (length), 1.1 m (width) and 90 cm (depth). A large upright slab, resting on a long stone, and supported on the outside by another, sealed the entrance. The skeletal remains of two females were found in the tomb. One (40–45 years old) had been pushed into the north-west corner of the tomb, whereas the more recent interment, a 30–40 years old, was found on her right side, with head pointing to the east. The floor of the tomb was paved with pottery sherds. That the sherds were mostly reconstructed into whole vessels suggests that they were possibly broken for the burial (Fig. 32: 2–3). An intact ceramic container was placed in the north-east corner of the burial (Figs 32: 4; 53: 6).

Burial 9 represents an unusual mode of interment that does not conform to the Kura-Araxes tradition (Figs 19; 24: 2). It was a jar burial, placed beneath the floor of Structure 4, near its north-west wall. The vessel had a pair of loop handles linking shoulder to neck (Fig. 33: 1). Although the southern side of the burial was damaged, the burial could be clearly distinguished — a child about a year old, placed on its left side, in a crouched position, with head pointing to the north-west. There were no grave goods. Infant jar burials in the south Caucasus are not common. They have been found, among other sites, at Ovçular Tepe, in Nakhichevan, where one burial (Locus 17002) also yielded three copper axes, at Büyük Kesik and Leyla Tepe in Azerbaijan, and at Berikldeebi V2, in Shida Kartli.<sup>57</sup> In all cases, their context is clearly Late Chalcolithic. Moreover, the associated material culture — Chaff-Faced Ware, rectilinear mudbrick architecture, and even the use of stamp seals — is generally taken to reflect intrusive influences from north Syrian and Upper Mesopotamian region.

### *The 2011 Investigations*

Four new trenches each measuring 5 x 2 m were opened in 2011 (Fig. 2). In addition, excavations resumed on Structure 4, begun in 2009. Trench 1 lies 7 m north of the pipeline and is oriented north to south. A 10 cm thick layer of turf and topsoil was followed by a matrix of brown-blackish soil and small pebbles. Medium and large size basalt stones (in size 10–20 cm) came to light at the depth of 80 cm, but comprised tumble, conforming to no coherent plan (Fig. 20). Then followed a white-greyish layer, comprising an eroded deposit above the bedrock. Below this layer, in the central and western parts of the trench, at the depth of a meter, was a cultural, ashy deposit comprising small stones and pottery fragments characteristic to the Kura-Araxes culture. Three basalt stones were aligned in the middle of the trench, near its eastern wall at the depth of 1.15 m. Two of them were lying directly on the bedrock, whereas the third one was in the southern part of the trench partly lying over the ashy deposit. This third stone was positioned over Pit 16, which was full of ashes. The pit was ovoid, widening to the north — it was impossible to fix the southern part of the pit because Pit 17 had cut it — where it reached a depth of 60 cm. Its western and eastern sides yielded a charcoal layer; no ceramic sherds were found in the pit. Pit 17 cut Pit 16. Although the precise shape of the Pit 17 could not be determined, it was approximately 1.0–1.2 m deep, along the eastern flank of the trench, and had a base that measured one metre in diameter. The pit contained a matrix of charcoal pieces, an ashy layer and pottery sherds. Pit 18 was further down, located at the depth of 2 m within the southern side of Trench 1. It was ovoid in shape and at least 30 cm deep; it was impossible to explore it further because of its position within the trench.

Trench 2 lay 81.5 m to the north-east of Trench 1. It was oriented north to south. Several stones, aligned along an east-west axis, appear to have been purposefully placed there (Fig. 20). Following the removal of topsoil, small- and medium-sized stones were encountered at the depth of 30 cm. Associated with this deposit was a stretch of a wall, comprising a single course of five stones oriented from west to east positioned in the southern part of the trench. Kura-Araxes body sherds covered parts of the floor.

<sup>57</sup> Marro *et al.* 2011: 70, photo 14 (Ovçular Tepe); Akhundov 2007: fig. 4 (Leyla Tepe); Museyibli 2007: figs 10–12 (Böyük Kesik); Djavakhishvili *et al.* (forthcoming) (Berikldeebi). In contrast to the southern Caucasus, infant jar burials are a common feature in Upper Mesopotamia, as is seen at Tepe Gawra, east of the River Tigris (Peasnell 2002 fig. A.6).

Another section of a wall appeared in Trench 3. It consisted of five elongated stones in the middle of the trench, about 30 cm below the topsoil (Fig. 21). The wall ran from west to east and was 20 cm wide, rising up to 40 cm in height. The second stone from the west was tall and tapered, protruding the modern surface. An ash layer, a metre thick and 65 cm wide, ran along the wall. It contained a considerable quantity of Kura-Araxes pottery fragments, including diagnostic pieces. Owing to the steepness of the slope, part of this cultural layer had been washed away.

After the removal of a 20 cm layer of topsoil in Trench 4, excavators encountered a layer of brown-blackish soil, which comprised a mixture of small- and medium-sized stones, pottery sherds, and bone fragments of large domestic animals (Fig. 21). No traces of any structures were found in this trench.

### *The 2012 Investigations*

The main focus on the saddle was in Squares F42 and G42, where excavations continued in Structure 4, a large stone building first exposed in 2009 (Figs 22–24). Structure 4 was not the first feature encountered. Above it, relatively close to the surface (Locus 100), was a band of stones averaging around 3.0 m wide (Locus 102), which ran obliquely from the northwest corner to the southeast of the trench. There is no observable preference for rock sizes, which varied from 27 × 24 × 8 cm to 16 × 16 × 7 cm. The stones were set in brown soil, about 20 cm below the surface. Beneath this stretch of stones was a layer of greyish white matrix (Locus 101), an eroded deposit of limestone that covers the bedrock. What purpose this band of stones served remains unclear, though it is suggestive of a pathway. That the stones effectively sealed some of the foundations of Structure 4 indicates the path must have been laid after 3000 cal BC, but a more precise date is not possible at this stage.

Although the southern half of Structure 4 was dug away when the pipeline corridor was constructed, its dimensions remain sizeable — the length is no less than 9 m and its maximum preserved width measures 1.50 m. The whole structure is set into the slope of the hill. Its north wall is built up against an earthen face and comprises a dry-stack of small- and medium-sized field rocks, carefully selected with one flat surface. The wall is 20–30 cm thick, but well preserved to a maximum height of 1.4 m. Unlike the other terraced structures (nos 2 and 3), though, this substantial wall is not straight. Rather it curves noticeably, suggesting that the original plan may have been pear-shaped or even drop-shaped. Two shorter, internal walls compartmentalise the interior space. The easternmost wall is solid and two courses thick (plugged with smaller stones), whereas the other wall is hollow, comprising a pair of parallel stones, some set upright, separated by a gap (Locus 105). The purpose of this hollow feature is unclear, and probably served as a niche rather than a wall. A concentration of cereal grains and a basalt saddle quern are good indications that the area around the hollow feature was used to process food.

The floor in the eastern half of Structure 4 has yet to be reached, but the soil above it is a loose, greyish-brown matrix (Locus 103). A stone-built hearth associated with neck fragments of a large pot were positioned in the western side. Nearby, a small stone platform abutted the north-western side of the wall. Scattered across the earthen floor was occupational debris, including pottery sherds, fragments of horse-shoe-shaped andirons (portable hearths; Figs 28; 29: 1; 43: 5, 54:5), and a stylised horned animal moulded from clay (Fig. 29: 2). Beneath the

floor, beaten to a hard surface and measuring 2–3 cm thick, lay a jar burial of a child (Burial 9), discussed above.

Another interment (Burial 10, Locus 106), a small, stone-lined cist grave, was located just outside the building (Fig. 25). Only half of the tomb is left, damaged when the pipeline corridor was cut, but enough survives to ascertain its shape — a rectangle with rounded corners. Its walls were constructed from stones of different sizes, some placed upright. No grave goods were found, presumably destroyed when the grave was cut, and the only skeletal material was a cattle *Phalanx* bone.

Terraced, stone structures, generally single-roomed and rectilinear in plan, have been found elsewhere in Georgia. They appear at Tetrtskaro, Samshvilde, Abastumani, Amiranis Gora at Akhaltsikhe and Akhalkalaki to mention a few.<sup>58</sup> However, the curved wall at Chobareti is unusual and recalls the building at Tetrtskaro and the curved wall at Samshvilde.

Two other squares were opened on the saddle in 2012 — N49.1 and L47.4. Although N49.1 registered considerable anomalies in the GPR analysis and yielded cultural material, it did not contain any discernable floor.<sup>59</sup> It mostly comprised a tumble of large rocks in the eastern half, associated with black earth (Locus 300). Square L47.4 fared little better, though it did produce a concentration of small stones (Loci 201 and 202), suggestive of the stone formation in Squares F42 and G42, but nowhere as large or distinctive.

#### UPPER OPERATION: THE CITADEL

In 2012, we also began investigations in the Upper Operation, where an unimpeded view of the surrounding countryside is afforded in all directions. We focused on two areas: Squares B48 and D49/D50. Square B48 is situated on the edge of the Upper Operation, and incorporates a segment of the stone fortification wall, which curves around the summit. Much of the season was spent clearing the debris (Locus 501) that had accumulated in the Soviet military trench dug on the inside of the fortification wall (Fig. 26), and articulating the wall itself (Locus 505). Measuring approximately 2 m wide, the fortification wall is rubble-filled and edged with large field rocks; those on the outer edge are about 50 cm in length, whereas the stones on the interior face are smaller. The superstructure of the defensive system would have risen above these stone foundations. Judging by the lack of any mud brick debris, it was most likely a wooden construction, perhaps in-filled with mud. Against the outer face of the fortification wall, about 80 cm below the top of the rubble, a series of large flat stones (Locus 510) were carefully positioned as reinforcements.

Inside the fortification wall, another wall also quite large (Locus 504) abuts it at right angles. This appears to be a later addition, though its stratigraphic relationship to the main perimeter wall must await further clearance. In the northern half of Square B48, bedrock protrudes the surface and slopes sharply towards the wall. A rubbly layer of small stones (Locus 501) lay immediately below the grassy surface and was mixed within a matrix of black soil. The stones appear to be deliberately laid to create a surface, but again its exact function and date, as well as its stratigraphic

<sup>58</sup> Gobedjishvili 1978, p. 18; Mirtskhulava *et al.* 1998, pp. 71–72; Chubinishvili 1963, pls 2–3; Ordjonikidze 2004, fig. 23.

<sup>59</sup> The Ground Penetrating Radar prospection results will be discussed in a subsequent report.

relationship with the main fortification wall (disrupted by the Soviet trench) remain uncertain at this stage. One thing is clear, namely, the ancient builders made use of the bedrock as a solid foundation for the construction of walls (Locus 502) and also exploited its naturally formed depressions as niches.

In Squares D49 and D50, our main objective was the removal of turf to expose stone foundations very close to the surface (Locus 400). Juxtaposed five metre squares were cleared to reveal a number of straight walls and corners, belonging to rectilinear structures (Locus 401), immediately to the north of the fortification wall. Although we have no overall plan as yet (Fig. 27), there are some features worth noting. In Square D50.3 the main foundations are about a metre wide, define on both sides by a row of large stones each with a flat surface aligned edge to edge, facing out, into a room. A rubble packing of small stones filled the core of these foundations. On either side of the foundation wall, is the base of a 'platform', comprising small to medium-sized stones. The larger 'platform', on the northern side, is about 1.75 m wide. A considerable number of sherds mostly belonging to large containers were found on its surface.

#### RADIOCARBON DATES

(*Antonio Sagona*)

Reliable radiocarbon readings for the late prehistory and the early historic period of the southern Caucasus are still quite rare, when compared with other regions of the Near East and even the northern Caucasus.<sup>60</sup> A major objective of the Chobareti project is to establish a suite of dates from secure contexts. So far we have eleven readings from samples collected during the 2011 and 2012 seasons (Figs 28–38). Nine were analysed at the Waikato Radiocarbon Laboratory (New Zealand), whereas two were examined at Saclay Laboratory (France). All the radiocarbon samples were dated using Accelerator Mass Spectrometry (AMS). In these readings reliance has to be placed on samples of carbonised wood (twigs), which supplied eight of the readings. The other three were samples of charred seed remains. Given that these seeds were not single-entity samples and were found clustered together in secure contexts, there is no uncertainty attached to their taphonomy. Although the results of the grain samples are quite consistent and from the same context, they nonetheless suggest that the dated material was not deposited as a single event but over two or possibly three very close events. The eight charred twigs are also from secure deposits. We are confident that in the years ahead further short-lived samples will be acquired, including bone, in the hope of providing as precise a chronology as possible.

The conventions for quoting radiocarbon dates and supporting information used here conform to the international standard known as the Trondheim Convention.<sup>61</sup> These results are conventional radiocarbon ages.<sup>62</sup> The calibrated date ranges have been calculated using a probabilities

<sup>60</sup> Chernykh 2011. A. Sagona is grateful to Fiona Petchley (Waikato Radiocarbon Laboratory) for reading this section on radiocarbon.

<sup>61</sup> Stuiver and Kra 1986.

<sup>62</sup> Stuiver and Polach 1977.

method at a resolution of one year and OxCal v4.1.7.<sup>63</sup> Accordingly, date ranges are quoted with the end points rounded to single years. Ranges are quoted at 68.2% and 95.4% confidence; the calibrated date ranges referred to in the commentaries are those with the highest probability for 95.4% confidence unless otherwise specified.

Looking at the eleven dates as a whole, it is very clear that they all fit comfortably within the last three centuries of the fourth millennium BC. The charred seeds date range is tighter than that of the charred wood. All three grain samples came from within the same general area, around the hollow wall ('niche') in the centre of the Square F42. One reading (Wk-34457) falls within the upper end of this time bracket (3338–3208 cal BC). The other two (Wk-34458 and Wk-34459) are closer to 3000 cal BC and appear to belong to a single event; they were associated with a fragment of a basalt saddle quern (Fig. 51: 2; 57: 3).

**Wk-34451** 4490 ± 33 BP (AMS measurement)

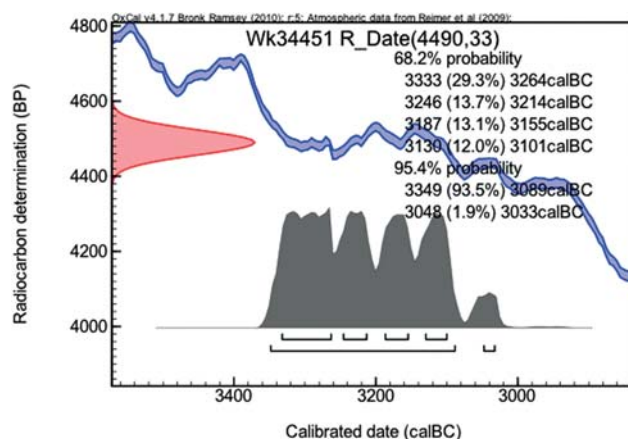
*Sample:* Chobareti 1, collected 25 August 2009, submitted in July 2012 by A. Sagona

*Context:* Building 3, floor level.

*Material:* charcoal

*Calculated date:* 68.2% probability 3333–3264 cal BC

95.4% probability 3349–3089 cal BC



**Wk-34452** 4470 ± 36 BP (AMS measurement)

*Sample:* Chobareti 2, collected 22 August 2009, submitted in July 2012 by A. Sagona

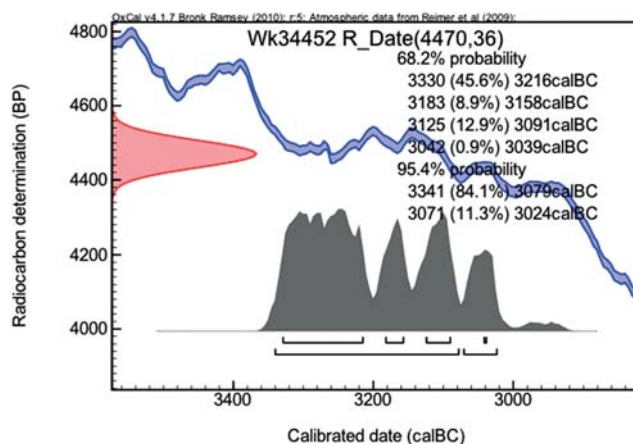
*Context:* One metre below the surface in Pit 7, Trench II.

*Material:* charcoal

*Calculated date:* 68.2% probability 3330–3216 cal BC

95.4% probability 3341–3024 cal BC

<sup>63</sup> Stuiver and Reimer 1986; Bronk and Ramsey 2010.



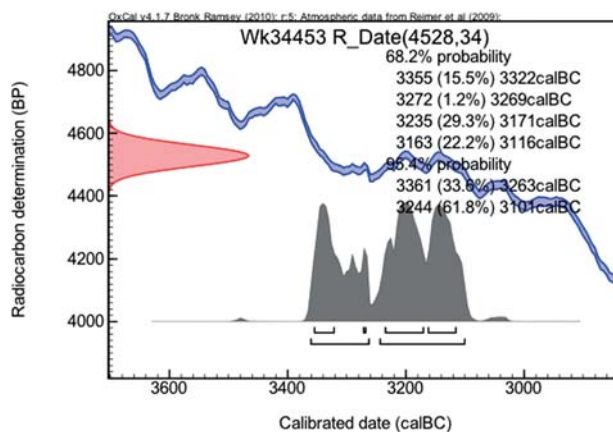
Wk-34453 4528 ± 33 BP (AMS measurement)

*Sample:* Chobareti 3, collected 23 August 2009, submitted in July 2012 by A. Sagona

*Context:* The base of Pit 13, 90 cm below the surface in Trench 6.

*Material:* charcoal

*Calculated date:* 68.2% probability 3235–3171 cal BC  
95.4% probability 3244–3101 cal BC



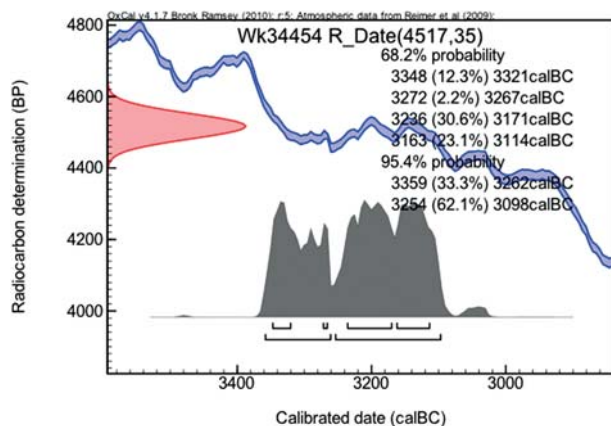
Wk-34454 4517 ± 35 BP (AMS measurement)

*Sample:* Chobareti 4, collected 27 August 2009, submitted in July 2012 by A. Sagona

*Context:* Base of Pit 14, 1.8 cm below the surface in Trench 12.

*Material:* charcoal

*Calculated date:* 68.2% probability 3236–3171 cal BC  
95.4% probability 3359–3262 cal BC



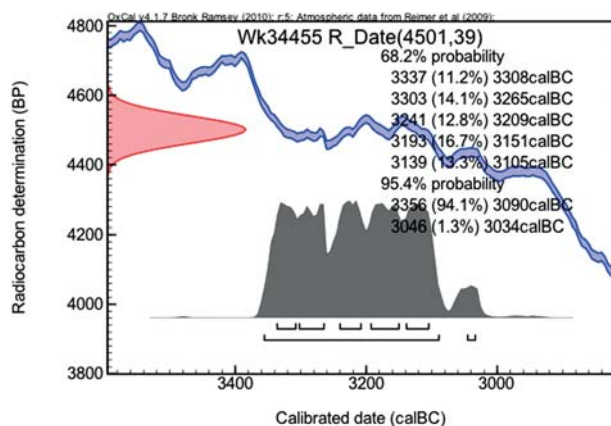
**Wk-34455** 4501 ± 39 BP (AMS measurement)

*Sample:* Chobareti 5, collected 27 August 2009, submitted in July 2012 by A. Sagona

*Context:* Base of Pit 7, 1.0 cm below the surface in Trench II.

*Material:* charcoal

*Calculated date:* 68.2% probability 3193–3151 cal BC  
 95.4% probability 3356–3090 cal BC



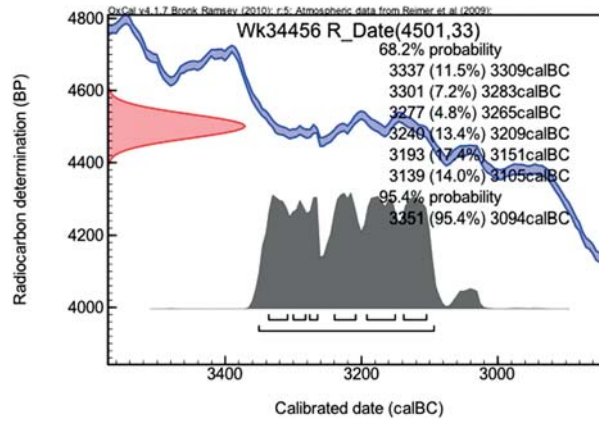
**Wk-34456** 4501 ± 33 BP (AMS measurement)

*Sample:* Chobareti 6, collected 26 August 2009, submitted in July 2012 by A. Sagona

*Context:* Pit 15, 25–30 cm above the base, and 1.0 cm below the surface in Trench 6.

*Material:* charcoal

*Calculated date:* 68.2% probability 3193–3105 cal BC  
 95.4% probability 3351–3094 cal BC



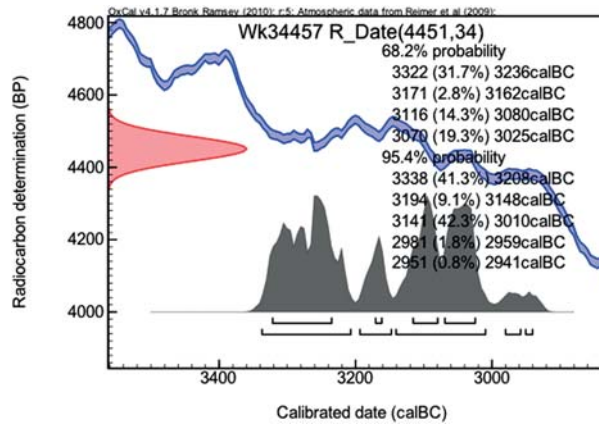
Wk-34457 4451 ± 34 BP (AMS measurement)

*Sample:* Chobareti 7, collected 21 June 2012, submitted in July 2012 by A. Sagona

*Context:* Square F42.1, Locus 103, Basket 28, S. 29

*Material:* Charred grain

*Calculated date:* 68.2% probability 3322–3236 cal BC  
95.4% probability 3338–3208 cal BC



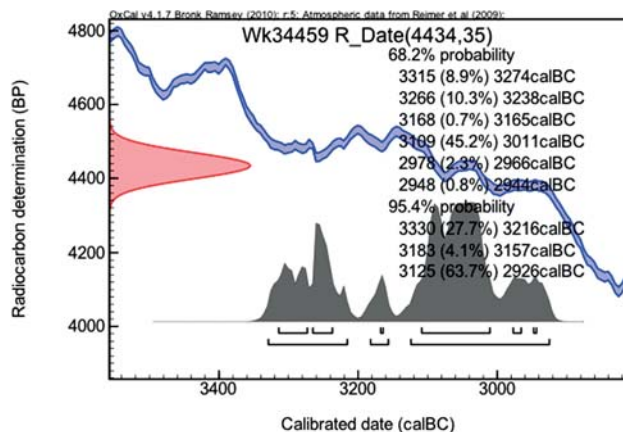
Wk-34458 4451 ± 34 BP (AMS measurement)

*Sample:* Chobareti 8, collected 22 June 2012, submitted in July 2012 by A. Sagona

*Context:* Square F42.1/F42.4, Locus 103, Basket 29, S. 50

*Material:* Charred grain

*Calculated date:* 68.2% probability 3118–3024 cal BC  
95.4% probability 3195–3007 cal BC



**Wk-34459** 4434 ± 35 BP (AMS measurement)

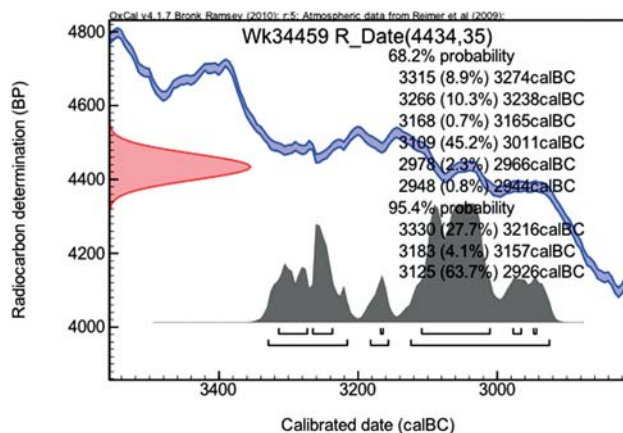
*Sample:* Chobareti 9, collected 22 June 2012, submitted in July 2012 by A. Sagona

*Context:* Square F 42.4, Locus 103, Basket 29, S. 45

*Material:* Charred grain

*Calculated date:* 68.2% probability 3109–3011 cal BC

95.4% probability 3125–2926 cal BC



**SacA-27471** 4500 ± 30 BP (AMS measurement)

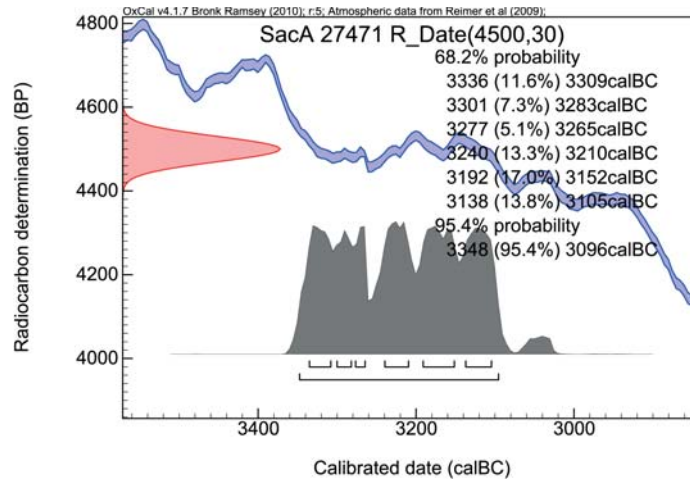
*Sample:* Chobareti 10, collected [25 August 2011], submitted by E. Messenger

*Context:* Pit 16

*Material:* Charcoal

*Calculated date:* 68.2% probability 3192–3152 cal BC

95.4% probability 3348–3096 cal BC



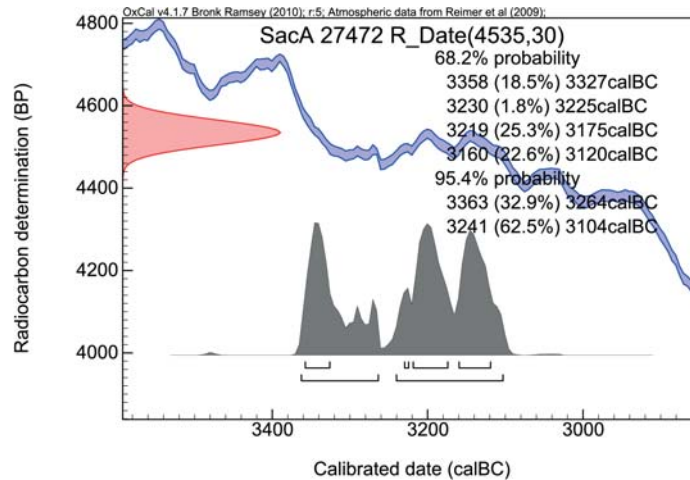
**SacA-27472** 4535 ± 30 BP (AMS measurement)

*Sample:* Chobareti II, collected 26 August 2011, submitted by E. Messager

*Context:* Pit 17

*Material:* Charcoal

*Calculated date:* 68.2% probability 3219–3175 cal BC  
95.4% probability 3241–3104 cal BC



#### ARTEFACT ANALYSIS

(Claudia Sagona, Antonio Sagona, and Kakha Kakhiani)

Broadly speaking, the distribution of ceramics conforms to a clear pattern. Those collected from the structures, graves and pits in the saddle (Lower Operation) belong mainly to the Kura-Araxes

and contemporary horizons, whereas ware types from the Upper Operation are overwhelming of late Antique and Medieval date at this stage. Out of context sherds found in the clearing activities of Square B48, points to an earlier Iron Age settlement. Ware types currently represented by a single sherd and pottery sherds found only in the fields below site, collected during a brief pilot survey conducted by Jessie Birkett-Rees in 2012, have not been included in this report. The following brief commentary is followed by a more detailed data on the ware types and forms.

## Discussion

There are several noteworthy features of the pottery repertoire from the Lower Operation. First, is the range of pottery found in association with Kura-Araxes, in Structure 4. There are three other ware types in addition to Kura-Araxes: Chaff-Faced Ware, Hard Orange Drab, and Yellow-on-Red. Second, is the preponderance of pale brown Kura-Araxes pottery, as opposed to vessels with a red and black colour scheme. Third, the clear evidence we have on the technology of ceramic manufacture.

The bulk of Chobareti Kura-Araxes ceramic containers have fine-grained clay that is hard-fired to shades of pale brown. Sherds are sharp-edged, though its cross-section often laminates vertically, clearly revealing their mode of manufacture (Fig. 52). Some vessels are built up with coils, which leave undulating surfaces that are moderately polished on smaller containers and left matt on large jars. Other vessels are built using slabs of clay that were applied to a sand-filled cloth bag, whose textile impressions are preserved at the centre of the core (Fig. 52: 6). Forms include large tall-necked jars, with an everted, rail-like rim, and small, round-bodied pots, with tall flaring necks, ending in a thin and simple rounded lip, and strap handles spanning from rim to shoulder. Unusual for this ware type is a hole-mouthed jar with a rounded thickened rim. Surface treatments can have a 'leathery' look. Most vessels are undecorated, but some sherds bear broad, flattened knobs, about 3.8–4 cm in diameter, occasionally with deep dimples in the centre. Many of the elements of this category of Kura-Araxes — its pale brown colours, sandy paste, and the popularity of tall necks — are generally attributed to the earliest phase (ca. 3500 BC), but our suite of radiocarbon dates clearly show that they continued until 3000 cal BC. The second category of Kura-Araxes is more refined. Its clay is compact and fine, well levigated, and fired hard, enabling the construction of thin-walled containers. Tellingly, this group can be decorated with linear patterns incised after firing, a trait it shares with examples from Sos Höyük and other sites.<sup>64</sup>

Hard Orange Drab Ware is the fabric term we have assigned to a handful of late Sioni pottery fragments. This is a provisional attribution because most pieces do not bear the revealing traits such as the decorated rims. The predominant type at Chobareti is the deep hole-mouth jar with plain rim, and walls that break sharply with a jagged edge; perforated vessels are also represented. Its fabric is moderately well levigated with fine gritty inclusions. A pale grey core points to an incomplete oxidisation process. Named after the type-site in Georgia by Medea Menabde and Tamaz Kiguradze, this ware type is at home in the southern Caucasus but rare in Anatolia, where its westernmost limit is the north-eastern highlands.<sup>65</sup> The chronology of the Sioni horizon remains very loose, a situation caused by too few differentiated and secure sequences, and a shortage of

<sup>64</sup> Sagona and Sagona 2000: fig. 8: 4.

<sup>65</sup> Menabde and Kiguradze 1981; Kiguradze and Sagona 2003; Marro 2008; for an overview of the south Caucasian Chalcolithic, see Chatainger 1995.

radiocarbon dates. Even so, that Sioni ceramics have been found in association with early Kura-Araxes and Chaff-Faced Ware make it reasonable to place the tail end of the Sioni horizon in the second half of the 4<sup>th</sup> millennium BC.<sup>66</sup>

Chaff-Faced Ware is most often associated with north Mesopotamia, simply termed ‘Amuq F’, ever since the Braidwoods used it to characterise the Late Chalcolithic sequence in the Amuq Plain.<sup>67</sup> The few fragments from Chobareti display some of the hallmarks of this ware type, though they are not a slavish imitation of the Mesopotamian variety. Both surfaces bear clear impressions left once the chaff temper was burned in the firing process. Smoothing is a trait, though most pieces are plain. The fabric is consistently pale brown in colour, indicating little attempt at experimentation with firing. Interestingly, the vessels are handmade, and their forms so far are restricted — holemouth jars, straight-sided bowls and scoops. All this suggests a certain degree of hybridity in the potting tradition, which bear more important social and cultural implications.

The relationship between Kura-Araxes ware, Late Sioni and Chaff-Faced Ware has been a topic of lively debate in recent years.<sup>68</sup> Whereas once the southern Caucasus and eastern Anatolia in the late 4<sup>th</sup> millennium BC were viewed as conforming predominantly to the Kura-Araxes horizon, it has become increasingly obvious that the scene in the highlands was much more complex. The relationship between these various cultural horizons in the earliest phase of the Kura-Araxes and the question of chronology has been thrown into sharp relief recently with investigations at the remarkable site of Areni-1 Cave, where according to the excavators radiocarbon readings “...extend the date for the first appearance of KA-type artifact assemblages to 4100–3800 CAL B.C., several hundred years before the previously accepted earliest date. Areni-1 can therefore be placed in the putative hiatus between the Late Chalcolithic Sioni and the fully developed KA culture.”<sup>69</sup> The emerging picture, then, displays a culturally interactive region, where hybridity of material culture was more common than we suspected. Even the conventional view that Chaff-Faced Ware is derived solely from northern Mesopotamian has been questioned.<sup>70</sup> Catherine Marro has aptly described this situation as follows:

My present interpretation is that the Highlands were subject to a complex territorial organisation involving Transcaucasian and Mesopotamian human groups, whose activities in the area could be either permanent or seasonal: their ecological setting would be chosen accordingly.<sup>71</sup>

Ceramics from the Upper Operation belong to the broadly consistent ware category termed Crisp Brickly. The fabric is moderately hard and well levigated with fine mixed gritty particles. It is evenly fired to a range of colours ranging from reddish yellow through browns to pale reds. Except for the large storage containers, vessels were thrown on a wheel, resulting in the characteristic striations and relatively thin walls. Sub-categories of this ware group have been distinguished:

<sup>66</sup> Marro 2008.

<sup>67</sup> Braidwood and Braidwood 1960: 229.

<sup>68</sup> Kiguradze and Sagona 2003; Marro 2008; Palumbi 2008.

<sup>69</sup> Wilkinson *et al.* 2012. In relation to this is the question of the origins and spread of the red and black colour scheme that characterises standard Kura-Araxes. Giulio Palumbi (2003, 2008) has presented a strong argument in favour of an Anatolian homeland, but recent evidence from Ovçular Tepe (Marro *et al.* 2011), like that from Areni-1, Cave, causes us to think again.

<sup>70</sup> Marro 2010.

<sup>71</sup> Marro 2007, p. 92.

those whose paste is flecked with golden mica, vessels that show signs of pattern burnishing on the exterior surface, and containers that have been slipped in red. Vessels which are not burnished (or have a perfunctory polish) or slipped, are generally decorated with bands, finger-impressed or plain, placed near the shoulder; bands with deeply impressed 'horseshoe' motifs have also been found. Wiped surfaces, wavy combed designs, and finger-impressed pie-crust rims are also part of the ornamental repertoire. Although this pottery type has an extensive distribution both in the southern Caucasus and neighbouring eastern Anatolia, we do not have any radiocarbon readings from the Upper Operation. Attributing Crisp Brickly ware a precise timeframe is not possible as yet; the best we can do is to assign it to the broad stretch of late Antique and Medieval.

### Methodology of Ceramic Categorisation

In the presentation of the ware types that follows, data are grouped under the following headings:

*Context* — Excavation loci at Chobareti.

*Manufacture* — Refers to the methods of construction such as HM (hand-made), WM (wheel-made), coil built, slab construction, or mould-made.

*Fabric and Texture* — Notes the qualities of the clay such as its soapy feel, refined, fine, medium or coarse texture, or general observations on its appearance.

*Inclusions* — Refers to the nature of the grits, chaff or other additives mixed into the clay matrix by the potter (as observed at a macroscopic level).

*Firing* — Notes variations in colour through the core of the vessel, burnt or under-fired wares that resulted from variations of kiln temperatures and stacking practices used to load the kiln.

*Hardness* — A general description of the fired clay will be given usually in the range of soft, friable, crisp, hard, clinker, stone-wares.

*Nature of Breaks* — Jagged, sharp, dull, eroded edges, undulations from coil manufacture can be observed on the broken edges of the pottery fragments.

*Colour Range* — Core and surface colours have been assigned a colour code and most often the given colour name after the Munsell *Soil Colour Charts*, according to standard archaeological practice.

*Surface Treatment* — Various forms of finishing vessel surfaces may include slipped surfaces, burnishing, smoothing, straw-wiping, surfaces that are simply left plain, or true vitreous glazes.

*Decoration* — The mode of ornamentation and nature of the designs.

*Principle Shapes* — Depending on the forms, the classification categorises vessels from the closed shapes (amphorae/storage jars/pithoi, urns/pots, jars (wide neck), bottles, jugs, juglets, flasks, spouted flasks, beakers/mugs; other types), through open shapes (bowls, cups with handles/open pots with handles) to other pottery forms (lids, incense pots/braziers/stands, cooking pots/pans/trays, pot stands, scoops, lamps, closed lamps, moulds).

### Ceramic Ware Types

A description of individual ceramic finds illustrated in the figures is provided in the Catalogue.

*Kura-Araxes (Medium Grey Brown)*

**Context** — Certainly in good quantities in the excavations of 2009, predominantly found in areas F42/G42, G46, L47.4, N49.1 in the subsequent investigation.

**Manufacture** — Hand-made. Vessels are built using one of two modes of production. First, the coil technique, which is clearly evident in the laminated cross-sections — elongated voids at the coil seams, dips and curves of the sections and sometimes in the undulations of the vessel wall. Second, vessels can also be manufactured with slabs of clay. This entails constructing a container over a mould formed by a sand-filled cloth bag, whose impressions are visible when the pottery fractures along the seam lines of successive layers applied on the front and/or back of the cloth (SPF G42.2/F42.1/2–/3, **Fig. 52: 6**). Slab construction is evident the cross-section (**Fig. 52: 2** SPF G42.2/F42.1/4). Its laminations and voids tend to run vertically, whereas in coil construction the laminations are generally horizontal to oblique (**Fig. 52: 1–2, 4–5**).

**Fabric and Texture** — Friable and fine-grained, evenly levigated clay. The vessels tend to be reasonably uniform in appearance when compared to pottery recovered at sites in eastern Anatolia especially in the Pasinler and Bayburt Plains.

**Inclusions** — Sand is the most common additive to this ware.

**Firing** — Usually grey to pale grey at the inner core, firing to a pale brown from well into the core to the surfaces.

**Hardness** — Generally, hard-fired, though some examples are friable

**Nature of Breaks** — Sharp breaks; some less well-fired examples can be friable.

**Colour Range** — Mid-grey c.10YR 4/1, or paler hues, grey 7.5YR 6/4–7/4 through to brown 5YR 5/6, 7.5YR 6/6 or buff.

**Surface Treatment** — Most small- to medium-sized containers have a compact light to medium burnish on the exterior. Some have very well-produced slipped and burnished surfaces in pale brown hues, resulting in a leather-like appearance. Large vessels appear to be matt. The colour range varies, leaning toward a pale brown (c. 10YR 7/4) and tan slipped exterior surfaces that can have a leathery appearance. The well-known and black-and-red colour scheme of ‘typical’ Kura-Araxes pottery is less common at the site.<sup>72</sup>

**Decoration** — The only attempts at decoration are applied flattened knobs, about 3.8–4 cm in diameter (SPF103/37, **Fig. 42: 6**) and the same types of knobs with deep dimples in the centre (SPF103/38, **Fig. 42: 8**); they appear more decorative than functional. A few examples of flattened knob-like projections at the rim of pots have also been noted (SPF G42.2/F42.1/1, **Fig. 42: 8**). Possible fugitive traces of graffiti scratched into the exterior surface of one fragment from the shoulder of a tall-necked jar with flaring rim (**Figs 35: 3; 54: 2**).

**Principle Shapes** — Large tall-necked jars, with an everted, rail-like rim; a variation includes an everted rim flattened on the lip. Very large and thick handles with a rounded section probably belonged to a large pithoi. Smaller pots comprise another category. They can have tall flaring

<sup>72</sup> Cf. Sagona and Sagona 2004, Ware 3.1.

necks ending in a thin and simple rounded lip, and strap handles spanning from rim to shoulder. The juncture of neck and shoulder is well defined, and may represent an offset. A few shapes have rounded bodies and tall necks that slope into the rim (SPF 103/2, Fig. 42: 2). One example of a fenestrated stand with a flat, disc-base was recovered (Fig. 43: 3). Bases are generally flat.

#### *Kura-Araxes (Refined)*

**Context** — the number of refined examples is limited at Chobareti, but a few fragments have been identified in L42.1, L47.4

**Manufacture** — Hand built and very thin-walled.

**Fabric and Texture** — Well-levigated, compact paste.

**Inclusions** — Refined biscuit with occasional small gritty particles in the paste.

**Firing** — Even through out the biscuit.

**Hardness** — Hard-fired

**Nature of Breaks** — Sharp and angular; SPF 201/2 (Fig. 45: 10) is a flat base fragment, abraded from use.

**Colour Range** — Clay is mid-brown (2.5YR 4/2) through to reddish yellow (5YR 7/6).

**Surface Treatment** — Interior is smoothed, but not burnished while the exterior has a moderately burnished surface.

**Decoration** — Fine linear, scratched decoration made post-firing is near the resting surface of the base.

**Principle Shapes** — representative diagnostics are limited to flat base and a thin vertical, pierced lug, both from small closed vessels.

#### *Drab Brown*

**Context** — Not found in great numbers, this ware may represent a domestic cooking ware with a short lifespan, such is the nature of its manufacture. Most fragments have come from the Lower Operation, F42.1/F42.4; G42.2; L47.4.

**Manufacture** — Hand made, mostly thin-walled, probably built with slabs of clay. The fragments found suggest that the vessels made of this ware were hastily produced when the occasion demanded, with very little care taken in their appearance or durability.

**Fabric and Texture** — Moderate to poor levigation.

**Inclusions** — A medium amount of small to large mixed gritty inclusions in the paste (SPF201/1, Fig. 46: 1); some voids; golden micaceous inclusions are also represented in some fragments (SPF201/6).

**Firing** — poorly fired, darker at core firing browner near the surfaces.

**Hardness** — Fragments vary from moderately hard to quite brittle, friable and eroding.

**Nature of Breaks** — Quite jagged and sharp.

**Colour Range** — Pale yellowish-red (5YR 5/6) at the core, firing darker and browner (5YR 3/2) near the surfaces. Other fragments can be dark brown-black at the core (10YR 2/1) firing paler yellowish brown (10YR 6/2–5/2) near the surfaces

**Surface Treatment** — One example of a base has irregular short straw impressions (SPF 201/1, Fig. 46: 1) and an interior with gouged lines, possibly post-depositional damage; surfaces are matt and drab.

**Decoration** — none preserved.

**Principle Shapes** — SPF 200/1 appears to be a flattened and thin floor fragment from an open vessel, perhaps a cooking pan. The simple rounded lip of a moderately narrow-necked jar is equally poor in quality (SPF201/6, Fig. 46: 2); this example is relatively thicker in the wall.

#### *Chaff-Faced Ware (Pale Brown Chaff)*

**Context** — This ware category has some elements — chaff impressions, drab colouring, use of chaff and relatively thin walls — that are suggestive of earlier Chalcolithic wares. To date found in squares F42.1/F42.2; F42/G42.

**Manufacture** — Hand manufacture using coil technique has left distinctive undulations in the surface of some fragments (e.g. SPF 103/4, Fig. 44: 2). The use of chaff and few grits has resulted in a light-weight fabric.

**Fabric and Texture** — The clay is well-levigated, having a medium-fine appearance.

**Inclusions** — Chaff is visible in the paste as voids and/or impressions on the surfaces. The occasional fine gritty particles, especially black, are added sparingly.

**Firing** — Hard and well-fired, the ware shows no attempt with firing experimentation, and accordingly its colour range is limited.

**Hardness** — Quite crisp with a hollow ring when handled.

**Nature of Breaks** — Moderately sharp and medium-fine angles at the edges.

**Colour Range** — Mostly, an even-coloured, reddish yellow (7.5YR 6/6) through the section; others tend towards pinker hues (7.5YR7/4).

**Surface Treatment** — Surfaces are either matt or smoothed in the pink (7.5YR 8/4) to reddish yellow (7.5YR 6/4) range. Impressions of chaff are visible the on walls and bases. Smoke-blackening is present, possibly from domestic use. Clear scratches left from straw wiping in rough attempts to smooth the surface are evident on some fragments (e.g. SPF 103/16, Fig. 44: 1; SPF 103/33, Fig. 44: 4)

**Decoration** — No decoration has so far been observed, although the chaff impressions and wiping may have been a rustic finish desired by the potters.

**Principle Shapes** — Hole-mouth jars with relatively thin-walls and simple rounded lip measuring c.24 cm in diameter are represented (SPF103/4, SPF103/16). One open bowl with straight walls slopping in toward the resting surface has been documented (SPF103/5, Fig. 44: 3). Bases are flat with a simple profile (SPF 103/6, Fig. 44: 5). A tray fragment with scooped front was roughly smoothed around the opening rested on a flat base.

*Hard Orange Drab*

**Context** — Only a few examples have been identified to date and these occur in Square F42.1/F42.4.

**Manufacture** — Built by hand with the coils, resulted in obvious, elongated and compressed voids along seam lines.

**Fabric and Texture** — Medium-textured and moderately levigated clay was used in vessel manufacture.

**Inclusions** — A moderate amount of fine gritty inclusions; the white gritty particles stand out against the dark grey matrix. Chaff voids are evident in the clay.

**Firing** — The biscuit can be inadequately fired, showing a marked difference between the dark grey core and the margin of reddish yellow around the edges and surfaces.

**Hardness** — The fabric is hard-fired.

**Nature of Breaks** — Sharp and jagged, tending towards less severe edges on some examples.

**Colour Range** — Pale grey (N5/) or dark grey (N4/) core firing reddish yellow (5YR 7/6 and 7/8).

**Surface Treatment** — Drab and non-burnished surfaces are the norm. Vessels can be smoothed on both surfaces, short of burnishing (SPF 103/7, Fig. 44: 8), whereas others have a crazed, perhaps heat damaged quality with fine cracks and pits in the surface (SPF 103/8, Fig. 44: 9).

**Decoration** — None has been recorded to date.

**Principle Shapes** — Shapes are limited at this stage, but some flat bases are represented (*e.g.* SPF 103/7–103/8) that are smoothed and simple in profile.

*Yellow on Red (Yellow Slipped)*

**Context** — A rare ware, known examples found at Chobareti are from trench F42.1/F42.4.

**Manufacture** — Hand-made, coil technique is likely, though none of the small fragments so far have yielded evidence of method of manufacture at the macroscopic level.

**Fabric and Texture** — Poorly levigated and medium-textured, the clay has a rough and fine sandpaper texture to the touch.

**Inclusions** — Occasional fine gritty inclusions are present; more prevalent are chaff voids, which are moderately dispersed through the matrix.

**Firing** — Degrees of firing vary. Even reddish-yellow (7.5YR 6/6) through the cross-section indicative of thorough firing is recorded (*e.g.* SPF 103/17, Fig. 44: 7) while other fragments are grey at core (5YR 4/1), but redder (5YR 6/8) near the surfaces (*e.g.* 103/18, Fig. 44: 6).

**Hardness** — Friable clay that is light weight.

**Nature of Breaks** — Eroding, dull and friable at the edges.

**Colour Range** — Tends towards the reddish yellow (5YR 6/4) in cross-section, whereas its core can be a pale grey (5YR 6/1–5/1).

*Surface Treatment* — The interior can be slipped and smoothed in pale grey, with a few examples of pink. Surfaces on the exterior have a distinct pale greenish yellow (5Y 8/2), or yellow (2.5Y 8/4) slip, appearing in a marked colour contrast with the fabric.

*Decoration* — None has been found to date.

*Principle Shapes* — Thick-walled body sherds [*ca.* 2–1.7 cm] indicate the manufacture of large containers. Compared to Chaffed-Faced Ware, the walls of these vessels are noticeably thicker, more in line with black-and-red Kura-Araxes wares. No diagnostic fragments have been recovered as yet.

## LATE BRONZE AGE (?)

### *Hard Red (Yellow Slip)*

*Context* — This ware was found immediately below the surface deposits of L47.4; L47.6; N49.1.

*Manufacture* — Hand-made, most likely built with coils.

*Fabric and Texture* — Medium-coarse paste with sandy appearance though well-levigated.

*Inclusions* — A moderate amount of mixed fine to large gritty particles is in the clay.

*Firing* — Inconsistent firing is indicated by the varying colour range through the section; redder near the interior of the biscuit, whereas the outer edges tend towards grey.

*Hardness* — Very hard, stone-like fabric (*e.g.* SPF 200/6, Fig. 46: 3).

*Nature of Breaks* — Sharp and moderately jagged edges.

*Colour Range* — Red (2.5YR 6/4) to reddish yellow (5YR 6/6) core and grey (5YR 4/2) in the core.

*Surface Treatment* — Both surfaces are coated with a thick matt, yellow (2.5Y 8/3; 5Y 8/4) slip that has a tendency to craze. On another body fragment (200/9, Fig. 46: 3) the overlay of red slip was thicker, but similarly eroded.

*Decoration* — The interior was washed in a maroon (7.5R 5/1), fugitive slip, which was been carried over the exterior (*ca.* 2 cm down the wall). The end result is a thin, ill-defined band of dark maroon-red around the rim. The outer lip of one jar fragment has regularly spaced notches decorating the outer lip (SPF 200/6)

*Principle Shapes* — A large closed hole-mouth jar with flattened cut rim (SPF 200/6) that slopes oblique out has been identified.

### *Yellow on Black (Painted)*

*Context* — Found in the surface material of N49.1.

*Manufacture* — Likely to have been hand built, but hard to determine owing to smoothing and slip; undulations in section might indicate coil technique.

*Fabric and Texture* — Fine to medium texture; compact and well-levigated.

*Inclusions* — Fine mixed gritty inclusions.

*Firing* — Even grey colour throughout section.

*Hardness* — Hard, compact fabric.

*Nature of Breaks* — Moderately fine, eroded and rounded breaks.

*Colour Range* — Dark grey (10YR 4/1) through core.

*Surface Treatment* — The exterior has a yellowish (2.5Y8/2) slip, whereas the interior is slipped in a very pale brown (10YR 7/3).

*Decoration* — Fine thin lines are executed in a dark brown (2.5Y 3/1) paint on the exterior.

*Principle Shapes* — A single body sherd has been identified at present.

## IRON AGE

### *Brown Black (Grey Slipped)*

*Context* — Upper Operation, surface find in disturbed contexts, during cleaning of the citadel wall in B48.

*Manufacture* — Fine striation lines on the interior are suggestive of wheel manufacture; other areas are obscured by burnishing; moderately well-levigated.

*Fabric and Texture* — SPF B48/2 (Fig. 48: 11) is medium textured though compact, hard fabric.

*Inclusions* — Mixed gritty inclusions are angular and they from very fine to large; some breaking at the surface. This fabric is likely to correspond to Ware 6:2:5, ‘Grey-Slipped Brown-Black Ware’ attested at six Iron Age sites in the Bayburt province.<sup>73</sup>

*Firing* — Evenly fired reddish-grey through section.

*Hardness* — Very hard fabric

*Nature of Breaks* — Sharp breaks, medium to coarse in appearance, relative to gritty inclusions.

*Colour Range* — Core is reddish-grey (5YR 5/2) throughout.

*Surface Treatment* — The rim is lightly burnished; streaky burnished on the exterior lower wall, but the groove under the rim on SPF B48/2 is matt.

*Decoration* — Horizontal ridges and wide, shallow grooves decorate under the rim exterior and on the shoulder.

*Principle Shapes* — The single sherd belongs to a closed jar, hole mouth in appearance with thickened lip.

<sup>73</sup> Sagona and Sagona 2004, pp. 201–202.

## LATE ANTIQUE/MEDIEVAL

*Crisp Bricky (Sub-Category: Micaceous)*

**Context** — Predominantly found in the Upper Operation (B48; D50.3; D50.4), but occasional examples were found in the Lower area of Chobareti (G42.2/F42.1; L47.4; N49.1), as part of wash deposit from the upper slopes. Generally, this category equates with Ware 8:1 ‘Crisp Bricky Orange’ from north-eastern Turkey and specifically with Ware 8.1.5, a micaceous type found at seventeen sites.<sup>74</sup> An approximate date for the Anatolian examples is eleventh to fifteenth centuries.

**Manufacture** — Wheel-made with relatively thin walls. Throwing ridges and wheel striated interiors, sometimes smoothed (SPF 401/9, **Fig. 47: 4**). Larger vessels appear to be at least partially hand built with distinct coil ridges visible in the profile, suggesting the construction of the vessel in parts.

**Fabric and Texture** — Fine to medium-coarse textured paste, well-levigated.

**Inclusions** — Can be moderately flecked with very fine to fine golden micaceous particles. Fine, evenly distributed, mixed gritty particles are also in the paste (e.g. SPF 100/3, **Fig. 44: 10**; SPF 401/8); sometimes black crystalline particles are visible to the eye (e.g. SPF 401/9).

**Firing** — The paste is generally well-fired and generally even coloured through section.

**Hardness** — Medium hard fabric.

**Nature of Breaks** — Edges are moderately sharp, showing signs of some erosion.

**Colour Range** — Exterior surfaces range around reddish yellow (7.5YR 6/6). Clays vary slightly in hues between browns (2.5YR 5/8; 5YR 5/6–6/4) to reddish brown and pale red (5YR 6/6). The less well-fired examples remain grey at the core (7.5YR 5/1–5/3).

**Surface Treatment** — Drab surfaces are usual; occasional fragments have a perfunctory burnish. A slurry finish or thin wash has also been recorded (SPF 100/3, SPF 401/7, **Fig. 47: 3**). Others fragments have red-slipped surfaces. One jar base has vertically shaved patches around the bottom of the wall in an attempt to neaten and thin the wall down (SPF 401/19, **Fig. 48: 4**).

**Decoration** — Elaborate combinations of decorative features and treatments that have a rustic quality characterise this ware. Large jars have multiple applied bands with finger impressions at regular intervals, mimicking rope designs, high on the vessel wall (SPF 401/8, **Fig. 47: 1**; 401/12, **Fig. 46: 11**). This is occasionally coupled with plain bands (perhaps representing metal bands; SPF 401/9–10, **Fig. 47: 2, 4**). Its lower wall has an all-over design, wiped in a haphazard fashion probably with straw resulting in patches of straight lines angling in various directions (SPF 401/7–9, **Fig. 47: 1, 3, 4**). The thinner finer vessels that have been found on survey, possibly from jugs (SPF 401/12, **Fig. 46: 11**) and bowls can have elaborate combed wavy and straight lines on the exterior. A number of fragments from a smaller vessel have an applied band with sharp and deeply impressed repeated ‘horseshoe’ motifs (SPC 401/21, **Fig. 47: 7**). Jar rims can have finger-impressed pie-crust edges (SPF 401/15, **Fig. 46: 7**).

<sup>74</sup> Sagona and Sagona 2004, pp. 221–223.

*Principle Shapes* — Large pithoi fragments have been found in quantities (SPF 401/7–10). Elaborately grooved and ridge handles with finger-impressed dimples probably came from large jars in the repertoire and were applied vertically to the wall of the vessel (SPF 401/13, Fig. 47: 6; 401/20, Fig. 47: 5). Tall-necked jugs can have seams where offset neck and body are joined. One example of this ware (too poorly preserved to illustrate) does have signs of deeply combed horizontal grooves around the vessel wall. Rims can be thickened and decorated with ridges and grooves (SPF 401/26). Bases can be vertically cut to neaten the edges (SPF 401/16, Fig. 48: 3). In one instance, an extremely thick and friable base was found from a very large pithos (D50.3, 401). Resting surfaces — not always completely flat — can be slightly undulating or concave. A small bowl fragment has thickened lip (SPF 100/3, Fig. 44: 10). One high ring base fragment possibly came from an open bowl (SPF 401/24, Fig. 47: 8). A complete profile of a small, footed cup or lid with was preserved in one fragment (SPF 500/11, Fig. 49: 5).

*Crisp Bricky (Sub-Category: Burnished)*

*Context* — Upper sector in B48; D50.3.

*Manufacture* — Depending on the size of vessels, manufacturing techniques vary. The smaller pots are clearly wheel-made (SPF 500/4, Fig. 49: 15; SPF 500/14, Fig. 49: 12); coil technique was adopted for larger storage jars (SPF 500/3). Finely, wheel-rilled, interior walls has been observed (SPF 500/4).

*Fabric and Texture* — Medium-textured clays are used to build larger vessels and fine, well-levigated fabrics were used for smaller, thin walled pots.

*Inclusions* — Voids and generally very fine to small mixed gritty particles are in the matrix; mica can also be present.

*Firing* — Clays were hard-fired, like the other categories of Crisp Bricky ware sections tend to be evenly coloured through the wall of the vessel, sometimes lighter (red to brown) near the surfaces.

*Hardness* — Compact and hard-fired fabric.

*Nature of Breaks* — Breaks are sharp.

*Colour Range* — Grey (7.5YR 5/1; 10YR 3/1) to pale grey-brown (5YR 5/2) at the core, sometimes firing brown (7.5YR 6/4) to reddish yellow (5YR 6/6) toward the surfaces.

*Surface Treatment* — Some vessels (SPF 502/2, Fig. 49: 14) have a pale grey (5YR 6/1) to yellow (10YR 7/2) slip or smoothed self-surfaces that have been burnished to varying degrees.

*Decoration* — Pattern burnishing has been documented (SPF 500/4; 502/2) as well as combed decoration (SPF 502/2), but on the whole the decorative techniques known on other categories of Crisp Bricky wares are so far absent.

*Principle Shapes* — Body fragments (SPF 500/3, Fig. 49: 13; SPF 500/4, Fig. 49: 15; SPF 502/2, Fig. 49: 14) and the flaring rim (SPF 500/14, Fig. 49: 12) from large jars are present.

*Crisp Bricky — (Sub-category: Red-Slipped)*

*Context* — This red-slipped category has so far been identified in sectors B48 and D50.3.

*Manufacture* — Wheel-manufacture is apparent although some examples were possibly thrown on a slow wheel or even modelled by hand (*e.g.* SPF 401/5, Fig. 48: 6).

*Fabric and Texture* — Clays are medium to course in texture and compact; some poorly levigated fragments have been identified (SPF 401/18, **Fig. 48: 8**).

*Inclusions* — Very fine to small mixed gritty particles and mica are in the fabric.

*Firing* — Firing varies from even to sandwiched colours through the section.

*Hardness* — Hard-fired clays.

*Nature of Breaks* — Edges of fragments tend to be sharp and angular.

*Colour Range* — The core of the vessel walls can be dark grey (N3/; 5YR 5/4) throughout, some firing browner (7.5YR 5/3; 5YR 5/6) near the surfaces.

*Surface Treatment* — Surfaces are generally well-prepared and smoothed with thin, patchy red (10R 4/4, 4/8, 5/6; 2.5YR 6/6) wash or paint over the exterior applied in haphazard, rustic fashion. This is usually left matt, but use wear sheen can be present (SPF 401/5, **Fig. 48: 6**).

*Decoration* — The tendency to embellish the surfaces with horizontal grooves (SPF 401/4, **Fig. 48: 5**), incised curved lines (SPF 401/5) and impressed dimples (SPF 401/28, **Fig. 48: 7**) seen in the other categories of Crisp Bricky ware are also documented in red-slipped examples.

*Principle Shapes* — The range of shapes with Crisp Bricky fabric having a red slip tend to be cooking and possibly table wares. One closed pot (SPF 401/4) has signs of heat damage from use in the fire. Other forms include jars with flaring rims and simple rounded lips (SPF 501/4, **Fig. 50: 2**), flaring rimmed open bowls (SPF 501/3, **Fig. 50: 3**) and larger closed vessels, possibly jugs and pitcher fragments (SPF 402/5). Like the previous micaceous category, handles are modelled by hand and deeply grooved and ridged (SPF 401/28, **Fig. 48: 7**).

#### *Eroding Light Red*

*Context* — Upper sector in B48; D50.3; Lower operation in F42.1; L47.4.

*Manufacture* — Wheel-made likely and thin-walled.

*Fabric and Texture* — Light weight and friable clay with fine sandy texture.

*Inclusions* — Mostly white particles in the paste, with the occasional very fine micaceous inclusion.

*Firing* — Even colour through section, thoroughly fired.

*Hardness* — This fabric is soft and it can be scratched with the finger nail.

*Nature of Breaks* — Fabric tends to erode to dull edges and surfaces.

*Colour Range* — Bright reddish yellow (5YR 7/6) in the section, changing to a stronger, darker pale red (2.5YR 6/6) on the surfaces.

*Surface Treatment* — Surfaces are matt and dull.

*Decoration* — No decoration has been recorded so far.

*Principle Shapes* — The thin walls and curvature of the fragments, suggest small and closed vessels such as juglets and cups, but no diagnostics have yet been found.

## MODERN

*Heavy Dark*

*Context* — Chobareti Upper, B48; D50.3

*Manufacture* — An overall rustic appearance suggestive of hand-made manufacture, using possibly coil and slab techniques. This ware probably equates with the modern Heavy Dark ware produced in villages in eastern Turkey.<sup>75</sup> Its main period of production appears to be the nineteenth and early twenty centuries, though it may still be produced in a handful of villages.

*Fabric and Texture* — There are medium-coarse, heavy clay, compact and moderately well-leigated. Other fragments are compact and heavy with a ‘stone’ ware quality (SPF 401/29, Fig. 48: 9).

*Inclusions* — The matrix can have a medium amount of mixed small gritty inclusions and minute particles of mica. No chaff is apparent in the paste.

*Firing* — Mid- to dark-brown through section, the walls can remain darker near the surfaces (SPF 502/3, Fig. 50: 1).

*Hardness* — A hard, almost stone-like fabric.

*Nature of Breaks* — Moderately jagged sections and sharp edges.

*Colour Range* — The clay matrix varies considerably, ranging from brown (7.5YR 3/1–5/3) to dark brown (10YR 3/1).

*Surface Treatment* — Shades of pale brown (10YR 6/2–5/3), brown (7.5YR 6/4) and greys (5Y 3/1) are typical of the surface colours; smoke blackening, streaky burnishing on the interior (SPF 500/7) and/or exterior are represented; when not burnished surfaces can be smoothed and drab. A pale thin and drab yellowish grey (5Y 7/1) slip, with a tendency to crazed coats on the interior (SPF 502/3, Fig. 50: 1). The surfaces can be irregular, slightly undulating and crazed (SPF 502/3) with fine cracks.

*Decoration* — No decoration has been recorded, however, the vertical streaky burnishing on one example (SPF 502/3) was probably an intentional effect ranging in hue from plain greenish yellow (5Y 7/2) to darker grey (2.5Y4/1) where the surface was compressed.

*Principle Shapes* — A baggy deep pot fragment probably came from a jar with vertical rim and rounded, simple lip (SPF 500/7, Fig. 50: 5).

*Stone industry and other Artefacts*

Mention should be made of the stone artefacts from Chobareti. Two traits stand out. First is the number of basalt, saddle-shaped, grinding stones, a good number found scattered on the surface in the Lower Operation prior to excavations in 2009 (Figs 34; 57: 1–3). This and the richness of cereal remains, reflect to the importance of agriculture in the subsistence economy at Chobareti during

<sup>75</sup> Sagona and Sagona 2004, p. 228, Ware 8.11.

the late fourth millennium BC. Although a single find at present a red flint sickle blade (Fig. 56: 5) is in line with this view. Stone pestles are also part of the inventory, with the best examples are from the Upper Operation (Figs 50: 20; 57: 5). Second, is the relative paucity of worked stone tools (Fig. 50: 6–13). Following on from this is the third point, namely the small quantity of obsidian flakes, including a well fashioned projectile point, despite the relative proximity of the Chikiani source (Figs 50: 7, 9, 10, 12–13; 54: 3; 56: 2–4). This may indicate some barrier, cultural or territorial, between the Aspindza region and the Chikiani source. The use of riverine pebbles (Fig. 56: 3) rather than nodules of obsidian from the source itself supports this view. Moreover, it is interesting that, despite the predominance of obsidian at most Kura-Araxes sites, both obsidian and red flint were worked at Chobareti. Three examples of modified pottery sherds (Fig. 50: 17–19), two from the Lower Operation, and a ceramic bead (Fig. 50: 14) are among the small finds. Finally, we have a rim fragment from a glass beaker (Fig. 50: 16) from Square D50, and a small, gilt silver belt buckle (Fig. 50: 15), most likely of recent Ottoman date, found in same square's topsoil.

#### ENVIRONMENTAL INVESTIGATIONS

An important, but sometimes underutilised, component of archaeological research is the study of ancient plant remains from archaeological sites. Archaeobotanical analysis can provide valuable information on ancient crop choices, past diets, landscape use, agricultural techniques and subsistence strategies. In the Caucasus, archaeobotanical studies are relatively rare in comparison to the Near East. After considerable research during the Soviet period, very few archaeobotanical investigations have been conducted in the Caucasus and have only become more common, particularly in Armenia, in recent years.<sup>76</sup> For Georgia, a number of palynological and micro-remain studies of archaeological sites have been published, however there have been no similar archaeobotanical reports from Georgian sites in the last ten years.<sup>77</sup> Indeed, there is a general absence of published archaeobotanical reports of systematically sampled Kura-Araxes sites from the Caucasus nor has particular reference been made to the plant economy of the Kura-Araxes in general. This in has been part due to an assumption that Kura-Araxes were transhumant pastoralists.<sup>78</sup> Recent archaeozoological research contradicts this assumption and instead indicates that the Kura-Araxes had a mixed economic strategy that minimised risk and, in some regions, incorporated year round site occupation.<sup>79</sup> A more nuanced understanding of the Kura-Araxes agro-pastoral economy will only be achieved through integrated programmes of archaeobotanical and archaeozoological research.

Archaeobotanical research, including pollen, phytolith, and plant macroremains analysis, has been initiated at Chobareti to investigate the agricultural strategies, crop selection and landscape use of the Kura-Araxes in the late fourth millennium BC in a high altitude region in the southern Caucasus. To evaluate the diet of humans and animals in such a sub-alpine environment, isotopic analyses were also carried out on zoological and anthropological remains.

<sup>76</sup> For summaries of work conducted prior to 1991 see Lisitsina and Prishchepenko 1977 and Wasylkowae *et al.* 1991. For more recent reports from Armenia see Badalyan *et al.* 2010, Hovsepian 2009, 2010, 2011, Hovsepian and Willcox 2008 and Wilkinson *et al.* 2012 and for Nachivan Ristvet *et al.* 2011.

<sup>77</sup> Kvavadze *et al.* 2004, Kvavadze *et al.* 2007, Kvavadze and Kakhiani 2010.

<sup>78</sup> Kushnareva 1997 p. 195.

<sup>79</sup> Howells-Meurs 2001, Monahan 2007 and Piro 2009.

## THE 2011 ANALYSES AND RESULTS

*Sampling*

## Archaeobotanical remains

During the 2011 fieldwork, Pits 16, 17 and 18 were sampled for botanical analysis.

- For pollen and phytolith analysis, five samples were collected from the lower part of Pit 17 every 10 cm, and six samples were taken from the lower part of the Pit 18, using the same principle.
- For plant macroremains analysis, sediments were collected from the three pits. The sampling is detailed in the following table:

Structure	Ashy layer of Pit 16	Lower part of Pit 17	Upper part of Pit 17	Lower part of Pit 18	Upper part of Pit 18
Volume	4.9 litres	8.7 litres	12 litres	12.5 litres	10.5 litres

## Bones for isotopic analysis

In total, 17 animal and humans bones were collected from occupational and funerary contexts respectively. Human bones were selected in collaboration with Liana Bitadze (Institute of Anthropology, Tbilisi, Georgia). The material corresponds to eight individuals from six burials excavated in 2009. Samples of skull fragments and phalanxes were collected for each individual. They belong to six adults and two children aged from five years old and one year old. Animal bones were selected during the 2011 excavation on behalf Kakha Kakhiani and they comprise nine fragments (eight *Bos* sp. and one *Ovis* sp).<sup>80</sup>

*Methods*

## Archaeobotanical investigations

## Pollen and NPP analysis

Pollen samples were prepared using a 10 per cent solution of potassium hydroxide (KOH), followed by heavy liquid separation and standard acetolysis.<sup>81</sup> Pollen and non-pollen palynomorphs (NPP) identifications were made with reference to atlases<sup>82</sup> and the modern reference collection of the Institute of Palaeobiology of Georgian National Museum.

<sup>80</sup> We thank J. P. Brugal and A. Bruguères, UMR 7269 – LAMPEA, Aix-en-Provence, France, for the identification of the bones.

<sup>81</sup> Faegri and Iversen 1989.

<sup>82</sup> Reille 1992, 1995, 1998; Beug 2004; van Geel 1998; van Geel and Aptroot 2006.

### Phytolith analysis

Phytoliths were extracted from sediment samples using the standard method.<sup>83</sup> Where possible, more than 300 diagnostic phytoliths were counted per sample. Thirteen different categories of phytolith were identified according to their morphology, following several systems<sup>84</sup> and the International Code for Phytolith Nomenclature.<sup>85</sup> Silica skeletons corresponding to fragments of Poaceae epidermis were also identified and counted.

### Plant macroremains analysis

A total of 34.2 litres of sediment were processed in the laboratory of the University of Geneva (Switzerland). Sieves with mesh sizes 4, 2 and 0.5 mm were used. All residues were dried and plant remains were sorted and extracted. Seeds, fruits and other plant macro-remains were identified using the modern reference collection of plant material of the Institute for Prehistory and Archaeological Sciences (IPAS) at Basel University (Switzerland), as well as specialised literature.<sup>86</sup> Additional samples recovered from Pit 18 (14.4 litres) were sieved in the field using a flotation machine built in 2012 (see below).

The 0.5 mm organic fraction of Pit 16 was sub-sampled because of its richness in plant macrofossils. Chaff was sorted in 10 per cent of the sample; other macro-remains in 25 per cent of the sample; remarkable elements in the whole sample. The numerical values for each group were extrapolated to the total volume of the sample applying a correction factor of  $\times 10$  and  $\times 4$  according to the used division.

### Isotopic analysis

Carbon and nitrogen stable isotopes are biomarkers used to restore the trend of diet. Measured on collagen, those markers permit to assess the nature of proteins consumed because the isotopic characteristics of food items are recorded in consumer tissues.<sup>87</sup> Carbon stable isotope ratios are in relation with the photosynthetic pathway of plants and can discriminate plants from temperate environment using the  $C_3$  photosynthesis and plants using  $C_4$  photosynthesis like millet.<sup>88</sup> Carbon stable isotope ratios can also discriminate terrestrial and marine proteins.<sup>89</sup> Nitrogen stable isotopes permit to assess the trophic level of an individual within its foodweb because the more animal proteins are consumed the higher are the isotopic values.<sup>90</sup> The enrichment in heavy isotopes between food items collagen and tissue consumer's collagen are 0–1 per cent for carbon and 3–5 per cent for nitrogen.<sup>91</sup> As isotopic measurements were run on bone collagen a picture of the diet of the last moments (10–15 years) of their life is discussed.<sup>92</sup> Collagens preservation have been verified using 4 criteria: yield of extraction, above mg/g, the percentages in carbon and

<sup>83</sup> Lentfer and Boyd 1998.

<sup>84</sup> Twiss et al. 1969; Mulholland 1989; Fredlund and Tieszen 1994.

<sup>85</sup> ICPN Working Group et al. 2005.

<sup>86</sup> Anderberg 1994; Cappers et al. 2006.

<sup>87</sup> Katzenberg and Saunders 2008.

<sup>88</sup> Smith, Epstein 1971.

<sup>89</sup> DeNiro and Epstein 1978; Schoeninger and DeNiro 1984.

<sup>90</sup> DeNiro and Epstein 1981.

<sup>91</sup> Bocherens and Drucker 2003.

<sup>92</sup> Hedges et al. 2007.

nitrogen, respectively above 30 per cent and 11 per cent and the carbon to nitrogen atomic ratios, between 2.9 and 3.6.<sup>93</sup>

### Results

#### Palynological investigation (*Eliso Kvavadze and Inga Martkoplshvili*)

In the pollen spectra from both Pits 17 and 18, pollen of wheat and other Cerealia are predominant (Figs. 58–59). Pollen grains of wheat crop weeds were also found (*Polygonum*, *Convolvulus*, *Carduus*, *Centaurea*, *Dipsacus*). Coniferous trees such as *Pinus* (pine), *Picea* (spruce) and *Abies* (fir) essentially represent the group of arboreal pollen. Pine is predominant, although there are also large quantities of fir (*Abies nordmanniana*) in the lower part of the Pit 18 (Fig. 59). A similar situation was revealed in the investigation of other grain pits and burials,<sup>94</sup> where fir pollen was found in significantly larger quantities than spruce. In the group of non-pollen palynomorph (NPP), parenchyma cells of wood are main category among the pine wood cells (Figs 60–61). Spores of *Glomus*, fungus that settles only either on tilled or erosion soils,<sup>95</sup> are well represented in the Chobareti spectra. In the archaeological context, *Glomus* spores can be considered a good indicator of agriculture.<sup>96</sup> In Pit 18, there are many spores of the fungus *Glomus*, however, in the upper part, the content of spores of dung fungi *Sordaria* and *Arniium* increases significantly, which is also suggestive for transformation of a grain pit into a refuse deposit. Another interesting feature of the NPP spectrum is that in all samples, the remains of insects and mites were found. The characteristic feature of the spectra is the presence of flax textile fibres among which there are black and blue fibres. Hemp and wool fibres were also found. Of great interest is also the fact that the maximum quantity of flax fibres, including dyed ones, was found at the very bottom of the Pit 17, which suggests that the pit bottom was covered by flax fabric for the purpose of hygiene.<sup>97</sup>

#### Phytolith analysis (*Erwan Messager*)

The sediments sampled in Pits 17 and 18 yielded relatively homogenous phytolith assemblages (Fig. 62). Grasses (Poaceae family) are the dominant taxon in all phytolith samples. In this group, elongate and acicular morphotypes are preponderant while short acicular and bulliform are rare. Rondel and sinuate are well-represented. They correspond to Pooideae sub-family, the main group of Poaceae in temperate areas. Bilobate phytoliths are frequently recorded attesting of the occurrence of the subtropical subfamily: Panicoideae. Owing to the high values in ‘Elongate dendritic’ phytolith morphotype, the assemblages from Pits 17 and 18 are rather different from natural phytolith assemblages. This class of phytolith is known to come from chaff (glumes and lemma) of Gramineae (such as cereals) and is especially abundant at archaeological sites where cereals have been processed (threshing, dehussing and similar activities). Moreover, the significant

<sup>93</sup> DeNiro 1985; Ambrose 1990; van Klinken 1999.

<sup>94</sup> Kvavadze et al. 2010, 2011.

<sup>95</sup> Geel 1998; Geel and Aptroot 2006.

<sup>96</sup> Kvavadze et al. 2011a, b.

<sup>97</sup> Cugny et al. 2010; Gelorini et al. 2011; Menozzi et al. 2010.

amount of silica skeleton (linked phytoliths), corresponding to the fragmented epidermis of Poaceae in the assemblages, show that stems and chaff were probably threshed.

#### Plant macroremains analysis (*Lucie Martin*)

The preservation of plant macroremains is exclusively due to carbonisation. Almost 50 litres of sediment provided more than 11,000 plant remains (Fig. 63). It represents an average of 233.7 items/litre but concentration varies from 6.3 in Pit 18 to almost 2000 items/litre in ashy layers of Pit 16. We attested 44 different taxa, of which 16 identified as species.

The assemblage is composed of caryopses and cereals chaff and of wild plant seeds. Four groups were identified:

- Domesticated plants, represented only by cereals. This group includes einkorn (*T. monococcum*), emmer (*T. dicoccum*), naked wheat (*Triticum aestivum/durum/turgidum*, for short, “*nudum*”), barley (*Hordeum vulgare/distichum*) sometimes hulled, and maybe millet (*Panicum miliaceum*); the presence of well preserved rachis fragments allows us to identify naked wheat as a hexaploid form, from the type *aestivum*.  
Cereals are quite badly preserved: most of them are identified as Cerealia type, *Triticum/Hordeum* or *Triticum* sp. and groups of species like *Triticum monococcum/dicoccum* or *Triticum dicoccum/nudum*”;
- Trees and shrubs, attested by a few seeds: one of *Rosa* sp., one of *Rubus* sp. and several fragments of yew seeds (*Taxus baccata*);
- Ruderal and arable-weeds, dominated by different *Chenopodium* (*C. album* and *C. hybridum*), *Fallopia convolvulus* and *Galium* (*G. aparine* and/or *spurium*); we also determined *Avena* sp., *Buglossoides arvensis*, *Euphorbia* sp. and *Euphorbia helioscopia*, *Hyosyamus niger*, *Papaver* sp., *Polygonum* sp., *Polygonum aviculare*, *Rumex* sp. and *Urtica dioica*;
- A group of various taxa (Miscellaneous), identified for most of them as family group; it includes *Bromus* sp., Brassicaceae, *Carex* sp., Caryophyllaceae, Fabaceae type *Trifolium* and *Vicia*, Lamiaceae, *Poa* sp., Poaceae, Polygonaceae, Rosaceae type *Potentilla*, *Teucrium* sp. and maybe *Teucrium botrys*.

Representing more than 90% of the assemblage, cereals caryopses and chaff are clearly dominating in the three pits, obviously used to store cereals and products from crop processing. The hypothesis of this function is strengthened by the presence of common arable weeds such as *Chenopodium album* (white goosefoot), *Fallopia convolvulus* (black bindweed), *Euphorbia helioscopia* (sun spurge) or *Polygonum aviculare* (prostrate knotweed).

In general, *Triticum* (wheat) is the most important cereal while *Hordeum* (barley) and maybe *Panicum* are found in anecdotal quantity: they could be for example residues of old cultivations. Within *Triticum*, it seems that *Triticum dicoccum* (emmer) and *T. aestivum/durum/turgidum* (naked wheat) — probably the hexaploid form — are the most cultivated species. Emmer predominates in Pits 17 and 18 while naked wheat is more important in Pit 16 (Fig. 64).

The three pits show high amounts of chaff, especially in Pit 16, where only 6.8 per cent of wheat remains are caryopses. The assemblage is composed of rachis and awn (not counted) fragments, spikelet forks and glume basis, probably waste products of threshing. Together with caryopsis and

small weeds seeds, it is an evidence of cereals processing on the site. These secondary products can be stored and used for fuel or forage.

#### Dietary practices of humans from Chobareti (*Estelle Herrscher*)

Human and animal bones present yields of extraction above 15.6 mg/g ( $m = 63.7 \pm 27.5$  mg/g,  $n = 17$ ). The percentages of carbon and nitrogen are above the limits required (percentage C:  $39.9 \pm 1.7$  per cent; percentage N:  $15 \pm 0.7$  per cent) and the C/N ratios have a mean of 3.2 indicating a well preservation for all collagen samples. Carbon isotope values range from  $-20.5$  to  $-18.9$  per mill for animals ( $n = 9$ ) and from  $-19$  to  $-18.1$  per mill for humans ( $n = 8$ ) (Fig. 65). The  $\delta^{13}\text{C}$  values would indicate a consumption of food items coming from an environment constituted mainly by  $\text{C}_3$ -plants. The possible millet consumption for animals or for humans does not appear significantly in the carbon isotope variability. The animal nitrogen isotope values ( $\delta^{15}\text{N}$ ) range from 3.3 to 8.1 per mill present variability in agreement with their herbivorous diet. The human  $\delta^{15}\text{N}$  values, from 9.8 to 13.9 per mill, exhibit a wide dispersion, owing to the one year-old child, who was probably breastfed at death. Despite a small sample, the human isotopic variability highlights a homogeneous dietary practice. The dietary economy seems mainly to indicate the exploitation of livestock nourished by  $\text{C}_3$ -plants, as well as a direct consumption of cereals as wheat or barley. The nitrogen isotopic mean enrichment of 4.7 per mill between the local animal and humans suggests an important consumption of animal proteins that could suggest a greater exploitation of livestock products than farming products. Curiously, however, the total quantity of animal bones so far recovered from Chobareti is very small. By contradistinction, the number of querns (and quantity of cereal macroremains) is considerable for the area exposed.

#### Conclusions based on the 2011 data

The first archaeobotanical and isotopic investigations performed at Chobareti site has answered several questions concerning subsistence activities and land use in subalpine environment of the south Caucasus during the Early Kura-Araxes period. All botanical data, including pollen, phytolith as well as plant macroremains, indicate that the Chobareti population was engaged in agriculture. Cultivated crops were essentially wheat, in particular *Triticum dicoccum* (emmer) and *Triticum aestivum* (naked wheat). Threshing process is attested on the site by phytolith as well as macroremains assemblages, widely dominated by chaff. The occurrence of grain grinders on the site shows that the *chaîne opératoire* of cereal processing was completed on the site. Pits 16, 17 and 18 were probably, in a first instance, storage pits (silos), filled with the refuse from the threshing process. All botanical data demonstrate that the Chobareti community was an efficient farming group, able to grow wheat up to 1500 m asl. The importance of agriculture and particularly crop cultivation in the Javakheti uplands is further reflected even at death, when pots filled either with wheat porridge or raw grain were placed in the grave with the deceased.<sup>98</sup>

Carbon and nitrogen stable isotope analyses conducted on animal and human remains reveal a coherent consumption of vegetal and animal food items from a  $\text{C}_3$  plant ecosystem for both of them. Such results indicate bovids and ovid either were feed by humans on cultivated cereals (wheat or barley) or they were grazing land without specific grasses such as millet. The human

<sup>98</sup> Kvavadze *et al.* 2011, 2012.

isotopic dispersion suggests a similar dietary practice within the group. Meat consumption was possibly local livestock, although the small sample analysed precludes the identification of species preferentially consumed. Even if a high enrichment in  $^{15}\text{N}$  between animals and humans would be in agreement with a high consumption of animal proteins, it is clear that the Chobareti community also consumed cereals and legumes.

## THE 2012 ANALYSES AND RESULTS

### A Flotation Tank For The Caucasus (*Catherine Longford*)

As part of the 2012 Chobareti field season a flotation machine was constructed to enable the processing of soil samples for archaeobotanical analysis. The machine is a modified Siraf machine modelled on those used at Kaman Kale Höyük and Çatal Höyük.<sup>99</sup>

Flotation was conducted in a household garden in the village of Zveli. In order to maintain adequate water pressure and, so as not to flood the nearby vegetable patch, the flotation machine was designed to recycle water in a closed system. Flotation machines operate according to basic principles. When soil is added to a tank filled with water, light material, including charcoal, separates from the soil, floats to the surface of the water and is then caught in a fine mesh as it flows over the spout. Heavy elements in the soil sample sink into a mesh lining the tank and are collected; smaller particles fall to the bottom of the tank. In a recycling system, the water that flows over the spout and through the fine mesh, pools in the two settling tanks and is then pumped back into the main flotation tank via internal sprinkler pipes.

Most of the components of the flotation tank were obtained from plumbing stores in the nearby town of Akhaltsikhe.

A local plumber was hired to help construct the machine. The flotation tank was made primarily from plastic. This proved to be beneficial in terms of manoeuvrability and construction; however, there is a risk of deformation if the tank is not positioned on a level surface. A 200 litres plastic barrel was selected for the main tank. Two large water tanks, one 400 litres the other 300 litres were used as settling tanks for the silt and as water reservoirs to run the system. These needed to be modified by removing the top of the tanks with an electric saw, to permit water flow. The pitched roof of the 400 litres tank was fashioned into a spout and reattached with bolts and silicone sealant to the side of tank for water to flow into 300 litres tank. Water was pumped from the 300 litres tank into the main flotation barrel using a 240 volts electric water pump. **Figure 66: 1–3** shows the layout of the flotation system. Accurate dimensions are provided, however these should only be used as a guide if making a replica system.

Water entered the main barrel through a plastic sprinkler system of tubes inside the tank. The rose of pipes was made into a branching T-shape using PPR plastic pipes and fittings (**Fig. 66: 4**). These pipes were hand welded together with the assistance of local plumber, Nugzavi Diasamidze. Two nails acted to support the rose in the barrel. Perforations, 2mm in size, were made in the rose pipes with a thin nail. Jets of water from the sprinkler help lift any charcoal that maybe in suspension

<sup>99</sup> For the Siraf Machine see Williams 1973, the design at Kaman Kalehöyük see Nesbitt 1995, and Çatal Höyük see Hastorf and Near 1997. The construction of the flotation machine was also influenced by many discussions held over the years with Glynis Jones, Mike Charles, Andrew Fairbairn, Gemma Martin and Ellen Simmons.

to float to the surface of the water. Water pressure can be increased through the sprinklers by using a graduated series of pipes decreasing in diameter as they enter the barrel and form the rose. Ball valves were used to control the water flow into the main barrel either via the pipe rose or a hose and spray gun. The hose and spray gun were attached to a diversionary pipe to permit targeted spraying of the sample in the barrel (Fig. 66: 5). A spout was created at front of the tank, using a flat panel of the already cut 400L tank roof and wood. This was screwed on to the barrel and the edges sealed with silicon. In order to catch the light fraction as it floated over the spout of the main barrel, a thin synthetic cloth, or chiffon, with a c.200 $\mu$ m weave, was pegged to line a bucket with its base removed. The bucket was suspended beneath the spout by string looped around the rim of the barrel (Fig. 66: 6). Inside the main barrel a 2 mm flexible mesh, often sold as fly screen for windows, was used to catch the heavy residue. This was pegged to the rim of the barrel and the spout. Silt must be emptied from the flotation tank regularly to prevent it from accumulating above the rose and blocking the pipes. To enable discharge of the silt, a large 2.5 inches wide pipe was attached at the base of the tank via a ball valve used to regulate the flow.

The excavators collected samples for archaeobotanical analysis on-site from sealed floor levels and areas of interest. A minimum of 20 litres was collected per sample and transported to the flotation area in sugar sacks. One label recording the sample information was tied to the outside of each sugar sack and another was placed inside the sack with the soil. The volume of each sample was recorded using a calibrated bucket prior to flotation. All the tanks were filled with water from the household spring, to the point at which water was almost ready to flow over the spouts of the flotation and first settling tanks. Soil was slowly added to the flotation tank a couple of litres at a time. It is advisable not to overfill the flotation tank with soil as the weight of the heavy residue can tear the flexible mesh and also impede charcoal from floating to the surface. Any large rocks were removed as they entered the water to prevent breakage of the flexible mesh. Once charcoal was visible on the water surface the electric pump was started and the inlet valve attached to the rose opened. Floating material then flowed over the spout and into the chiffon lining the bucket beneath the spout. Additional agitation of the sample was provided by hand to encourage the disaggregation of soil clumps and by the spray gun. When no more material floated to the surface, nor remained in suspension in the water, the inlet valves were closed; the chiffon was removed, tied with a label and hung in the shade and the heavy residue laid out to dry on a labelled sugar bag. For large samples it was necessary to split the light fraction over multiple labelled chiffons and periodically empty the heavy residue onto labelled sugar sacks as the mesh became too full. When dry, the light fractions were transferred to labelled resealable plastic bags and the chiffons cleaned and reused. The dried heavy fraction was sorted in the field for finds and sunken botanical material.

Overall, the flotation system operated well. It cost 625 Georgian Lari and took three days to produce. At an optimum level, with two people operating the flotation machine, 100 litres of soil was processed each day. Over the 2012 season, the main tank needed to be cleaned after processing approximately 200 litres of soil on average, although the silt accumulation can vary according to the sample composition. The settling tanks did not need to be emptied until the end of the field season. Being primarily made of plastic the flotation machine was easily manoeuvrable when empty, however, it was susceptible to deformation. When removing the rooves of the settling tanks it was discovered that it is import to leave a portion of each roof intact to provide structural rigidity otherwise the tank could warp with the weight of the water, as occurred with the 400 litres

settling tank. Buckling is also preventable if the tanks are placed on a level surface. One modification of the design could be to position a removable shelf or grid above the sprinkler rose inside the main barrel to support the flexible mesh and prevent it from tearing, as the heavy residue weighs it down.<sup>100</sup> If an electricity source is unavailable a petrol pump could be used, instead of an electric pump. In locations where water recycling is unnecessary the design of the main barrel would remain unchanged although the settling tanks would not be needed. Water could either be continuously sourced from a tap or, if the pressure was insufficient, pumped from a reservoir.

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In the 2012 season, eighteen samples were floated with an average soil volume of 38 litres. Investigation of the 2012 charred plant remains from Chobareti is currently at a preliminary stage. The material was transported to the Department of Archaeology at the University of Sheffield for study. In the laboratory, samples were separated into coarse and fine fractions using 1 mm and 0.3 mm sieves. Initial analysis of samples from trench F42 locus 103 has identified a large quantity of free threshing wheat grains (*Triticum aestivum/durum*), few hulled barley grains (*Hordeum vulgare/distichum*) and rare crop weeds including *Lolium sp.*, *Fallopia convolvulus*, and *Silene sp.* No free threshing wheat rachises were found in the samples to identify the type of free threshing wheat present nor did the preservation of the barley grains permit the distinction of six or two row barley. The high proportion of free threshing wheat grains in comparison to weed seeds, the lack of cereal chaff and the presence of insect damaged grains suggests that the material represents part of a cleaned and processed supply of free threshing wheat stored in the building. Similar crop assemblages have also been found at the late fourth millennium Kura-Araxes sites of Gegharot<sup>101</sup>, Arapan III<sup>102</sup> and Tsaghkasar<sup>103</sup> in Armenia and Sos Höyük<sup>104</sup> in Northeastern Anatolia. These high altitude sites, together with the material from Chobareti, show a marked consistency in the crops cultivated. Future analysis of archaeobotanical material from Chobareti will seek to investigate trends in Kura-Araxes crop choices. As more of the site is excavated, systematic sampling for archaeobotanical remains will help to explore the nature of agricultural activity at the site, trying to identify areas of crop production, processing, storage and consumption. Future archaeobotanical research at Chobareti will provide important information on the plant economy of the Kura-Araxes in Georgia, a relatively under researched aspect of the Kura-Araxes culture in the Caucasus.

#### CONCLUSIONS

Chobareti is providing a detailed picture of ancient life in the high altitudes of the southern Caucasus. Its topography is distinctive — a saddle bookended by two rocky knolls — and its position is strategic, overlooking the Kura River valley not far from where it meets the Uraveli. At present two main periods are represented: the late 4<sup>th</sup> millennium (ca. 3300–3000 BC) and the late Antique and Medieval period. In addition, Burial 9, the jar burial found beneath the floor of Structure 4, offers

<sup>100</sup> This design is shown in Nesbitt 1995.

<sup>101</sup> Hovsepyan 2009, pp. 97–101.

<sup>102</sup> Hovsepyan 2010.

<sup>103</sup> Hovsepyan 2011.

<sup>104</sup> Longford, Drinnan and Sagona 2009.

the tantalising possibility that Chobareti may have an earlier (and probably thin) Late Chalcolithic settlement. This may also explain the few pieces of orange ware found in certain pits, which presumably cut the earliest occupation. If this turns out to be the case, Chobareti could provide evidence for the elusive stratigraphic link between the Kura-Araxes tradition and its antecedents. The Kura-Araxes settlement is important for several reasons. First, it is a good example of a terraced site, which includes an unusually large, curvilinear building, a substantial number of pits, and a growing number of burials. Second, it is a fully agricultural site, which has yielded a conspicuously small quantity of animal bones. This fact alone will require us to re-think the subsistence economy of highland Kura-Araxes communities, traditionally viewed as pastoral settlements. Third, we have a Kura-Araxes ceramic assemblage from the settlement and pits that is predominantly pale brown in colour, and found associated with a small quantity of Chaff-Faced Ware and Sioni ware. By contradistinction, the burials have ceramics fired to a black-and-red colour scheme, raising the question of their date. If we follow the view that the contrasting colour scheme is intrusive to the southern Caucasus, then the burials may be later. Radiocarbon readings will help resolve this issue, but in any case Chobareti provides us with the circumstances to monitor the usage of pale brown and dark Kura-Araxes ceramics. Finally, the eleven radiocarbon (AMS) dates from reliable contexts enable us to better understand the nuances of cultural change and interaction in this region.

In the Upper Operation, we have begun to expose a stronghold, defended with a substantial stone fortification wall and large buildings. Based on ceramics, the buildings close to the surface are late Antique and Medieval in date, but the date of the perimeter wall is uncertain at this stage. An interesting question we will need to address in the years ahead is the stratigraphic relationship between the fortification wall and the settlement within. Ground-penetrating radar points to another, deeper level. Judging by the few out of context early Iron Age sherds this settlement might belong to the first millennium BC.

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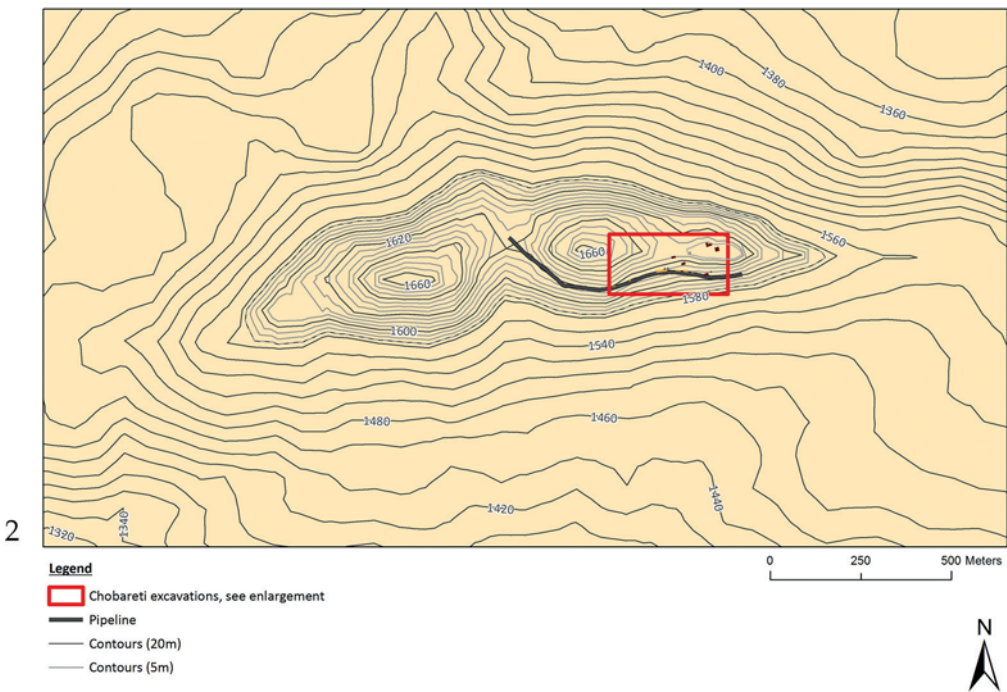


Fig. 1.

1. Map showing the location of Chobareti (produced by Chandra Jayasuriya);
2. Topographical plan of the ancient site of Chobareti (produced by Jessie Birkett-Rees).

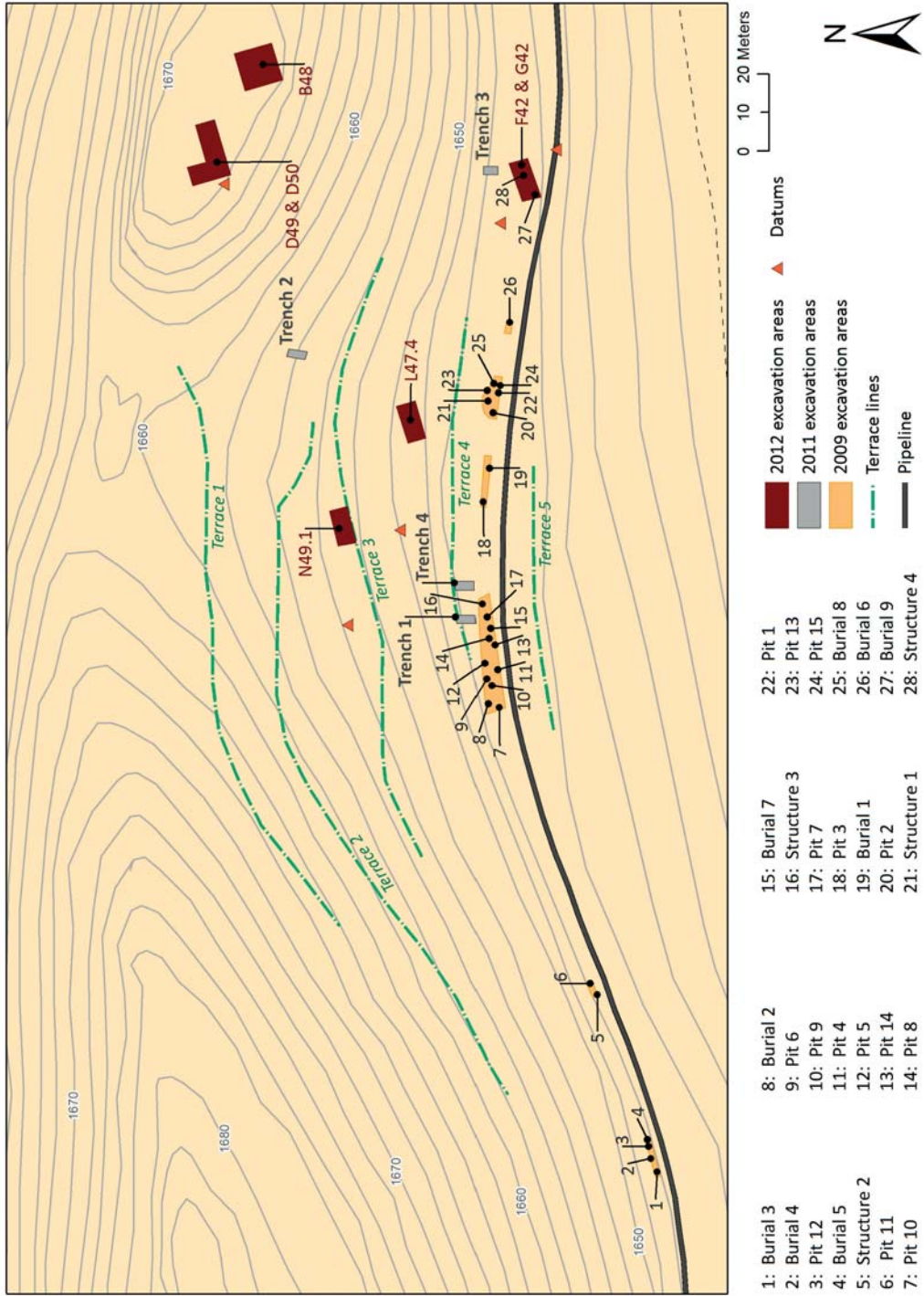


Fig. 2. Topographical plan of Chobareti showing the excavated areas (produced by Jessie Birkett-Rees).



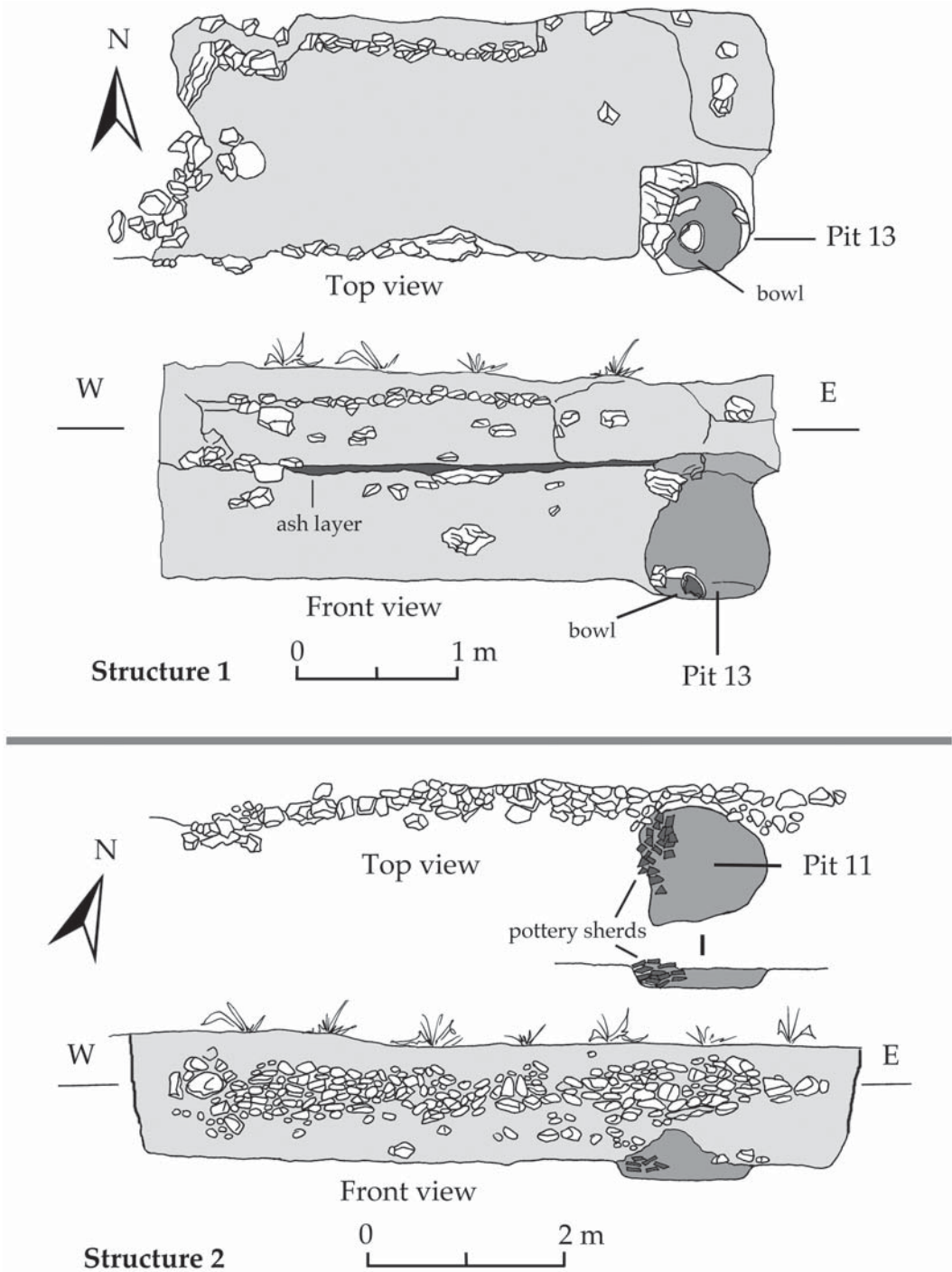


Fig. 5. Chobareti 2009, Structures 1 and 2.

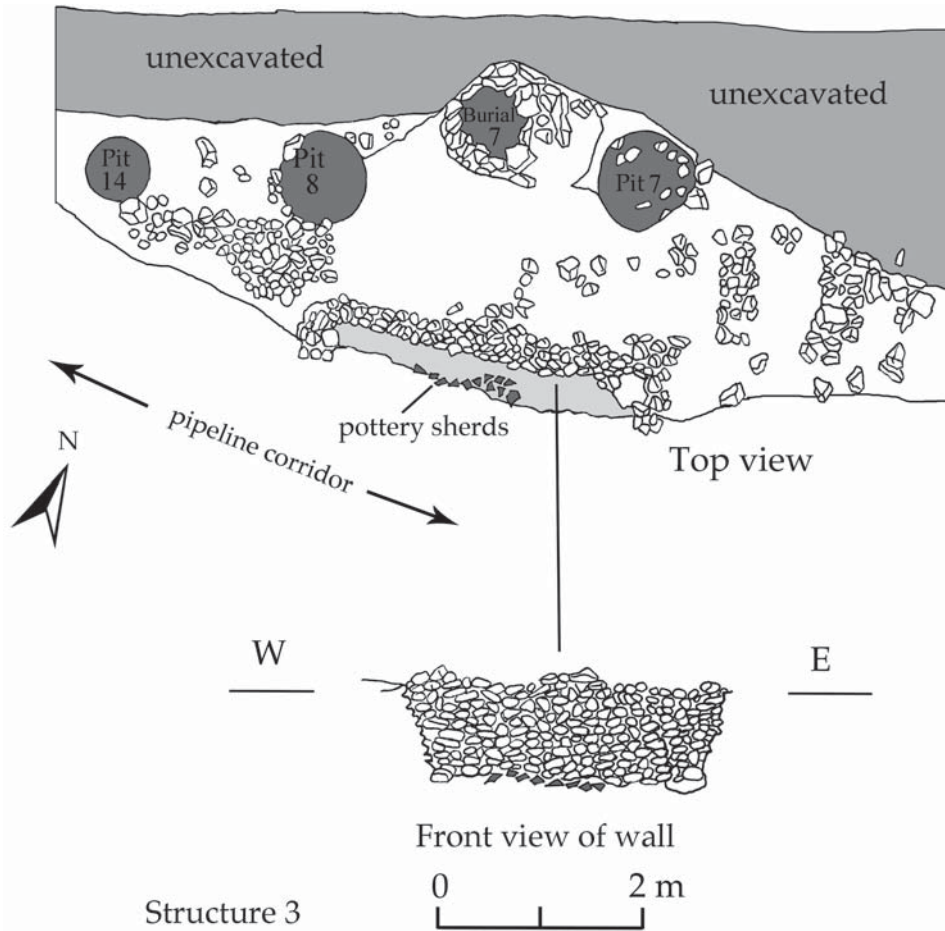


Fig. 6. Chobareti 2009, Structure 3.

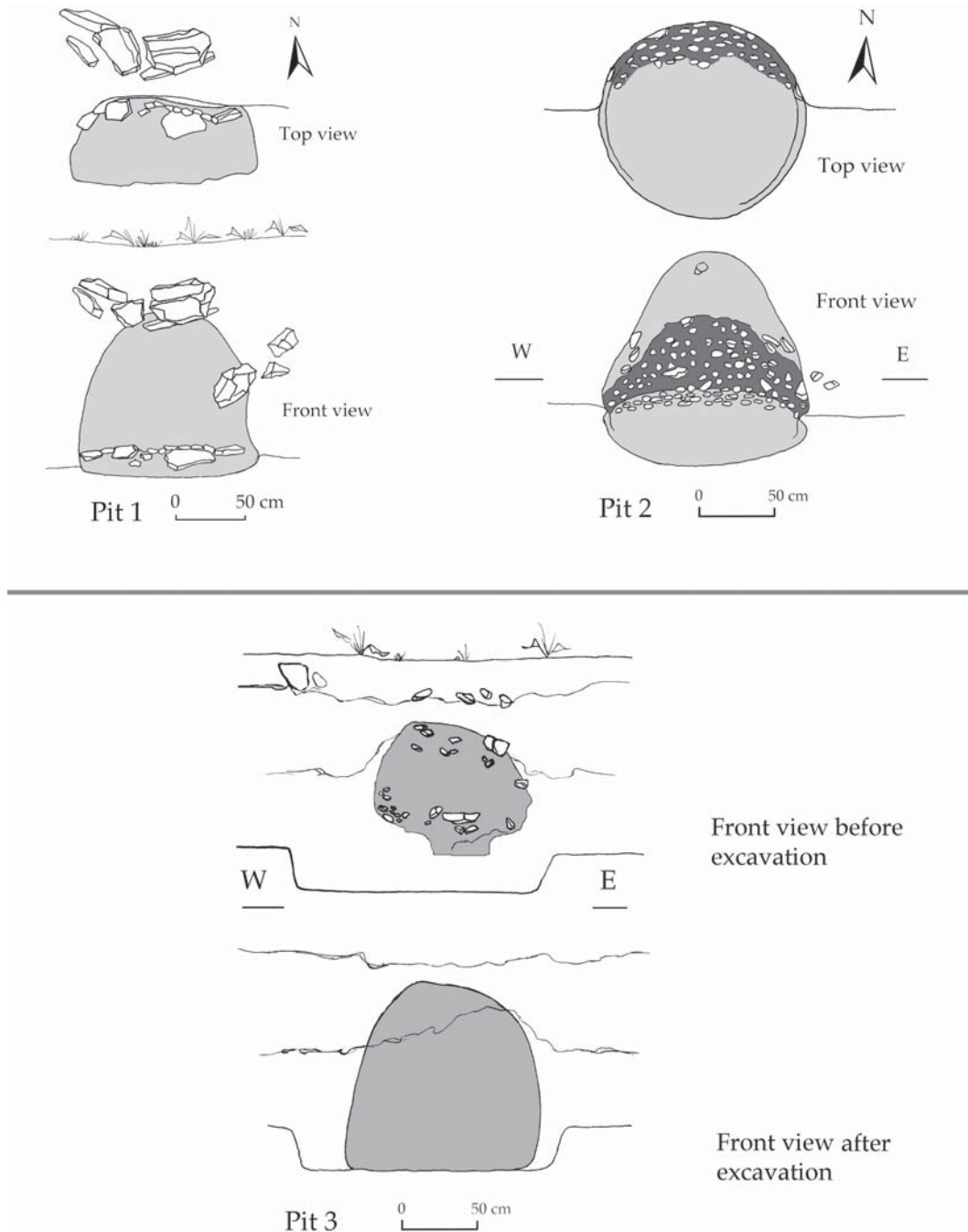


Fig. 7. Chobareti 2009, Pits 1–3.

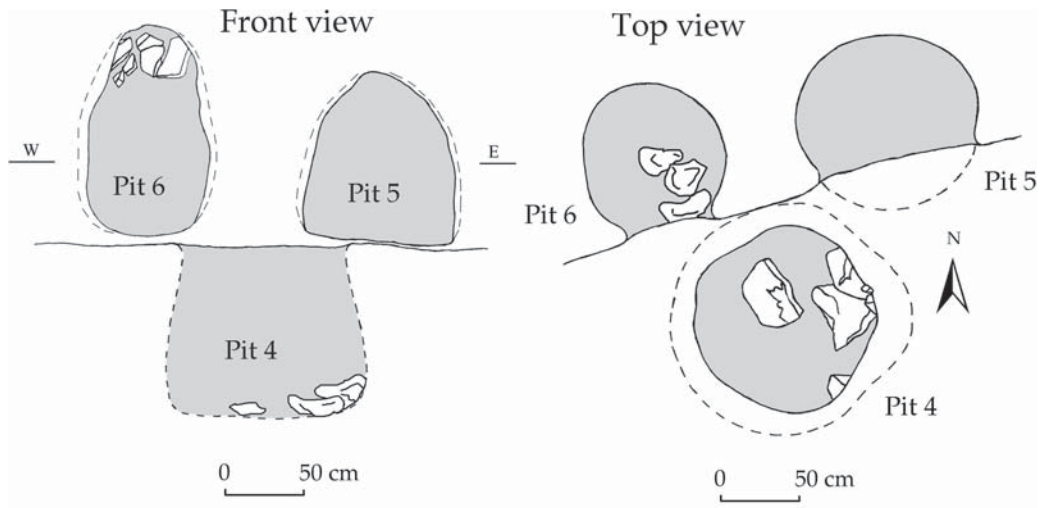


Fig. 8. Chobareti 2009, Pits 4–6.

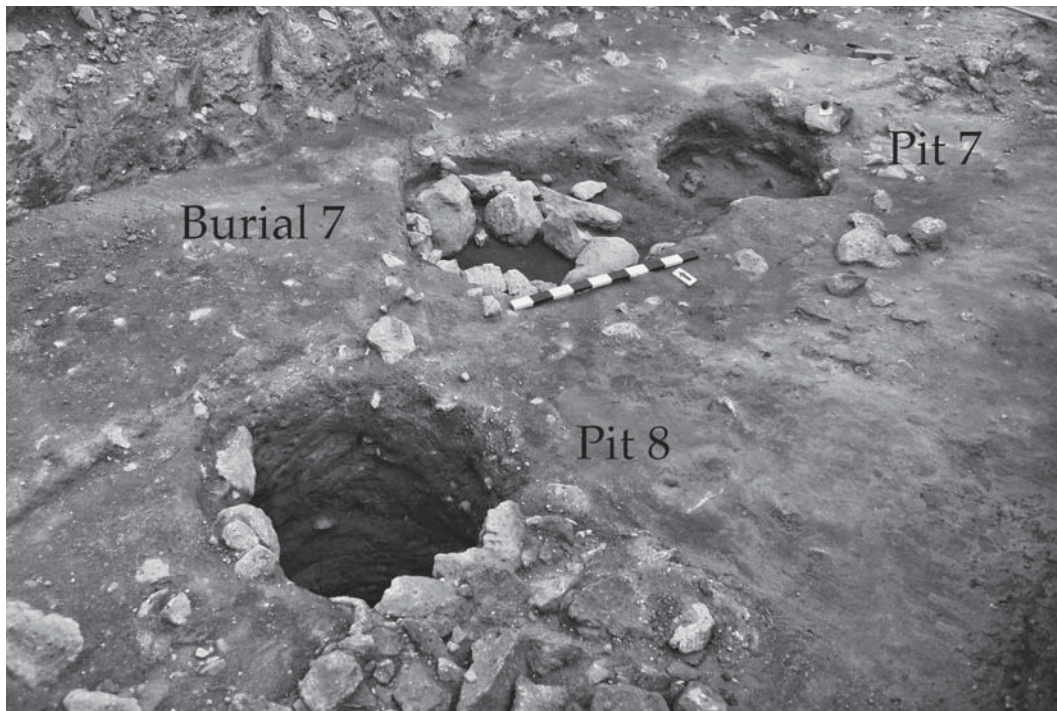
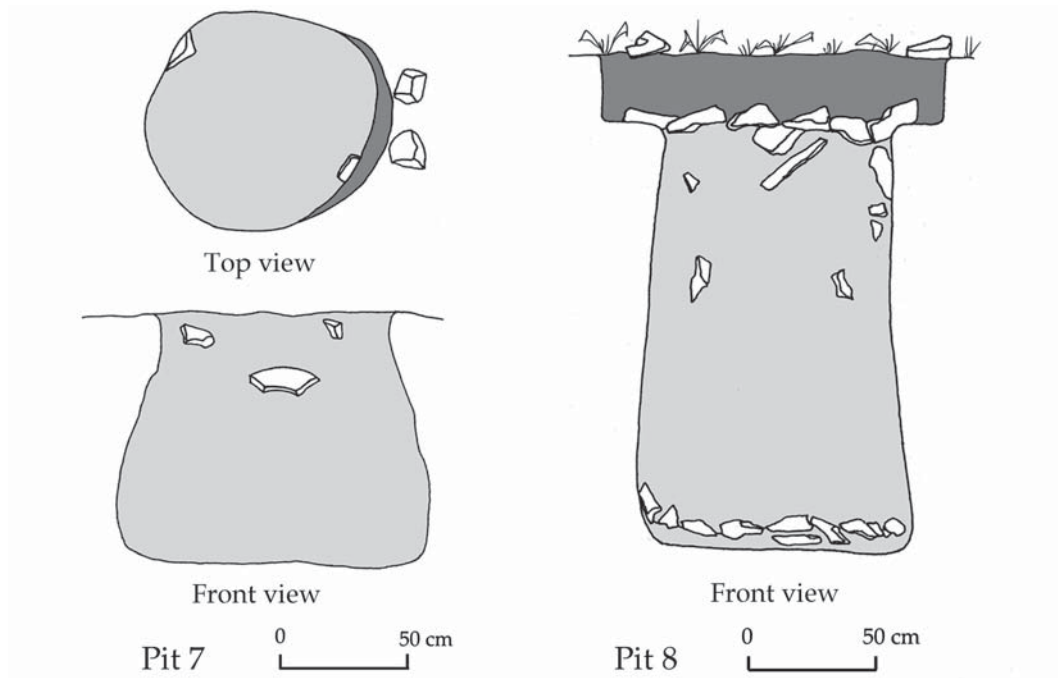


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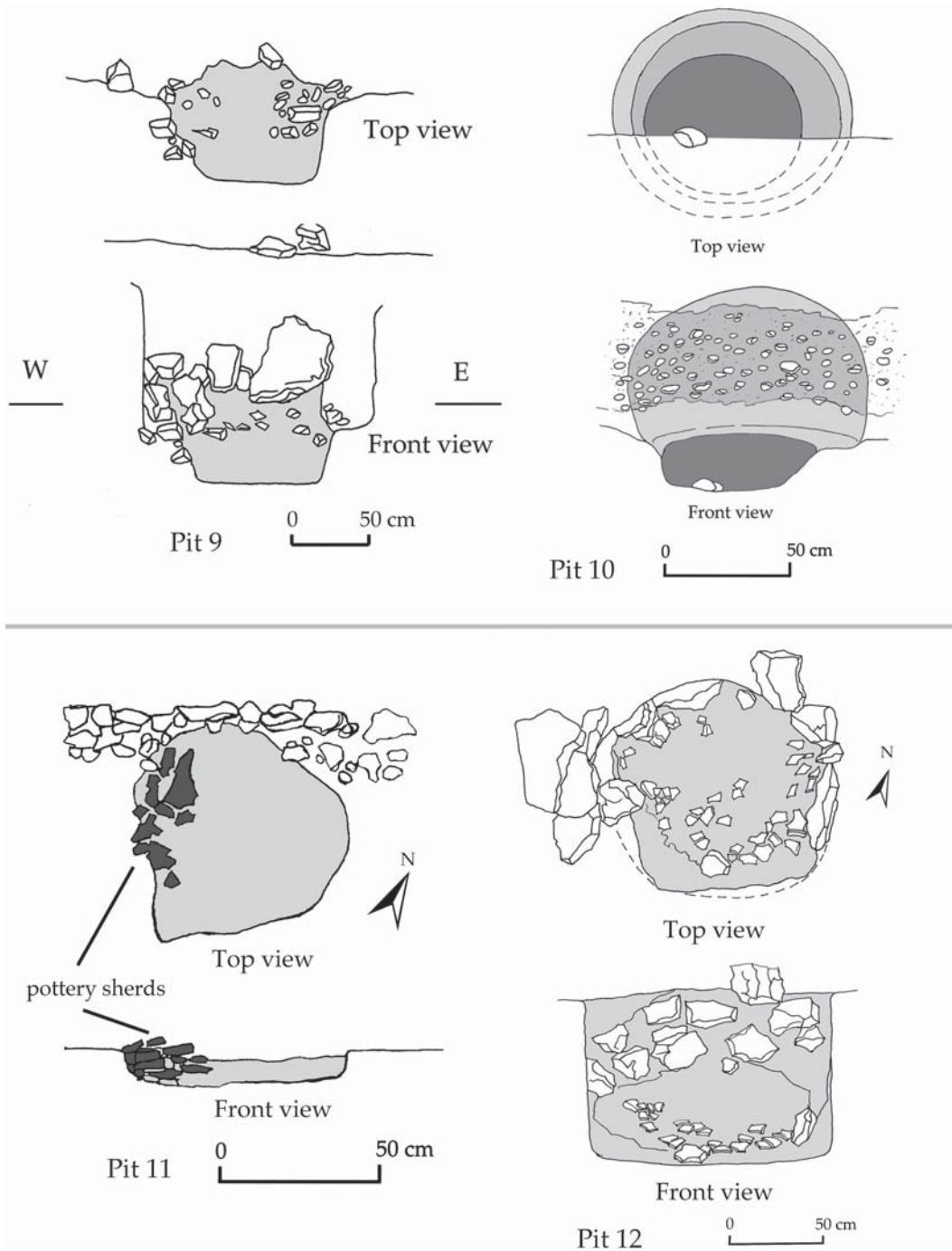


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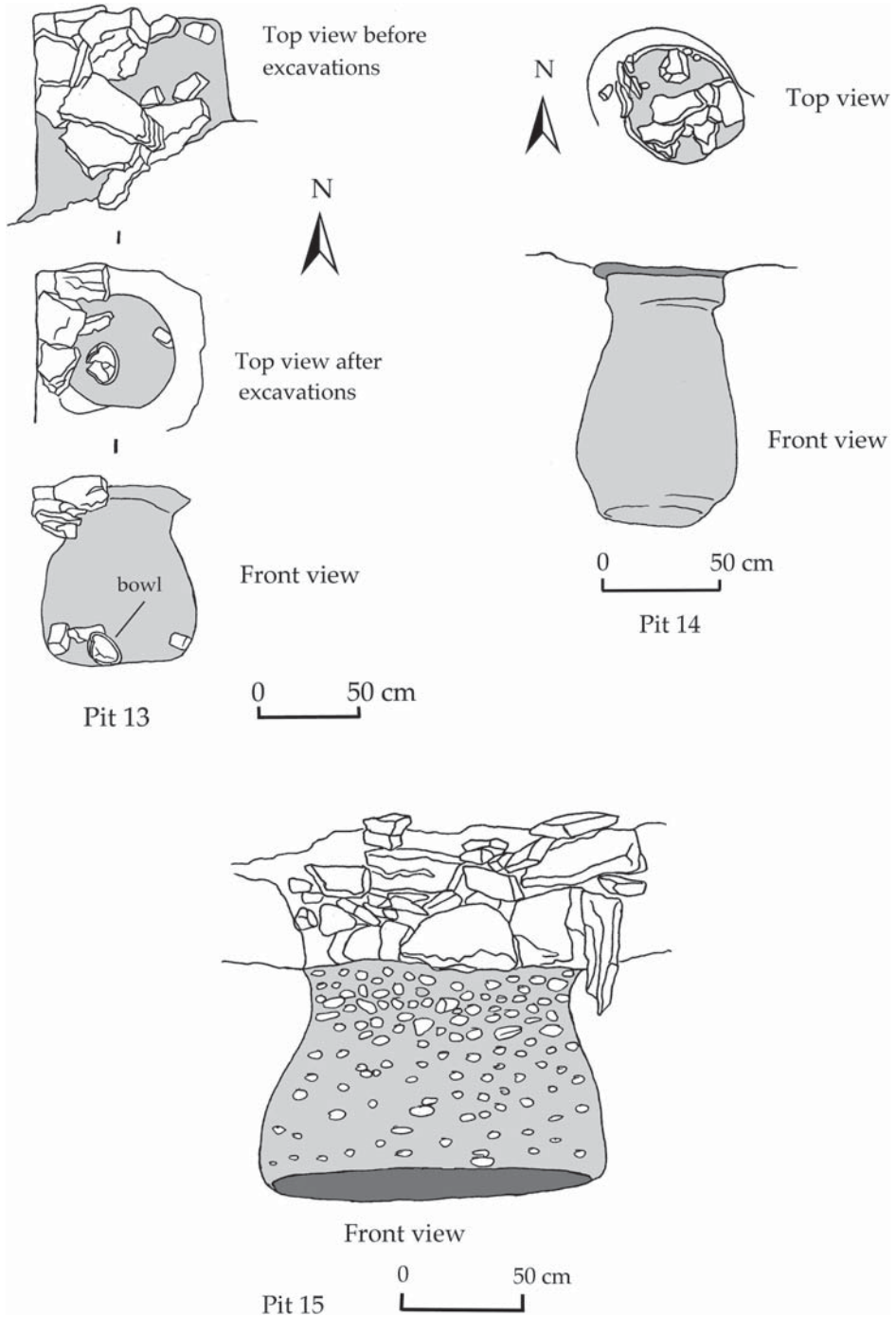


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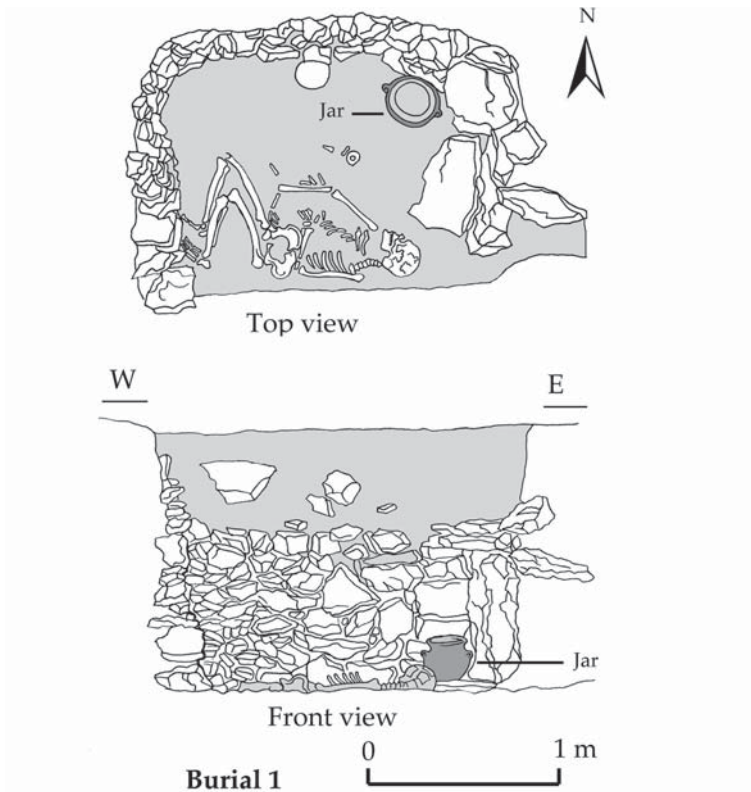


Fig. 12. Chobareti 2009, Burial 1.

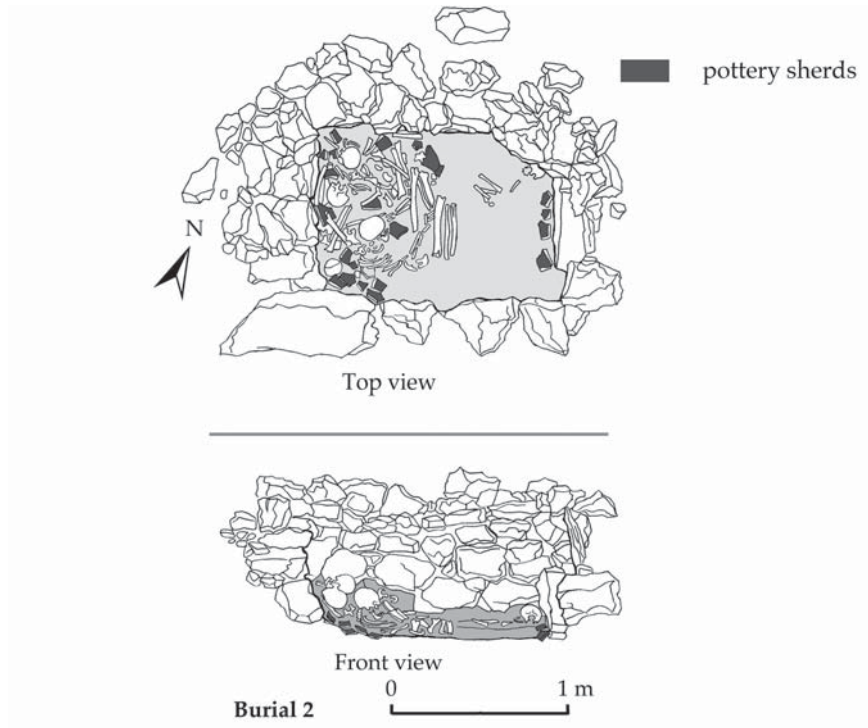


Fig. 13. Chobareti 2009, Burial 2.

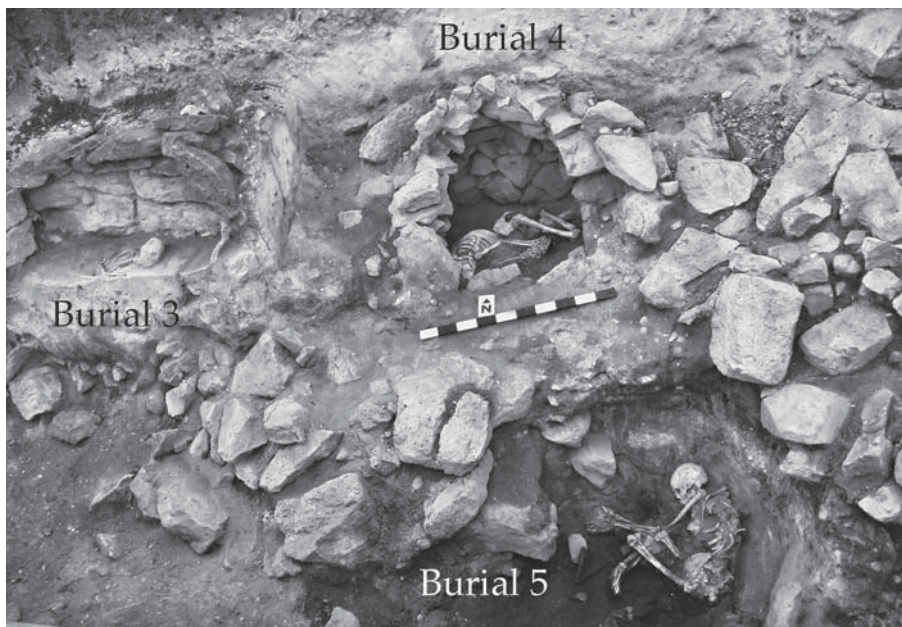
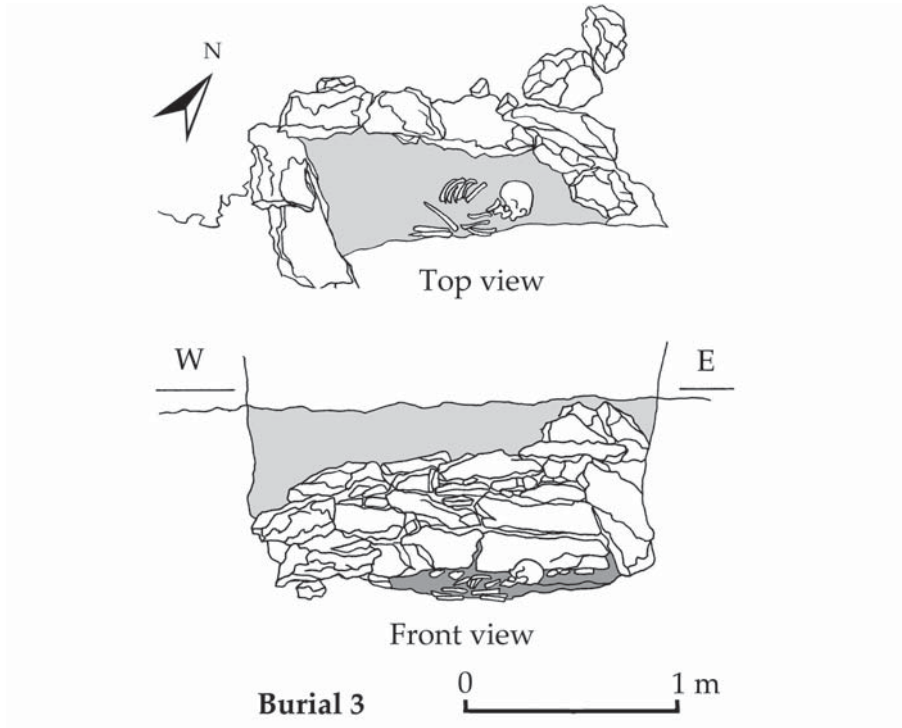


Fig. 14. Chobareti 2009, Burial 3.

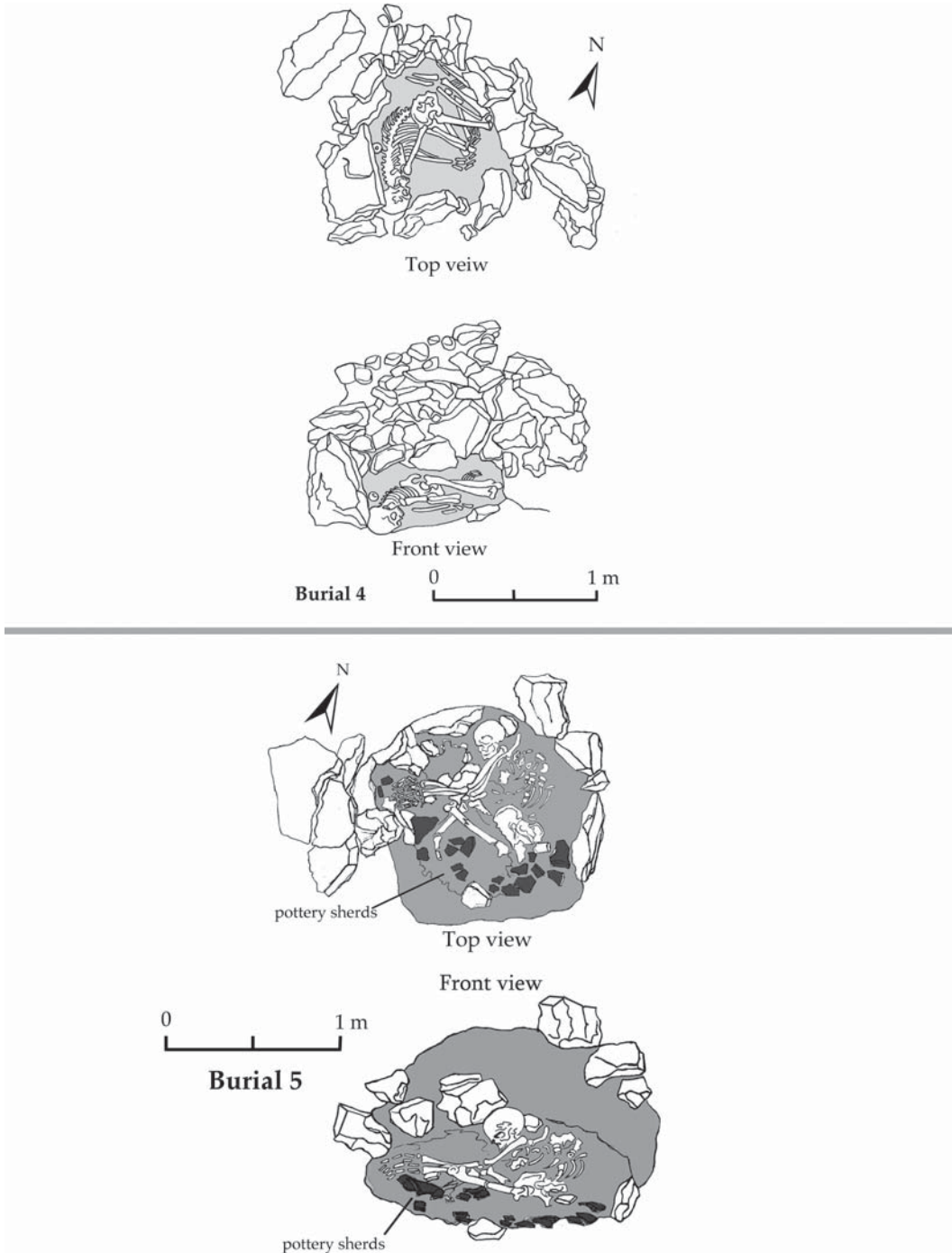


Fig. 15. Chobareti 2009, Burials 4 and 5.

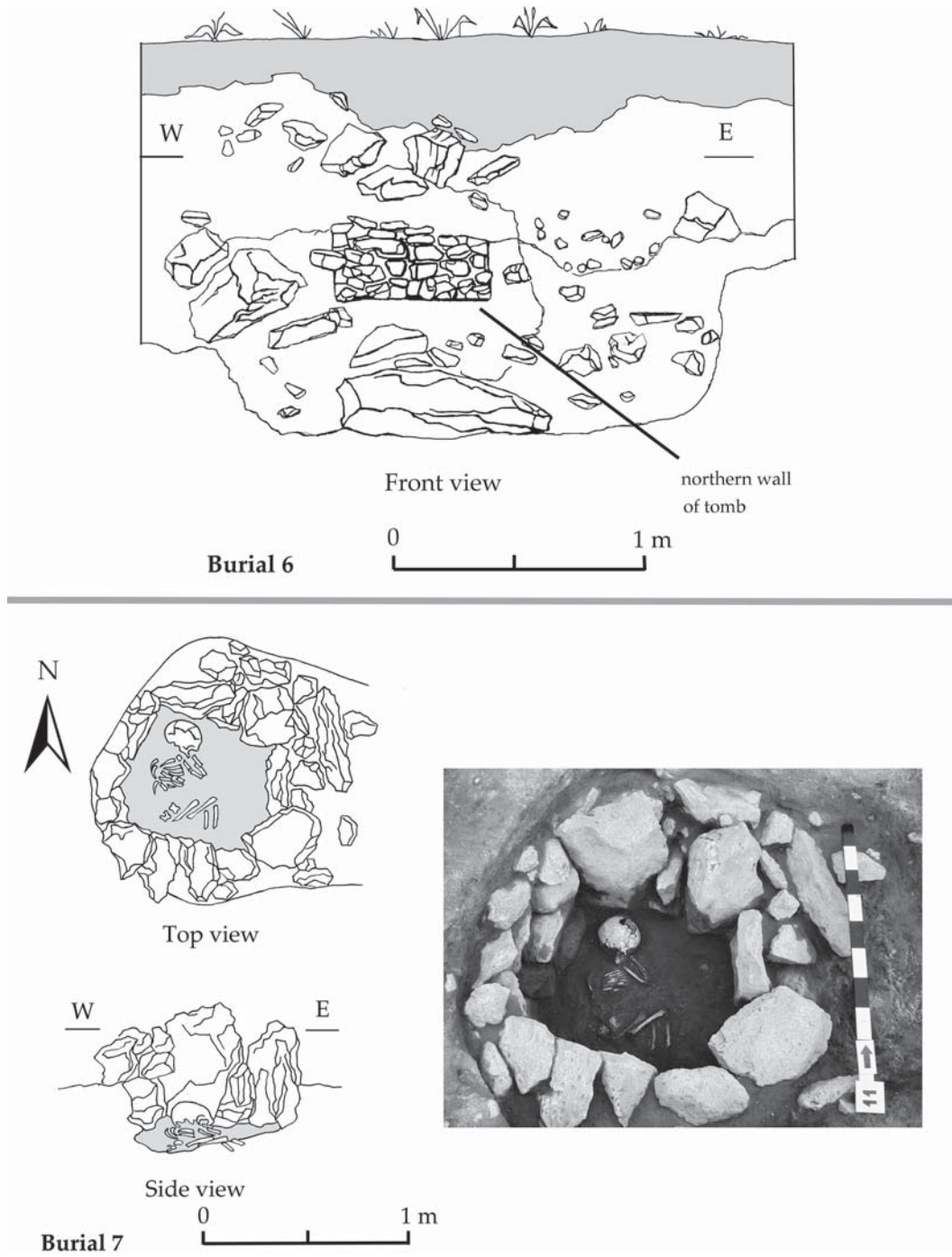


Fig. 16. Chobareti 2009, Burials 6 and 7.

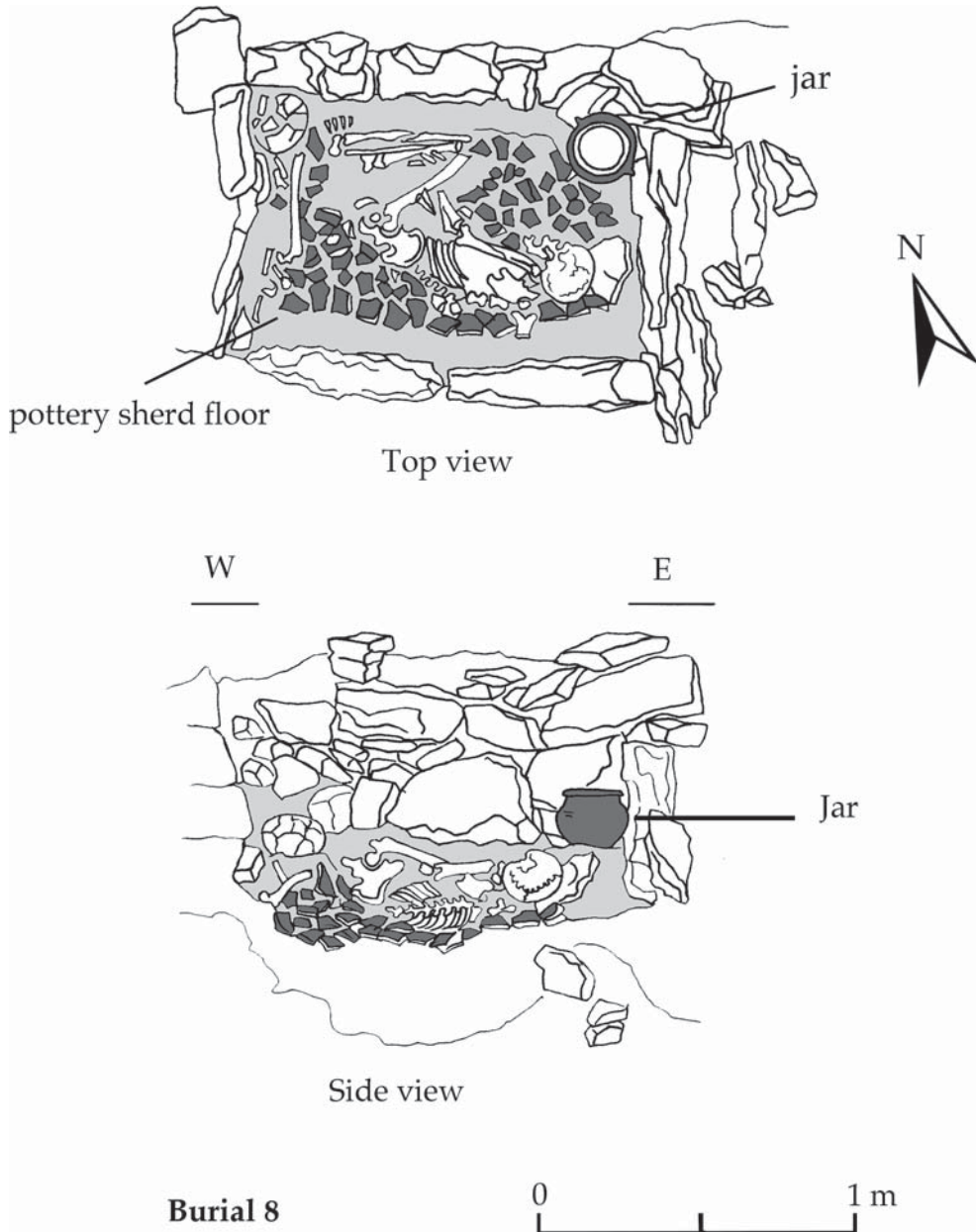


Fig. 17. Chobareti 2009, Burial 8 plan.

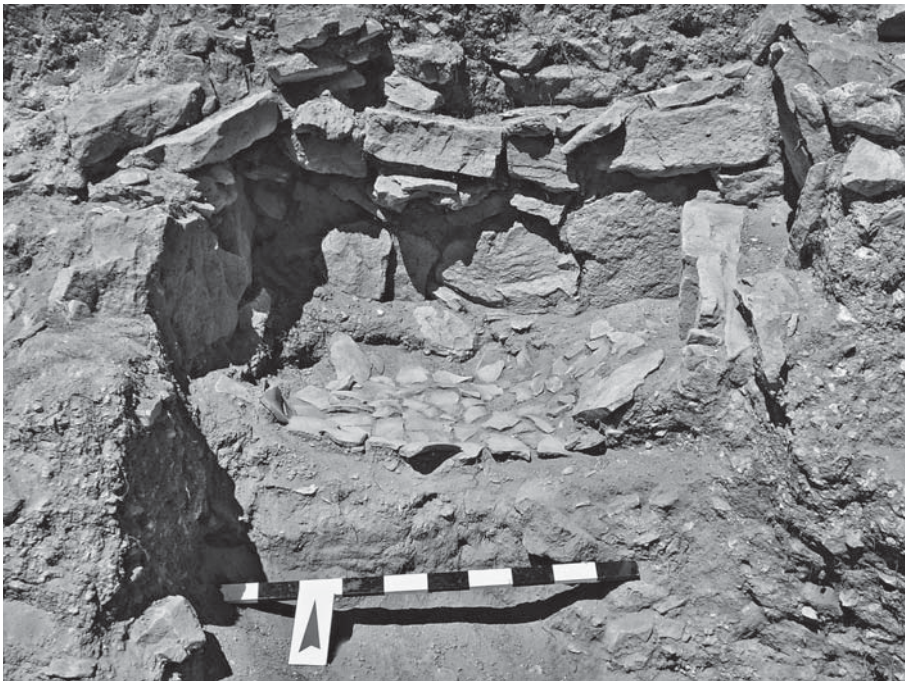


Fig. 18. Chobareti 2009, Burial 8.

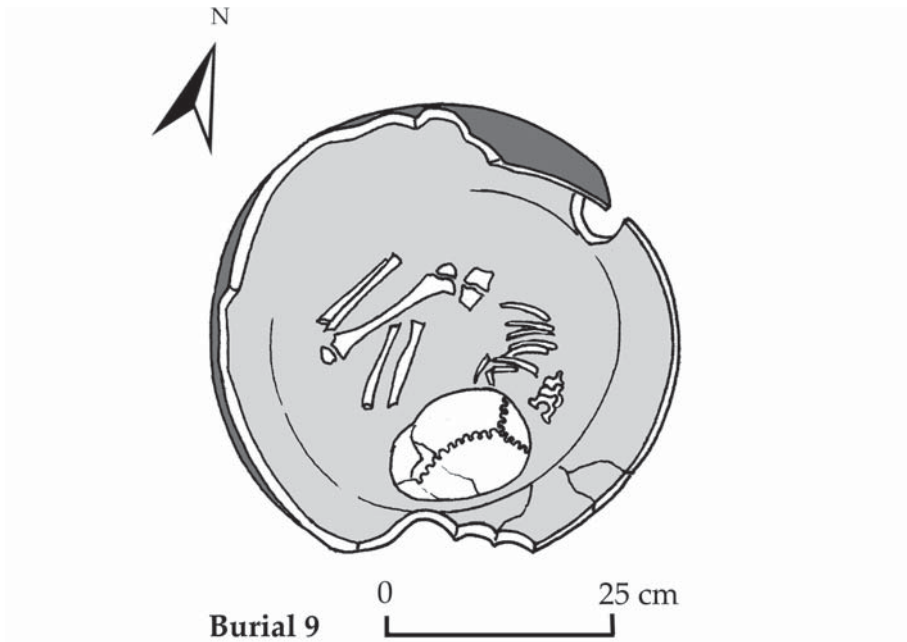


Fig. 19. Chobareti 2009, Burial 9.

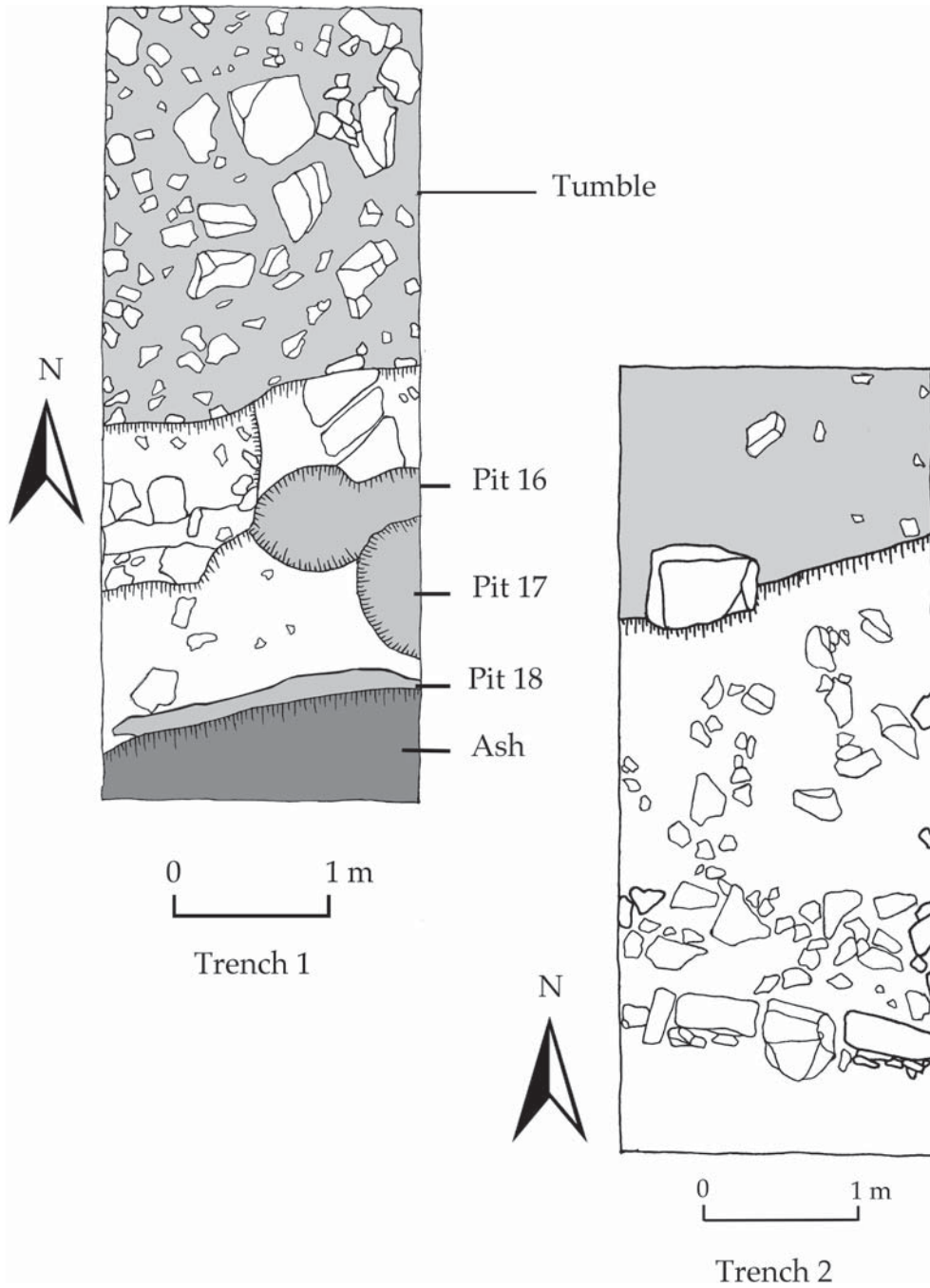


Fig. 20. Chobareti 2011, Trenches 1 and 2. Top views.

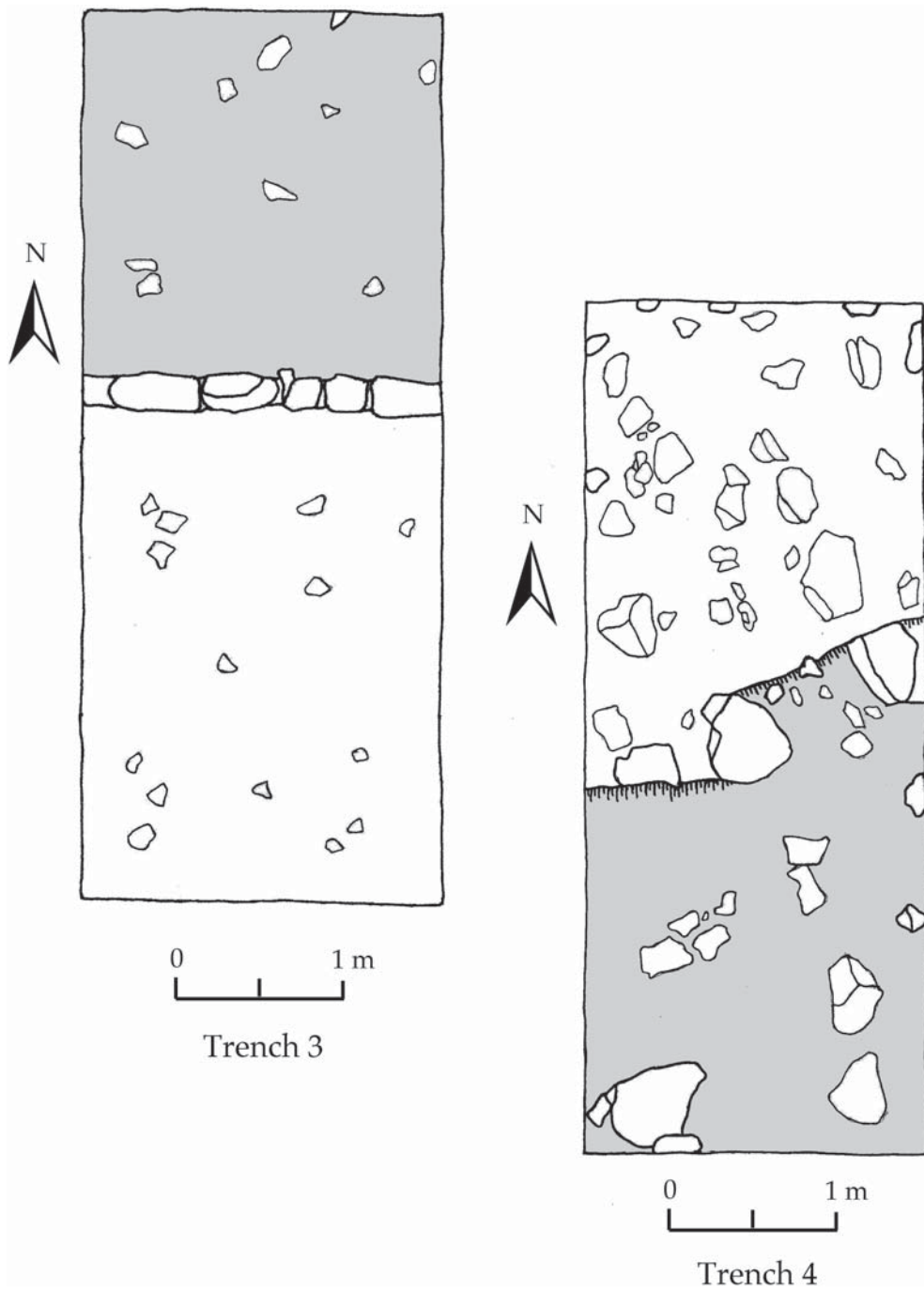


Fig. 21. Chobareti 2011, Trenches 3 and 4. Top views.



Fig. 22. Chobareti, Lower Operation, Structure 4. Plan (produced by Mia Huson and Cliff Ogleby).

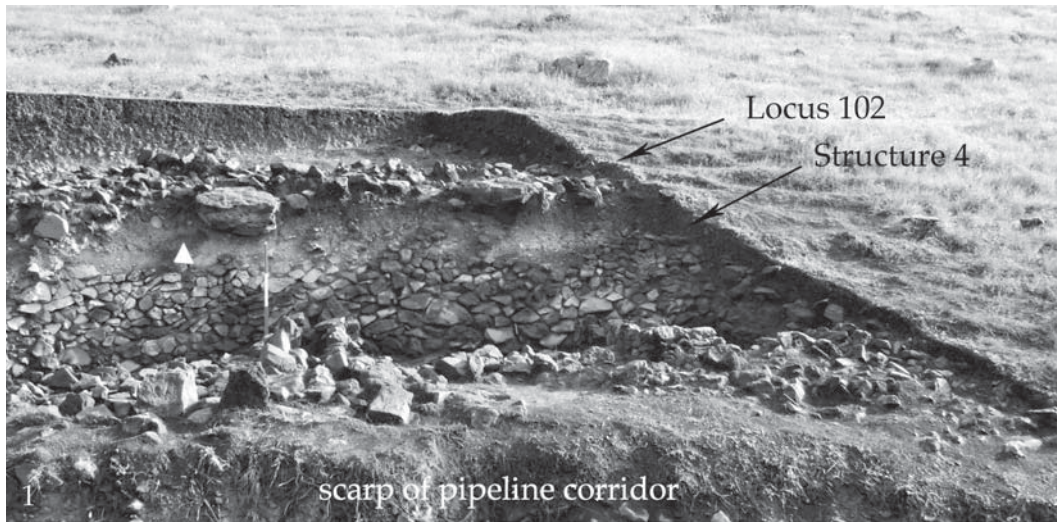


Fig. 23. Chobareti, Lower Operation, Structure 4.  
1 Looking north; 2 Looking east.



Fig. 24. Chobareti, Lower Operation, Structure 4.  
1 The north (rear) stone wall; 2 Burial 9 (a jar burial) with north wall in the background.

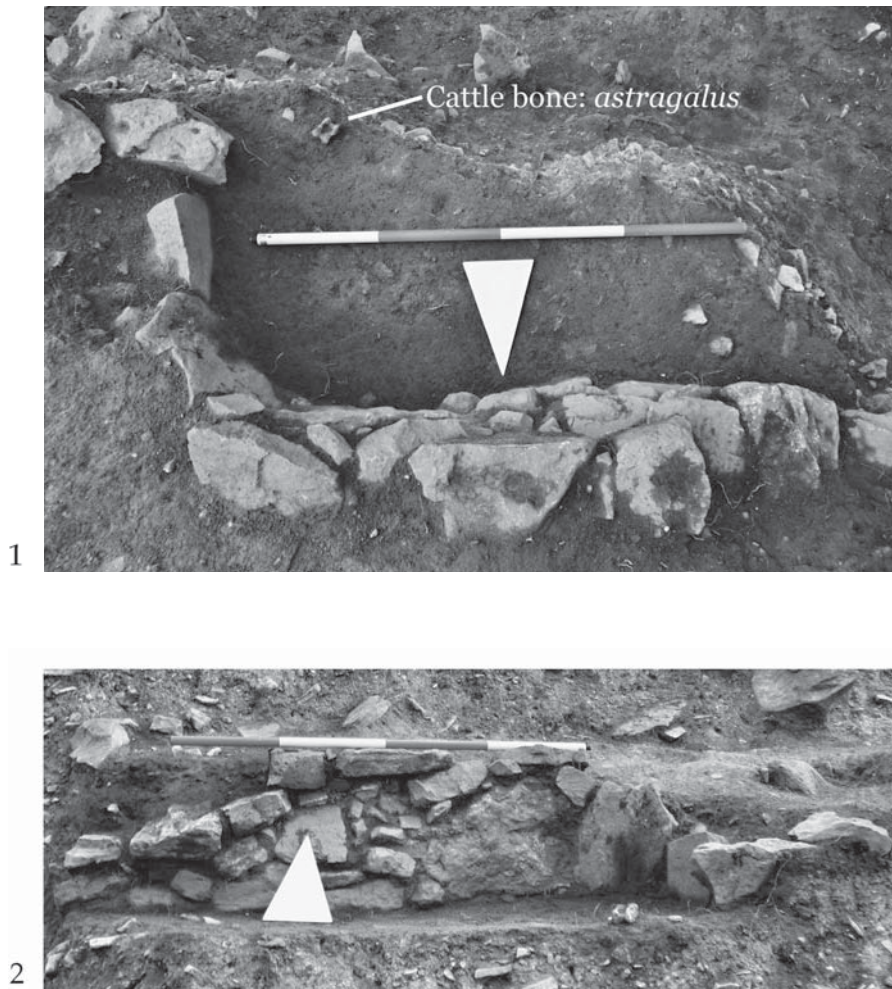


Fig. 25. Chobareti 2012, Lower Operation, Burial 10.  
1 Top view; 2 Side view, looking north.



Fig. 26. Chobareti 2012, Upper Operation, Fortification wall.

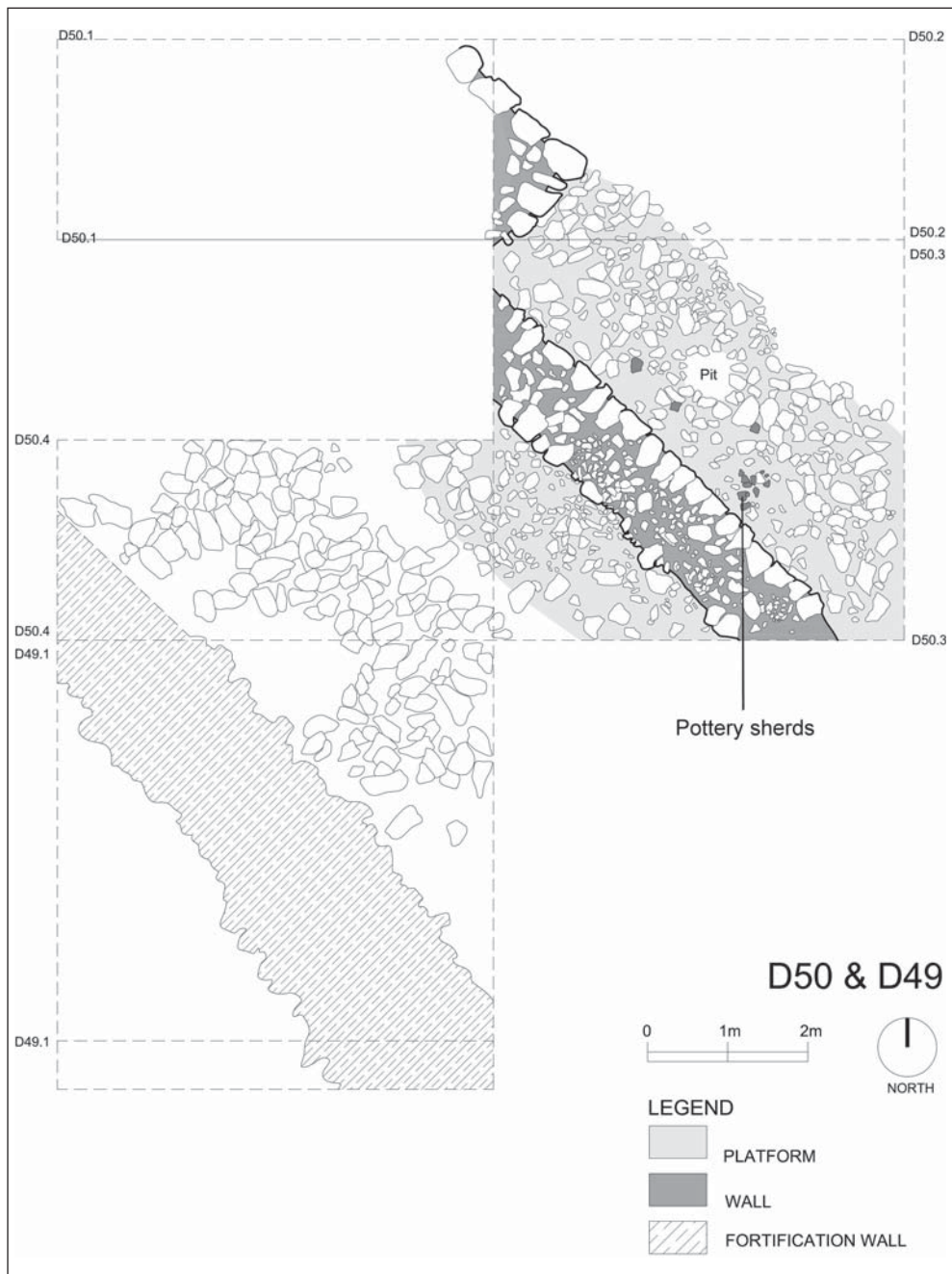


Fig. 27. Chobareti 2012, Upper Operation, Squares D49 and D50. Plan (produced by Mia Hutson and Cliff Ogleby).

### Catalogue of Finds (Figures 28–51)

This Catalogue presents a selection of items from the three years of excavation. Following the general structure of this paper, the finds from the 2009 and 2011 excavations are presented first, followed by those found in 2012. In the interest of publishing the results so far as rapidly as possible, only the 2012 items are described in detail. A good number of the items found in 2009 and 2011 were recently moved to the refurbished Akhaltsikhe museum, which precluded their detailed study for the present purpose; their full description will be provided in the final report. However, all items included here have been drawn using standard conventions.

The following abbreviations are used in this Catalogue. Inv. no. (inventory number): Assigned to the 2009 and 2001 material; the first two digits (the year) are separated from the item number by a hyphen. SPF (Special Find Number): a unique number, used in 2012, comprising Locus number and sherd number separated by a forward slash. In the case of Structure 4, in Squares F42 and G42, the period between the 2011 and 2012 excavations witnessed a considerable amount of erosion, resulting in some sherds having no precise context. These sherds do not have a Locus number, but are assigned the Square number(s); for example, SPF G42.2/F42.1/1. HM: Hand-made; WM: Wheelmade; RD: Rim Diameter; BD: Base Diameter; D: Diameter; H: Height. All measurements are given in centimetres. Munsell colours were taken from *Munsell Soil Color*, 1992, revised edition, Munsell Color: New York. Where relevant, the contrasting colours of Kura-Araxes Ware are given; thus (Rd/Bl) refers to exterior (red) and interior (black) colour.

### Figures

- 28 Structure 4 (2009 and 2011): §1, inv. no. 11–21; §2, inv. no. 09–214; §3, inv. no. 09–213; §4, inv. no. 11–22 — fragments of horseshoe-shaped andirons.
- 29 Structure 4 (2009 and 2011): §1, inv. no. 11–20, horseshoe-shaped andiron; §2, inv. no. 11–19 ceramic animal figurine; §3, inv. no. 09–203; §4, inv. no. 09–209; §5, inv. no. 09–205; §6, inv. no. 09–169; §7, inv. no. 09–173 — Kura-Araxes handle and rim fragments.
- 30 Structure 4 (2009): §1, inv. no. 09–175, Kura-Araxes rim fragment, black exterior, incised after firing; §2, inv. no. 09–182; §3, inv. no. 09–215. Structure 4 (2011): §4, inv. no. 11–33; §5, inv. no. 11–24; §6, inv. no. 11–10; §7, inv. no. 11–28 — Kura-Araxes fragments, two (§5 and 7) bearing applied decoration, and another (§3) possibly a stand.
- 31 Structure 4 (2011): §1, inv. no. 11–60, lid; §2, inv. no. 11–25; §3, inv. no. 11–27, body sherd with applied decoration. Burial 1: §4, inv. no. 09–291, Kura-Araxes jar; §5, inv. no. 09–292, bone spindle whorl. Burial 4: §6, inv. no. 09–295, bone spindle whorl. Burial 2: §7, inv. no. 09–293, ovoid-bodied Kura-Araxes jar.
- 32 Burial 2: §1, inv. no. 09–294; Burial 8 §2, inv. no. 09–298; §3, inv. no. 09–297; §4, inv. no. 09–296 — Kura-Araxes jars, one with impressed decoration on the shoulder.
- 33 Burial 9: §1, inv. no. 09–299. Out of context (2009): §2, inv. no. 09–230; §3, 09–275; §4, inv. no. 09–228; §5, 09–279; §6, inv. no. 09–278; §7, inv. no. 09–224.
- 34 Surface finds: §1, inv. no. 09–076; §2, inv. no. 09–283; §3, inv. no. 09–284 — basalt saddle querns.

35 Pit 1: §1, inv. no. 09-1; §2, inv. no. 09-2; §3, inv. no. 09-3; §4, inv. no. 09-5, single handled jar with incised hatched triangles pendant to the base of the neck; §5, inv. no. 09-4; §6, inv. no. 09-6; §7, inv. no. 09-35; §8, inv. no. 09-10; §9, inv. no. 09-21; §10, inv. no. 09-33; §11, inv. no. 09-25.

36 Pit 3: §1, inv. no. 09-44; §2, inv. no. 09-45, translucent grey obsidian projectile point; Pit 4: §3, inv. no. 09-82; §4, inv. no. 09-81; §5, inv. no. 09-84; §6, inv. no. 09-83; §7 inv. no. 09-80.

37 Pit 4: §1, inv. no. 09-48; §2, inv. no. 09-47; §3, inv. no. 09-46; §4, inv. no. 09-51; §5, inv. no. 09-70; §6, inv. no. 09-62; §7, inv. no. 09-52

38 Pit 4: §1, inv. no. 09-69, horse-shoe-shaped andiron; §2, inv. no. 09-79. §3, inv. no. 09-78, fragment of a large, circular hearth.

39 Pit 5: §1, inv. no. 09-85; §2 inv. no. 09-86, andiron fragment with incised decoration; §3, inv. no. 09-88; Pit 7, §4, inv. no. 09-92; §5, inv. no. 09-93; §5, inv. no. 09-90; §7, inv. no. 09-94; §8, 09-91; §9, inv. no. 09-105.

40 Pit 8: §1, inv. no. 09-109. Pit 11: §2, inv. no. 09-126; §3, inv. no. 09-117. Pit 12: §4, inv. no. 09-135. Pit 13: §5, inv. no. 09-136; §6, inv. no. 09-140. Pit 14: §7, inv. no. 09-143.

41 Chobareti 2012, Square G42/F42:

*Kura-Araxes Ware*

§1, inv. no. SPF 103/3 — Tall neck fragment from a thin-walled small pot; slightly flaring rim and rounded lip; **Kura-Araxes Medium Grey Brown** (Bl/Bl) ware; HM; grey to black 7.5YR 4/2 through section; well-levigated compact crisp clay, hard-fired (resonant when tapped); a moderate amount of fine gritty particles are in the paste; mottled and dark brown-black 7.5YR 5/2 slipped exterior; lightly burnished near the rim possibly use wear sheen; matt black slipped interior. RD *ca.* 11.

§2, inv. no. SPF G42.2/F42.1/6 — Fragment from a small pot; offset profile at juncture of shoulder and neck; flaring rim rising to remnant handle stump, once joined at the lower end on the shoulder; **Kura-Araxes Medium Grey Brown** (Rd/Rd) ware; HM; dark grey N4/ through core; medium-fine texture; a moderate amount of fine voids and mixed gritty inclusions in the paste; thick burnished 7.5YR 7/3-4 slip on the exterior and interior. RD *ca.* 11.

§3, inv. no. SPF G42.2/F42.1/5 — Tall-necked jar fragment with thin walls and rounded lip; **Kura-Araxes Medium Grey Brown** (Rd/Rd) ware; HM; fine to medium textured clay; even pale grey 7.5YR 6/4 through section; some voids, and fine mixed gritty inclusions in the paste; pale yellow brown 7.5YR 6/4-6/6 exterior and interior; burnished on both sides. RD 12.

§4, inv. no. SPF 100/5 — Large jar fragment with curved neck to the angular lip; **Kura-Araxes Medium Grey Brown** (Rd/Rd) ware; HM using coil technique; dark 10YR 3/1 core with a moderate amount of fine mixed gritty inclusions in the paste; burnished brown 7.5YR 6/4 slipped exterior with darker patches from firing or heat damage; matt, smoothed, mottled pale brown c.10YR 6/2 slipped interior. RD 30.

§5, inv. no. SPF 100/4 — Rim fragment from a medium-sized jar with a rounded lip and tall neck; **Kura-Araxes Medium Grey Brown** (Rd/Bl) ware; HM; the section is pale brown 7.5YR 6/6

on the exterior half and dark grey 7.5YR 2.5/1 toward the interior; medium-textured clay with very fine mixed gritty inclusions and a small amount of fine micaceous particles evenly distributed through the paste; matt exterior 10YR 6/3 surface; matt black 7.5YR 2.5/1 interior. RD 32

§6, inv. no. SPF 103/1 — Vertical neck fragment from a very large, thick-walled jar; slightly flaring rim with rounded lip; **Kura-Araxes Medium Grey Brown** (Rd/Rd) ware; HM using slab technique evident in compressed lamination seems in the section; grey N5/ core reddened 5YR 5/4 in the interior half of the section; medium textured clay with a moderate amount of fine gritty inclusions in the paste; breaks are sharp; pale brown 7.5YR 7/4 slipped, thoroughly burnished exterior; smoothed and plain, pale brown 7.5YR 7/4 interior; horizontal wipe marks are on the interior of the mouth. RD *ca.* 49.6.

§7, inv. no. SPF 103/13 — Fragment from a large jar with thickened and flat-topped rail rim; **Kura-Araxes Medium Grey Brown** (Rd/burnt possibly Rd) ware; HM, a void was formed through the thickest part of the rim during manufacturing; a moderate amount of small gritty particles in the dark 5YR 4/1 paste; thick and well-burnished, pale brown 7.5YR 6/3 slip on the rim and exterior; heat damaged and defaced 5YR 4/1 interior, once very smooth. RD *ca.* 38.4.

§8, inv. no. SPF 103/14 — Flaring rim from a pot with angular lip; **Kura-Araxes Medium Grey Brown** (Rd/Rd) ware; HM; compact and refined clay with occasional minute particle in the paste; hard fired and grey-brown 10YR 5/1 through section; breaks are sharp; burnished pale brown 10YR 6/4 exterior; smoothed, pale brown 10YR 7/3 interior. RD 20.

#### 42 Chobareti 2012, Square G42/F42:

##### *Kura-Araxes Ware*

§1, inv. no. SPF 103/12 — Large jar fragment with flaring rim and thick walls; **Kura-Araxes Medium Grey Brown** (Rd/Rd) ware; HM; even grey 7.5YR 5/1–5/2 through section; hard, but friable clay with a ‘sandy’ medium fine texture throughout; breaks are sharp; a moderate of fine and occasional large mixed gritty inclusions in the paste; mid brown 7.5YR 7/2, lightly burnished exterior and interior. RD *ca.* 34.

§2, inv. no. SPF 103/2 — Body fragment from a closed tall-necked pot with sharply off-set profile at the juncture of shoulder and neck; **Kura-Araxes Medium Grey Brown** (Rd/Rd) ware; HM using coil technique; grey to pale brown 7.5YR 4/1 through section; hard-fired, but slightly friable breaks; a large amount of fine mixed gritty inclusions are in the paste; matt, pale brown 7.5YR 7/4 slipped exterior; smoothed self-slipped 5YR 6/6 interior. Dm at juncture of neck and shoulder *ca.* 23.

§3, inv. no. SPF 103/22 — Fragment from a deep pot with shallow groove at the off-set of the juncture of shoulder and neck; **Kura-Araxes Medium Grey Brown** (Rd/Rd) ware; HM; compact hard clay; medium coarse texture; grey 7.5YR 5/2 in the lower section and pale brown 7.5YR 7/6 in the upper part of the section; matt and smoke blackened exterior and interior; pale brown 7.5YR 7/4 surfaces; well burnished on upper neck and rim. RD *ca.* 30.

§4, inv. no. SPF G42.2/F42.1/1 — Large open bowl fragment; thickened rounded rim with remnant ledge-like knobs at the lip of the vessel; **Kura-Araxes Medium Grey Brown** (Rd/Bl) ware; HM, grey N3/ core; compact fabric with voids and fine to small largely dark gritty inclusions in

the paste; breaks are sharp; thick mottled and burnished 7.5YR 8/4 to 6/1 slip on the exterior; matt grey-brown N6/ interior. RD 24 at inner edge.

§5, inv. no. SPF 103/39 — Oblique rim and wall from an open bowl or wide off-set rim from a large pot with rounded lip and relatively thin walls for its size; **Kura-Araxes Medium Grey Brown** (Rd/Rd) ware; HM using coil technique evident in the slightly undulating surfaces; medium fine textured fabric, even red 5YR 6/6 through section and crisp (resonant when tapped); occasional fine mixed gritty inclusions in the paste; matt, smoke-blackened, pale 7.5YR 7/4 to dark brown exterior; matt, even pale brown 7.5YR 7/4 interior. RD c.40.

§6, inv. no. SPF 103/37 — Body fragment from a large, thick-walled pot, perhaps an open cooking pot form; the rim was probably flaring indicated by an off-set in the upper profile; large, flattened applied knob; **Kura-Araxes Medium Grey Brown** (Rd/Rd) ware; HM using coil technique evident from surface undulations and breaks along seem lines; grey core near the exterior, pale brown 7.5YR 7/4 near the interior; compact, hard-fired clay with a moderate amount of fine to small mixed gritty inclusions in the paste; breaks are moderately sharp; mottled thick, pale yellow-brown 7.5YR 7/4–6/4 burnished slip on the exterior; smoothed, pale brown 7.5YR 6/3 slipped interior. D of knob 3.8.

§7, inv. no. SPF 103/21 — Body fragment with applied, though decayed circular design; **Kura-Araxes Medium Grey Brown** (Rd/Rd) ware; HM; the core fired dark 7.5YR 4/1 near the exterior and pale brown 7.5YR 7/4 near the interior; compact and hard fired clay; some fine mixed inclusions in the paste; medium coarse breaks; thick pale brown 7.5YR 6/4 burnished exterior slip; smoothed and lightly burnished 7.5YR 7/4 interior.

§8, inv. no. G42.2/F42.1/1 — Well-made flattened knob with central, deep dimple broken from the wall of a large pot, possibly similar to SPF 103/37; **Kura-Araxes Medium Grey Brown** (Rd/Rd) ware; HM; grey-black 10YR 5/1 at the core; a moderate amount of fine to medium mixed gritty inclusions in the paste; pale brown ca. 10YR 6/3–6/4 slipped and burnished exterior; defaced on the interior. D of knob 3.4.

§9, inv. no. SPF 103/15 — Body fragment from a thick-walled, closed pot; **Kura-Araxes Medium Grey Brown** (Bl/Bl) ware; HM using coil technique (a coil exposed at the upper break and thick clay cover the coils on both sides); a moderate amount of mixed, fine gritty particles in the 7.5YR 5/6 paste; friable texture; breaks are eroded; streaky black to brown 7.5YR 6/4 burnished exterior; smoothed and poorly finished 7.5YR 4/3 interior.

#### 43 Chobareti 2012, Square G42/F42

##### *Kura-Araxes Ware*

§1, inv. no. SPF 103/34 — Thin vertical pierced lug handle; the wall of the vessel is thin and probably from a closed small pot; **Kura-Araxes Refined** (Rd/Rd) ware; HM; well-levigated, compact clay; even reddish yellow 5YR 7/6 throughout; occasional fine voids in the paste; soft and eroding breaks; self-slipped surfaces.

§2, inv. no. SPF G42.2/F42.1/2 — Body fragment; **Kura-Araxes Medium Grey Brown** (Bl/Bl) ware; HM, formed around a cloth bag and exceptionally well-preserved cloth impression survive on the interior where the outer clay layer has flaked off; medium coarse textured black clay;

a moderate amount of fine to medium gritty inclusions; smoothed matt 7.5YR 6/1 exterior; black and flaking interior.

§3, inv. no. SPF G42.2/F42.1/7 — Base fragment possibly from a legged or fenestrated pot stand; **Kura-Araxes Medium Grey Brown** (Rd/Rd) ware; HM likely using slab technique; coarse textured clay with small mixed gritty inclusions in the paste; poorly levigated clay; grey 7.5YR 5/1 through section; compact and hard-fired fabric with moderately sharp breaks; burnished black 5YR 7/3 exterior surface especially on the base. D of edge 20.

§4, inv. no. SPF 100/6 — Flat lid fragment with rounded edge; **Kura-Araxes Medium Grey Brown** (Rd/Rd) ware; HM; well levigated fabric; fine textured, hard fired clay with fine gritty inclusions in the paste; breaks are sharp; dark grey 2.5Y 3/1 core near upper surface and pale brown 7.5YR 6/6 in the lower section; slipped and very smoothed, finely finished surfaces, not burnished; 7.5YR 7/1–7/2 upper; 7.5YR 6/3 underside. RD *ca.* 31.

§5, inv. no. SPF 103/19 — One side of a portable hearth fragment, horse-shoe shape with flattened and burnished, but otherwise undecorated front; remnants of a ledge or attachment on the inner edge; the resting surface is flat and burnished; **Kura-Araxes Medium Grey Brown** (Rd/Rd) ware; HM; friable, coarse-textured clay; grey 5YR 4/2 at the core where thickest firing pale brown 5YR 7/4 near the surfaces; a moderate amount of fine to small mixed gritty inclusions in the paste, similar to other pottery from Chobareti; slipped pale pinkish-brown 5YR 5/4 surfaces. H of front 13.4, D of inner curve *ca.* 22.

§6, inv. no. SPF 103/27 — Undulating wall possibly from a shallow tray with small applied knob on the exterior; possibly an early form; **Kura-Araxes Medium Grey Brown** (Rd/Rd) ware; HM; even red 7.5YR 6/6 through section; a moderate amount of fine to small mixed gritty inclusions in the paste; thick and flaking, matt 7.5YR 6/4 slip on the exterior surface; matt smoothed 7.5YR 7/6 slipped interior.

§7, inv. no. SPF G42.2/F42.1/4 — Body fragment from a very thick-walled large pithos with traces of a deep groove near the top of the sherd; **Kura-Araxes Medium Grey Brown** (Rd/Rd) ware; HM, laminations are evident in the section; grey *c.*10YR 4/1 core firing red near the surfaces; open, friable fabric with voids and fine to large mixed gritty inclusions in the paste; 7.5YR 8/4 slipped, smoothed and matt exterior; thick and flaking 7.5YR 7/3 slipped interior.

§8, inv. no. SPF G42.2/F42.1/3 — Body fragment from a large pot; **Kura-Araxes Medium Grey Brown** (Rd/Rd) ware; HM using slab technique with clear edge of the clay seam visible in the upper break; compact and heavy clay; dark grey N2.5/ at core firing brown 5YR 5/6 near the surfaces; slipped and smoothed red-brown 7.5YR 7/4 on the exterior; 5YR 7/4 on the slipped interior.

#### 44 Chobareti 2012, Square G42/F42

##### *Chaff-Faced Ware*

§1, inv. no. SPF 103/16 — Rim fragment from a hole mouth jar; the flattened rim top angles obliquely into the vessel; **Pale Brown (chaff)**; HM; the section is divided in colour, pale brown 7.5YR 5/4 and grey 10YR 3/3; a small amount of fine, mixed gritty inclusions in the well-levigated paste; breaks are moderately sharp; roughly smoothed exterior; possibly straw-wiped interior; pale matt brown 10YR 7/3 slipped surfaces. RD *ca.* 24.

§2, inv. no. SPF 103/4 — Large hole mouth jar fragment; rounded lip and relatively thin walled; **Pale Brown (chaff)**; HM, likely using coil technique evident in the undulating surface; even pale reddish brown 7.5YR 6/6 through section; mottled 7.5YR 7/3 and darker on the exterior perhaps from use as a cooking pot; drab exterior and interior; smoothed pale brown 7.5YR 7/4 slipped interior. RD *ca.* 50.

§3, inv. no. SPF 103/5 — Rim fragment from an open bowl with rounded lip slightly angular at the outer edge and moderately thick walls; **Pale Brown (chaff)**; HM; medium textured clay, evenly coloured 7.5YR 6/6 through section; very fine mixed gritty particles in the paste; medium coarse breaks dulled from erosion; matt and smoothed, self-slipped 7.5YR 6/6 exterior and interior that have straw marks impressed into the surfaces. RD 24.

§4, inv. no. SPF 103/33 — Tray fragment with scooped open front, roughly smoothed around the opening and flattened resting surface; **Pale Brown (chaff)**; HM; occasional fine mixed gritty inclusions and some voids in the paste; hard textured clay even 5YR 7/4 coloured throughout; breaks are rough; chaff impressed base and walls. BD *ca.* 18.

§5, inv. no. SPF 103/6 — Two joining base fragment from a large jar with distinct chaff impressions on the resting surface and exterior wall; **Pale Brown (chaff)**; HM; even reddish yellow 10YR 7/6 through section; chaff and other voids, as well as some fine gritty particles in the paste; smoothed, matt, self-slipped 10YR 8/4 exterior and interior. BD *ca.* 54.

Yellow on Red ware from area G42/F42:

§6, inv. no. SPF 103/18 — Body fragment from a large, thick-walled jar; **Yellow on Red** ware; HM; friable clay, grey at the core firing red 5YR 6/8 with eroding dull breaks; medium coarse texture with some voids and a moderate amount of fine, mixed gritty inclusions in the paste; smoothed pale grey interior; thick, matt yellow 10YR 8/4 slip on the exterior; matt 2.5Y 8/2 slipped interior.

§7, inv. no. SPF 103/17 — Body fragment from a very thick-walled large jar; **Yellow on Red** ware; HM; very friable, reddish yellow 7.5YR 6/6 clay; eroding breaks; numerous chaff voids and a moderate amount of fine to small mixed gritty inclusions in the paste; thick, matt yellow slip paler than 5Y 8/2 on the exterior; smoothed and thickly self-slipped 7.5YR 6/6 interior, now eroded and flaking.

*Hard Orange Drab ware:*

§8, inv. no. SPF 103/7 — Base fragment with flat resting surface; **Hard Orange (drab)** ware; HM; very dark grey 5YR 5/1 through the core firing red 5YR 5/6 near the surfaces; hard fired clay; chaff voids and a moderate amount of fine to small mixed gritty inclusions in the paste; smoothed thinly self-slipped 5YR 7/4 exterior and interior. BD *ca.* 16.

§9, inv. no. SPF 103/8 — Base fragment with simple, flat resting surface; **Hard Orange (drab)** ware; HM; very dark 5YR 4/1 core firing red 5YR 6/8 for 2–3 mm near the surfaces; hard-fired, medium-coarse textured clay with moderately sharp breaks; some chaff voids in the paste; straw impressions on the 5YR 7/6 exterior surface with some smoke blackened patches; smoothed 5YR 7/6 interior.

*Crisp Brickly (Sub-Category: Micaceous):*

§10, inv. no. SPF 100/3 — Small bowl rim fragment with thickened lip; ridges and incised horizontal lines decorate the exterior; **Crisp Brickly (Micaceous)** ware; WM and thin-walled; pale red 5YR 6/6 through section and on the surfaces; the clay is peppered with very fine mixed particles and mica flecks; slurry finish on the interior. RD 14.

## 45 Chobareti 2012, Square L47:

*Kura-Araxes Ware*

§1, inv. no. SPF 201/4 — Deep pot fragment; flaring angular rim, abraded on the outer edge; thin-walled; **Kura-Araxes Medium Grey Brown (Rd/Rd)** ware; HM; compact, medium-textured N5/ clay with a moderate amount of fine mixed gritty inclusions in the paste; lightly burnished 7.5YR 7/3 slipped exterior; smoothed and matt slipped 5YR 7/4 interior. RD *ca.* 21.

§2, inv. no. SPF 200/2 — Curved neck and flaring angular rim fragment from a jar; **Kura-Araxes Medium Grey Brown (Rd/Rd)** ware; HM coil technique evident in the undulations in the section; hard fired, semi-coarse, grey N5/ clay with small to medium, mixed and angular gritty particles in the paste; breaks are shape; streaky, vertically burnished brown *c.*10YR 6/3 exterior; blackened patch near the rim; mottled, plain and smoothed *c.*10YR 7/4 and 4/1 interior. RD 24.

§3, inv. no. SPF 201/5 — Two joining, flaring rim fragments from a pot; **Kura-Araxes Medium Grey Brown (Rd/Rd)** ware; HM; half grey 2.5Y 5/1 core near exterior, half red 7.5YR 7/6 core near interior; compact, medium textured clay with a moderate amount of fine mixed gritty inclusions in the paste; pink-buff 7.5YR 7/4 and burnished exterior; smoothed slipped 7.5YR 7/2 interior. RD 24.

§4, inv. no. SPF 200/5. — Flaring rim from a large jar with rounded lip and indistinct groove on the outer edge; **Kura-Araxes Medium Grey Brown (Rd/Rd)** ware; HM using coil technique with undulations evident in the section; compact 5YR 5/4 fabric with a moderate amount of fine mixed gritty inclusions in the paste; breaks are moderately sharp; matt thickly slipped 5YR 7/4 exterior and 5YR 8/3 interior. RD 36.

§5, inv. no. SPF 200/7 — Bowl fragment with inward curving walls and rounded lip with sharply defined edge on the inner mouth; **Kura-Araxes Medium Grey Brown (Bl/Rd)** ware; HM using coil technique evident at the lower break; half black N3/ core near the exterior, half red 7.5YR 6/6 core near the interior; compact, well-levigated fabric; fine to small mixed gritty inclusions in the paste; breaks are sharp; black N2.5/ burnished exterior, now largely eroded; red 7.5YR 8/6–7/6 matt interior, on the lip and exterior. RD 24.

§6, inv. no. SPF 201/3 — Deep, open bowl fragment with thick curved walls and flatted lip; **Kura-Araxes Medium Grey Brown (Bl/Rd)** ware; HM; even brown 5YR 6/6 through section; medium coarse textured, compact clay; a medium amount of fine to small mixed gritty inclusions in the paste; once burnished N4/ slipped exterior, now eroded; streaky, red 5YR 7/4 burnished slipped interior. RD 28.

§7, inv. no. SPF 200/3 — Concave base fragment from an open bowl; **Kura-Araxes Medium Grey Brown** (Rd/Rd) ware; HM; dark grey N2.5/ at core firing brown 7.5YR 6/4 near the surfaces with very clear colour distinctions in the section; a medium amount of fine sandy grits in the paste; compact and well-levigated clay; hard-fired with sharp breaks; slipped pale brown 7.5YR 8/4–7/4 and burnished exterior; smooth 7.5YR 7/4 wash on the interior. BD 8.

§8, inv. no. SPF 201/2 — Very thin-walled flat base fragment from a small pot; well-worn resting surface; **Kura-Araxes Refined** (Bl/Bl) ware; HM; even mid-brown 2.5YR 4/2 through section; black N2.5Y/ burnished exterior; a finely scratched cross is on the exterior wall made post-firing; smoothed plain 10YR 5/1 interior with possible traces of residue. BD *ca.* 4.

§9, inv. no. SPF 200/4 — Body fragment with the stump of an angular handle; **Kura-Araxes Medium Grey Brown** (Rd/Rd) ware; HM; dark grey-black clay; medium textured clay with fine voids and mixed gritty inclusions in the paste; slipped pale brown on the exterior; an incised zigzag decoration made prior to firing is on the upper face; pale brown slipped interior; matt smoothed surfaces.

§10, inv. no. SPF 200/8 — Unusual shape, possibly the ridged edge fragment from a pedestalled base, a cylindrical pot stand or possibly a domed lid; **Kura-Araxes Medium Grey Brown** (Rd/Rd) ware; HM; grey 7.5YR 5/1 core firing red 7.5YR 7/3 near the surfaces; heavy clay with voids and fine mixed gritty inclusions in the paste; thin pink 7.5YR 7/6 slip on the outer surface; a similar slip may have coated the interior, now largely eroded. D of edge 37.

#### 46 Chobareti 2012, Square L47:

##### *Kura-Araxes Ware*

§1, inv. no. SPF 201/1 — Flat lid fragment with shallow, irregular groove around the outer edge; heat damaged underside; **Kura-Araxes Medium Grey Brown** (Rd/Rd) ware; HM using slab technique; grey N4/ core firing brown 5YR 5/2 near the surfaces; hard-fired, compact fabric; a moderate amount of fine to small mixed gritty inclusions in the paste; breaks are moderately sharp and jagged; matt pinkish 7.5YR 8/3 slip on the upper surface; smoothed 5YR 6/3 underside. D of edge *ca.* 22.

##### *Drab Brown Ware*

§2, inv. no. SPF 103/4 — Slightly flaring rim from a small, thick-walled jar; **Drab Brown** ware; HM; very poor quality and friable, coarse-textured fabric with a large amount of voids through the paste; breaks are jagged; dark brown-black 10YR 2/1 through the section; roughly smoothed exterior and interior; eroded and encrusted 10YR 6/2–5/2 surface, once wet-smoothed. RD *ca.* 10.

##### *Hard Red (Yellow Slip) Ware:*

§3, inv. no. SPF 200/9 — Body fragment from a thick-walled vessel; **Hard Red-Yellow Slipped** ware; HM; the reddish yellow 5YR 6/6 clay matrix is peppered with a very large amount of fine to small sandy mixed gritty particles; friable and medium-textured fabric; thick yellow 2.5Y 8/3 and crazed slip on the exterior; traces of a reddish yellow thick slip on the interior.

§4, inv. no. SPF 200/6 — Hole mouth jar rim with slightly oblique and angular lip; decorative notches have been cut in the outer rim edge; **Hard Red-Yellow Slipped** ware; HM; the core is

red 2.5YR 6/4 near the interior and grey near the exterior; voids and fine to large mixed gritty inclusions in the paste; jagged breaks; matt, crazed and thick yellow 5Y 8/4 slip on the exterior and smoothed interior; a maroon 7.5R 5/1 wash on the interior is also on the rim and on the exterior wall for some two centimetres where it is 7.5YR 5/1 thin and fugitive. RD 22.

*Kura Araxes Ware, Square N49.1:*

§5, inv. no. SPF 301/2 — Open bowl fragment with flattened rim top and two small knobs are on the rim; **Kura-Araxes Medium Grey Brown (Rd/Rd)** ware; HM; compact clay, grey 7.5YR 5/1 through section firing reddish yellow 7.5YR 6/2 near the surfaces; hard-fired; a moderate amount of voids and fine to small mixed gritty inclusions in the paste (not micaceous); eroding pale brown 7.5YR 6/4 slip on the interior and exterior. RD 18.

§6, inv. no. SPF 301/1 — Vertical loop handle from a large jar; ovoid section; **Kura-Araxes Medium Grey Brown (Rd/Rd)** ware; HM using coil technique evident in section; grey 7.5YR 4/1 through core; hard fired clay; jagged breaks; voids and a moderate amount of mixed gritty inclusions in the paste; thick pale brown 7.5YR 7/4, matt slip on the exterior; 7.5YR 7/4–6/4 interior.

*Crisp Bricky (Sub-Category: Micaceous) Ware, Square D49–D50:*

§7, inv. no. SPF 401/15 — Flaring rim fragment from a wide-necked jar; a fingernail-impressed pie-crust design decorates the outer rim edge; **Crisp Bricky (Micaceous)** ware; WM and throwing ridges on the interior; very fine to small mixed gritty particles in the brown 5YR 5/4 paste; brown 5YR 5/4 to black, smoothed and matt slip on the exterior and interior; blackened and heat damaged near the rim. RD 22.

§8, inv. no. SPF 401/14 — Fragment from a jar with slight lip formed on the inner mouth and angular edges on the lip; **Crisp Bricky (Micaceous)** ware; WM; slightly grey at the core firing brown 5YR 6/4 near the surfaces; compact, hard-fired clay; fine mixed gritty and micaceous particles in the paste; breaks are sharp; slipped and smoothed 5YR 4/1 surfaces; smoke blackened patches. RD 24.

§9, inv. no. SPF 401/26 — Thickened and everted rim from a large open vessel with two poorly formed grooves on the top; **Crisp Bricky (Micaceous)** ware; WM and lightly striated interior; heavily micaceous clay, even brown 7.5YR 5/4 through section; a moderate amount of fine to small mixed gritty inclusions in the paste; smoke blackened on the outer edge; matt brown 7.5YR 6/4 exterior; matt, brown slipped 7.5YR 6/3–5/3 interior surface. RD 28.

§10, inv. no. SPF 401/25 — Body fragment from a closed jar with relatively thin walls (two other fragments have been identified); **Crisp Bricky (Micaceous)** ware; likely HM using coil technique; a moderate amount of very fine mica in the 5YR 5/3 paste, voids and fine to large gritty inclusions; medium textured; deeply incised linear and possibly zigzag decoration made while the clay was wet; grey-brown 7.5YR 6/3 slipped exterior; roughly smoothed plain red 5YR 6/4 interior.

§11, inv. no. SPF 401/12 — Ornatly decorated shoulder fragment from a pitcher or large jar; **Crisp Bricky (Micaceous)** ware; WM; brown 5YR 5/6 through section; hard-fired, medium coarse texture; fine to small mixed gritty inclusions in the paste with a moderate amount of very fine golden micaceous particles; smoothed and slipped 7.5YR 6/2 exterior; the interior was wiped horizontally on

the upper section and vertically on the lower; the exterior incised decoration made while the clay was wet forms horizontal zones; in the upper register are deep punctures, below is a shallow grooved, wavy line and in the lower zone is an applied ridge on clay with impressions resembling plaited rope.

47 Chobareti 2012, Square D49–D50:

*Crisp Bricky (Sub-Category: Micaceous)*

§1, inv. no. SPF 401/8 — Body fragment from a large pithos decorated with applied finger-impressed ridges of clay imitating rope designs below which the body is heavily wiped (with cloth?) in a rusticated decorative all over design; **Crisp Bricky (Micaceous)** ware; WM; medium-textured, compact and hard 10YR 6/3 clay; a large amount of very fine mica and fine mixed gritty inclusions in the paste, breaks are eroding; slipped and matt surfaces, 5YR 6/4 on the exterior, 5YR 7/4 on the interior; numerous fragments of this vessel have been recovered.

§2, inv. no. SPF 401/10 — Body fragment from a large thin-walled jar with combed and single line decoration on the exterior; **Crisp Bricky (Micaceous)** ware; WM; medium coarse clay; slightly greyer 7.5YR 5/3 at the core firing red near the surfaces; similar to other large pithoi fragments found at the site; a moderate amount of fine mixed gritty and micaceous particles in the paste; slipped and pale brown 7.5YR 6/6 exterior; plain smoothed and gritty 7.5YR 5/3 interior.

§3, inv. no. SPF 401/7 — Body fragment from a large pithos (other fragments from the same vessel have been found); **Crisp Bricky (Micaceous)** ware; WM; slightly pale grey 5YR 6/3 at the core firing red-brown near the surfaces; medium coarse clay with very fine to small mixed gritty and micaceous inclusions in the paste; eroding breaks; thin 5YR 6/6–5/6 wash on the exterior in refined, but similar clay to the matrix; the exterior is decorated in rustic fashion with haphazardly (cloth?) wiped, oblique striated lines in zones above and below a horizontal wiped band; plain smoothed 5YR 4/6–6/6 interior.

§4, inv. no. SPF 401/9 — Body fragment from a large pithos with applied ridge and cloth wiped lower exterior wall as a decorative feature; **Crisp Bricky (Micaceous)** ware; WM with throwing lines running obliquely up the length of the wall interior; even dark brown 2.5YR 5/8 clay; golden mica flecks, very fine to small black and crystalline particles in the paste and surfaces; 7.5YR 6/6 exterior; 10YR 5/2 interior.

§5, inv. no. SPF 401/20 — Ovoid sectioned handle from a large and thin-walled vessel; a flattened round pellet of clay decorates the top; **Crisp Bricky (Micaceous)** ware; WM; micaceous fabric fired 5YR 6/6 nearest the exterior and 7.5YR 6/4 toward the interior in the section; matt, self-slipped surfaces; the interior has numerous finger impressions where the handle was joined.

§6, inv. no. SPF 401/13 — Handle from a very large, narrow-necked pithos or pitcher; decorated with finger-impressed (with fingernail impression) dimple at the top and bottom and grooves at the sides; ovoid section; **Crisp Bricky (Micaceous)** ware; WM body fragment; grey 7.5YR 5/1 at core; golden mica flecks, some voids and mixed gritty inclusions in the paste; red-brown 7.5YR 7/6 slipped and smoothed surfaces.

§7, inv. no. SPF 401/21 — Four fragments from a jar or jug; **Crisp Brickly (Micaceous)** ware; WM; micaceous fabric, grey 7.5YR 5/1 at the core firing brown 7.5YR 5/6 near the surfaces; fine to large mixed gritty inclusions in the paste; breaks are sharp; medium coarse textured and hard fired clay; matt and smoothed exterior with thin 7.5YR 5/3 wash; applied horizontal band with repeated, deep and sharply impressed design; 7.5YR 6/4–5/4 interior.

§8, inv. no. SPF 401/24 — High ring base fragment, possibly from an open bowl; **Crisp Brickly (Micaceous)** ware; slow WM or hand modelled; dark brown 10YR 5/1 core firing 5YR 5/6 red; coarse fabric with small to large mixed gritty inclusions in the paste; smoothed and slipped 2.5YR 6/6 exterior; roughly finished underside; smoothed and slipped 2.5YR 6/6 interior. BD *ca.* 8.

#### 48 Chobareti 2012, D49–D50:

##### *Crisp Brickly (Sub-Category: Micaceous)*

§1, inv. no. SPF 401/17 — Base fragment with irregular resting surface and relatively thin walls; **Crisp Brickly (Micaceous)** ware; WM; dark 10YR 4/1 through the section; hard-fired and moderately well-levigated, medium coarse fabric with fine to small mixed gritty particles in the paste; breaks are sharp; smoothed thin 10YR 6/3 to 2.5YR 6/6 patchy wash on the exterior; rougher on the plain 10YR 6/2 and 5YR 6/6 interior. BD 10.

§2, inv. no. SPF 401/27 — Base fragment with a shallow and irregularly formed ring at the edge of the otherwise flat and smoothed resting surface; **Crisp Brickly (Micaceous)** ware; WM; dark grey 10YR 5/2–4/2 core firing pale brown near the exterior surface; a few voids and a small amount of fine mixed gritty particles and a large amount of minute micaceous flecks are in the paste; smoothed 5YR 6/6 exterior; very dark 5YR 5/4, matt and self-slipped interior. BD 12.

§3, inv. no. SPF 401/16 — Base fragment with thin walls and flat and roughly finished resting surface; **Crisp Brickly (Micaceous)** ware; WM and striated interior; medium-coarse textured, dark 7.5YR 4/1 fabric; fine micaceous and fine to small mixed gritty particles in the paste; slipped and roughly smoothed. Mottled 7.5YR 6/4–5/2 exterior with some gritty inclusions breaking at the surface; 7.5YR 6/4 interior. BD 14.

§4, inv. no. SPF 401/19 — Base fragment from a large jar with flat resting surface and vertically shaved where the outer edge was neatened while the clay was wet; **Crisp Brickly (Micaceous)** ware; WM; grey 7.5YR 6/6 core firing brown near the surfaces; micaceous fabric with voids and a moderate amount of fine mixed gritty inclusions in the paste; rough throwing ridges remain on the base and outer wall; self-slipped 7.5YR 6/4 exterior and 7.5YR 6/6–5/6 interior with blackened patches. BD *ca.* 13.

##### *Crisp Brickly (Sub-Category: Red Slip), Square D49–D50:*

§5, inv. no. SPF 401/4 — Body fragment from a closed pot, possibly a cooking vessel with two deep horizontal grooves on the shoulder; **Crisp Brickly (Red Slipped)** ware; WM; hard-fired and medium-coarse textured fabric, grey N3/ through section; golden mica in the paste; breaks are sharp; brown 5YR 5/6 and smoke blackened exterior; red 10R 4/8 painted decoration in rustic fashion; matt brown 5YR 6/4 slipped interior. D max *ca.* 16.

§6, inv. no. SPF 401/5 — Body fragment from a pot; **Crisp Bricky (Red Slipped)** ware; slow WM or possibly hand-made (surfaces have eroded); medium-coarse textured 10YR 4/1 clay with very fine to fine mixed gritty inclusions and a moderate amount of mica flecks in the paste; the exterior has a matt, patchy red 10R 5/6 slip that only partly covers the underlying surface; signs of use-wear sheen on the exterior; horizontal wavy and straight lines made prior to firing decorated the exterior; smoothed 5YR 6/4 slipped interior.

§7, inv. no. SPF 401/28 — Body fragment from a large jar with stump of an ovoid-sectioned handle decorated with irregular thin groove and wider thumb impressed depression; **Crisp Bricky (Red Slipped)** ware; hand-modelled; grey 5YR 5/4 core; compact and hard-fired clay; breaks are sharp; a moderate amount of fine to small mixed gritty inclusions levigate the micaceous paste; thick, smoothed brown 5YR 5/6 slip on the exterior with traces of a thin red wash; flaked and eroded interior surface, originally smoothed and 7.5YR 5/4 self-slipped.

§8, inv. no. SPF 401/18 — Bowl fragment; slightly everted rim sloping obliquely into the bowl, thin lip; **Crisp Bricky (Red Slipped)** ware; WM; dark 5YR 5/1 at the core firing red near the surfaces; medium textured clay, poorly levigated; a small amount of mixed fine gritty inclusions in the paste; smoothed yellowish red 5YR 5/4 interior and exterior; thin red 10R 4/4 wash on the exterior. RD 11.2.

*Heavy Dark Ware, Square D49–D50:*

§9, inv. no. SPF 401/29 — Base fragment from a jar; **Heavy Dark** ware; HM using slab technique evident in seem near the resting surface; micaceous 7.5YR 5/2 paste with fine to small mixed gritty inclusions in the paste; hard and heavy, ‘stone-ware’ fabric; very irregular surface, especially near the base on the exterior; dark 7.5YR 5/3 matt, thin wash on exterior; slipped and smoothed, matt brown-grey 7.5YR 6/4 interior. BD 9.

*Eroding Light Red Ware, Square D49–D50:*

§10, inv. no. SPF 401/31 — Body fragment; **Eroding Light Red** ware; likely WM and thin-walled; soft and eroding clay; even reddish-yellow 7.5YR 7/6 through section; very fine, sandy texture; dull and eroded breaks; occasional mica flecks, voids and a moderate amount of fine mixed gritty inclusions in the paste; matt thin yellow 7.5YR 8/6–7/6 wash on the exterior; plain unslipped interior.

*Brown Black (Grey Slipped) Ware, Square B48:*

§11, inv. no. SPF B48/2 — Hole mouth jar fragment; off-set thickened and slightly irregular rim with rounded lip and outer edge; horizontal ridges and grooves on the shoulder; **Brown Black (Grey Slipped)** ware; WM; hard stone ware; fine wheel striations on the interior; brown 10YR 5/2 fabric near interior, grey N6/ near exterior; a moderate amount of very fine to large gritty inclusions in the paste; moderate levigation with some elongated and compressed voids evident in the fabric; burnished on rim and streaky burnished around 10YR 5/2 on lower exterior wall; smoothed 2.5Y 5/1 interior. RD 24.

*Crisp Bricky Ware, Square B48:*

§12, inv. no. SPF B48/1 — Rim fragment from a thick-walled large jar decorated with incised herringbone pattern on the flat rim top; **Crisp Bricky (Reddish Brown)** ware; HM using coil

technique; coarse textured clay with voids corresponding to coil seems and undulating surfaces; even red 5YR 6/4 through core; small to medium mixed gritty inclusions in the paste; thin 7.5YR 7/6 wash on the surfaces. RD 44.

49 Chobareti 2012, Sqaure B48:

*Crisp Bricky Ware*

§1, inv. no. SPF 500/9 — Rim fragment from a large and thick-walled hole mouth jar; **Crisp Bricky (Reddish Brown)** ware; WM; even red 7.5YR 6/6 through section; poorly levigated, coarse and friable texture; many voids and a large amount of fine to small gritty inclusions in the paste; thin yellowish 10YR 7/4 slip on the exterior and paler 2.5Y 8/2 interior, smoothed but not burnished. RD *ca.* 34.

§2, inv. no. SPF 500/8 — Flat lid or baking tray; **Crisp Bricky (Reddish Brown)** ware; HM; very friable and decayed fabric; grey 5YR 6/6/ at the core firing brown near the surfaces; small to large gritty inclusions in the paste; remnants of finger impressed decoration at the edge; remnant decayed poor 5YR 4/1 slip survives on the flattened resting surface. D at edge 16.

§3, inv. no. SPF 500/10 — Base fragment from a jar with smoothed resting surface; **Crisp Bricky (Reddish Brown)** ware; HM likely using coil technique evident in undulating surface and seam voids in section; irregularly fired dark grey to pale red 10YR 6/1–5/1 core; poorly levigated and coarse texture clay; small to large mixed gritty inclusions; breaks are jagged; roughly smoothed, mottled and irregular 10YR 6/3 exterior; rougher 7.5YR 7/4 interior; possible residue coats the interior. BD 20.

*Crisp Bricky Ware (Sub-Category: Micaceous)*

§4, inv. no. SPF 501/2 — Body fragment from a closed jar; **Crisp Bricky (Micaceous)** ware; WM and rilled exterior surface (a decorative effect); even mid-brown 7.5YR 6/4 through section; hard, medium-coarse textured clay; a moderate amount of golden mica flecks, voids and very fine mixed gritty particles in the paste; matt surfaces; largely eroded 7.5YR 5/4 interior, once smoothed.

§5, inv. no. SPF 500/11 — Small lid (or possibly a cup) with hollow top and conical shape; **Crisp Bricky (Micaceous)** ware; likely HM; coarse micaceous clay with voids and small to large mixed gritty inclusions in the paste; medium coarse breaks; hard-fired clay; dark through the core; yellow slipped exterior and interior. D of top 3; H 3; D of outer edge 8.

§6, inv. no. SPF 500/1 — Jar rim with a small ridge at the lip and the semblance of a lid gallery on the inner mouth; **Crisp Bricky (Micaceous)** ware; WM and even red-brown 5YR 6/6 through section with striated interior, smoothed exterior; incised lines on the ridge under the rim mimics rope design; self-slipped 5YR 6/6 exterior. RD 20.

§7, inv. no. SPF 500/2 — Roughly flat base from a jar; **Crisp Bricky (Micaceous)** ware; WM; coarse dark N3/ fabric with voids, micaceous flecks and fine to small mixed gritty inclusions in the paste; hard-fired; moderately sharp breaks; mottled grey 7.5YR 6/1 to red 5YR 6/6 plain and smoothed exterior; smoothed interior with banding due to kiln conditions, pale 7.5YR 6/3 near the top, 7.5YR 5/2 near the bottom. BD 10.

§8, inv. no. SPF 504/1 — Flaring rim from a jar with use wear abraded line on the outer edge of the rim; **Crisp Bricky (Micaceous)** ware; WM; very fine sandy texture; micaceous clay with minute fine gritty inclusions in the paste; very dark grey 7.5Yr 3/1 core firing brown 7.5YR 5/4–5/6 at the surfaces; smoothed plain surfaces. RD 22.

§9, inv. no. SPF 500/12 — Disc base fragment with flat resting surface and rounded outer edge; **Crisp Bricky (Micaceous)** ware; WM and lightly striated exterior; dark grey-brown 2.5Y 4/1 clay firing brown near the surfaces; eroding dull breaks; fine mica flecks and fine to very large gritty inclusions through the coarse-textured paste; smoothed 2.5YR 6/6 self-slipped surfaces. BD 7.

§10, inv. no. SPF 501/1 — Bowl with curved wall; the rim has a distinct groove in the inner lip; post-firing shallow and irregular grooves under the rim; **Crisp Bricky (Micaceous)** ware; slow WM; compact 10YR 3/1 clay; breaks are sharp; fine to small mixed gritty inclusions in the paste including green crystalline particles and a large amount of very fine mica flecks; smoothed 10YR 3/1 exterior; smoothed 10YR 4/2 interior with use-wear burnishing on the lower wall. RD 18.

§11, inv. no. SPF 500/13 — Base fragment from a pot with smoothed resting surface; **Crisp Bricky (Micaceous)** ware; HM likely using coil technique with voids evident along seam lines; partly pale grey 10YR 7/1 through core; a moderate amount of fine mixed gritty inclusions in the paste; surfaces are blackened 5YR 3/1 mottled from use as a cooking pot; red 5YR 6/4 in patches on the exterior. BD 10.

*Crisp Bricky Ware (Sub-Category: Burnished)*

§12, inv. no. SPF 500/14 — Flaring rim fragment from a thin-walled jar; **Crisp Bricky (Burnished)** ware; likely WM; pale grey-brown 5YR 5/2 core firing reddish yellow 5YR 6/6 near the surfaces; fine, sandy textured clay; a large amount of very fine mixed gritty inclusions in the paste; the very smooth exterior has a slightly lustrous burnished 5YR 6/6 surface and unusual pale greyish wash; self-slipped, 5YR 6/6 matt interior surface peppered with very fine gritty particles. RD 18.

§13, inv. no. SPF 500/3 — Body fragment from a large jar; **Crisp Bricky (Burnished)** ware; HM using coil technique evident in the section and in the slightly undulating walls; medium textured clay with voids and minute to small, mixed gritty particles in the paste; grey 7.5YR 5/1 at the core firing pale brown near the surfaces; a large amount of fine micaceous particles in the paste; slipped and burnished 7.5YR 6/4 surfaces.

§14, inv. no. SPF 502/2 — Body fragment; **Crisp Bricky (Burnished)** ware; HM; even reddish yellow 7.5YR 6/4–6/6 through section, darkening toward the interior; breaks are sharp; compact and hard fired clay; voids and a moderate amount of fine mixed gritty inclusions in the paste; matt yellow 10YR 7/2 slipped exterior with horizontal burnished band decoration and oblique combed pattern; defaced interior surface.

§15, inv. no. SPF 500/4 — Body fragment probably from a large jar; **Crisp Bricky (Burnished)** ware; WM and finely rilled c.10YR 6/3 interior; compact and hard fired clay; even grey 10YR 3/1 through section; breaks are sharp; a small amount of fine mixed gritty inclusions are in the paste — the clay is lightly micaceous; matt thinly washed c.10YR 6/2 exterior; two wide bands remain of the pattern burnished decoration; two fine incised lines might also be decorative.

50 Chobareti 2012, Square B48:

*Heavy Dark Ware*

§1, inv. no. SPF 502/3 — Body fragment from a jar; **Heavy Dark** ware; HM; even mod brown 7.5YR 3/1 through section firing dark grey to black near the surfaces; a moderate amount of small mixed gritty inclusions in the paste; slipped and compact surfaces; vertical streaky burnished exterior, mottled green grey 5Y 7/1 to dark grey 5Y 3/1; matt and crazed pale grey 10YR 7/2 slip on the interior.

*Crisp Bricky Ware (Sub-Category: Red Slip):*

§2, inv. no. SPF 501/4 — Flaring and distorted rim, possibly from a vessel with a pinched spout; **Crisp Bricky (Red Slipped)** ware; WM; medium-fine textured and hard-fired, grey-brown 7.5YR3/1 clay; a moderate amount of minute to fine gritty particles in the paste; breaks are sharp; smoothed exterior with a thin weak red (slightly purplish) 10YR 5/4 wash on the exterior; thin, pale brown 7.5YR 6/6 to dark slip on the interior.

§3, inv. no. SPF 501/3 — Bowl or jar fragment with flaring rim and relatively thin walls; **Crisp Bricky (Red Slipped)** ware; WM with fine striation especially on the interior; medium coarse textured clay; micaceous clay with voids and a moderate amount of mixed fine gritty inclusions in the paste; grey 7.5YR 5/1 through section; breaks are sharp; very thin red 2.5YR 6/6 slip on the exterior and interior. RD 20.

*Crisp Bricky Ware (Sub-Category: Yellow Slip):*

§4, inv. no. SPF 502/1 — Near vertical rim from a small jar with flattened lip top; **Crisp Bricky (Yellow Slipped)** ware; likely slow wheel made; lightly micaceous clay with a moderate amount of fine mixed gritty inclusions in the paste; even red 2.5YR 5/6 through section; friable texture; thick yellow 7.5YR 7/4 matt slip on the exterior and interior. RD 14.

*Heavy Dark Ware*

§5, inv. no. SPF 500/7 — Closed jar fragment with near vertical rim and rounded lip; **Heavy Dark** ware; HM likely coil technique with undulations in the wall and evident in the section; compact, coarse clay, even brown 7.5YR 4/1 through section; mica fleck are in the surfaces; matt, mottled pale brown to grey 10YR 6/2–5/3 exterior; streaky burnished 10YR 5/1 to 7.5YR 6/3 interior. RD 20.  
2012,

Artefacts: §6, Square B48 (Art. 29) red flint blade; §7, Square L47.4 (Art. 15) black obsidian tool; §8, Square B48.4 (Art. 30) red flint blade; §9, Square D50.3 (Art. 13) black obsidian tool; §10, Square F42.1 (Art. 31) black obsidian blade; §11, Square N 49.1 (Art. 7) red flint point; §12, Square N49.1 (Art. 4.1) black obsidian tool; §13, Square L47.4 (Art. 11) black obsidian tool; §14, Surface find (Art. 3) pottery bead; §15, Square D50.2 (Art. 5) gilt silver belt buckle; §16, Square D50.1 (Art. 20) glass beaker rim; §17, South of G42.2/42/1 (Art. 1) pottery sherd re-worked into a disc; §18, Square L47.4 (Art. 2) pottery sherd re-worked into a disc; §19, Square D50.2 (Art. 25) pottery sherd re-worked into a disc and unfinished conical drill holes on both sides; §20, Square B 48 (Art. 28) basalt pestle.

51 Chobareti 2012, artefacts: §1, Square D50.3 (Art. 17) basalt hammer stone; §2, Square F42.4 (Art. 32) two red basalt fragments used as upper and lower grinding stones.

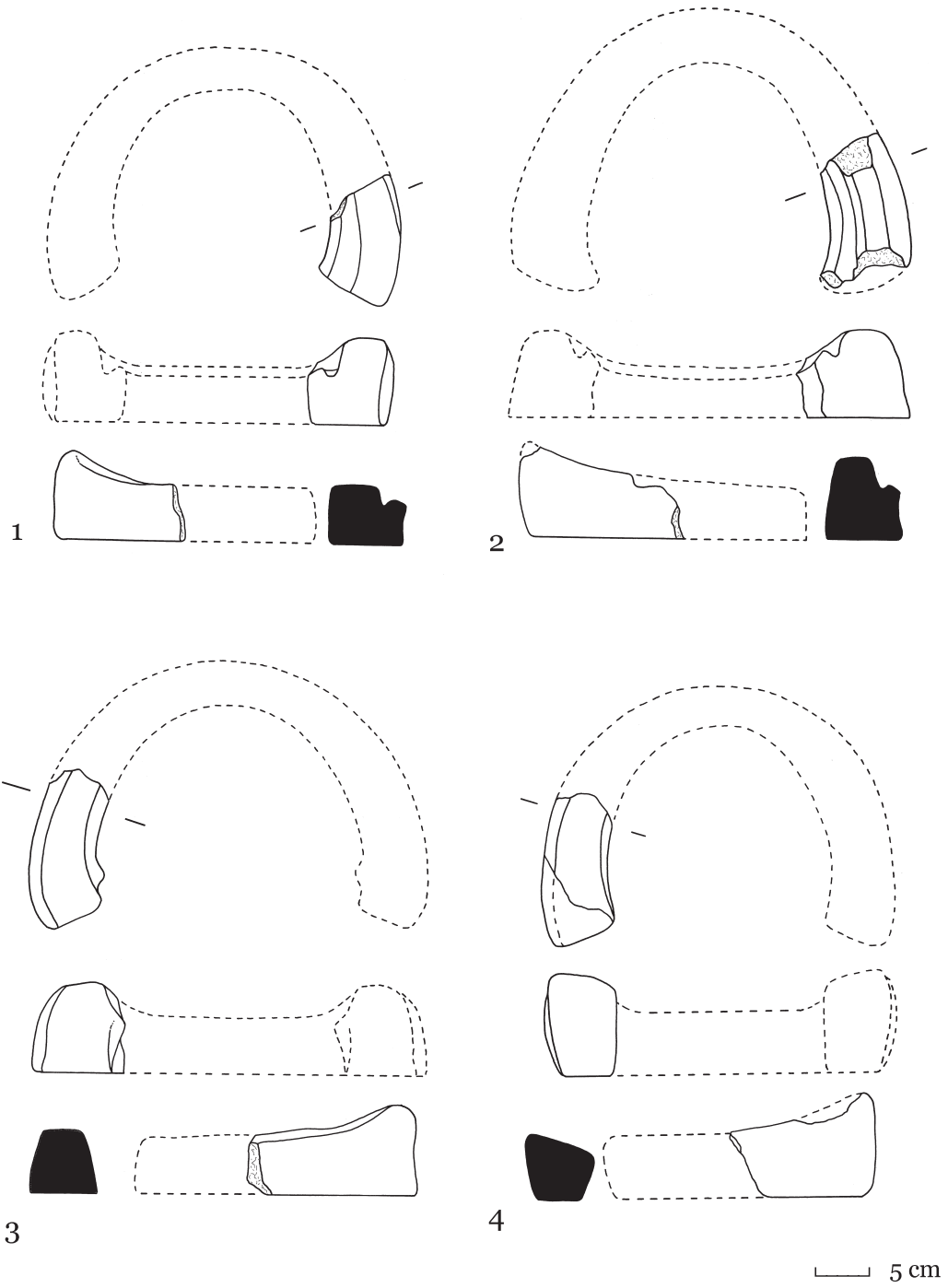


Fig. 28. Structure 4, andiron fragments.

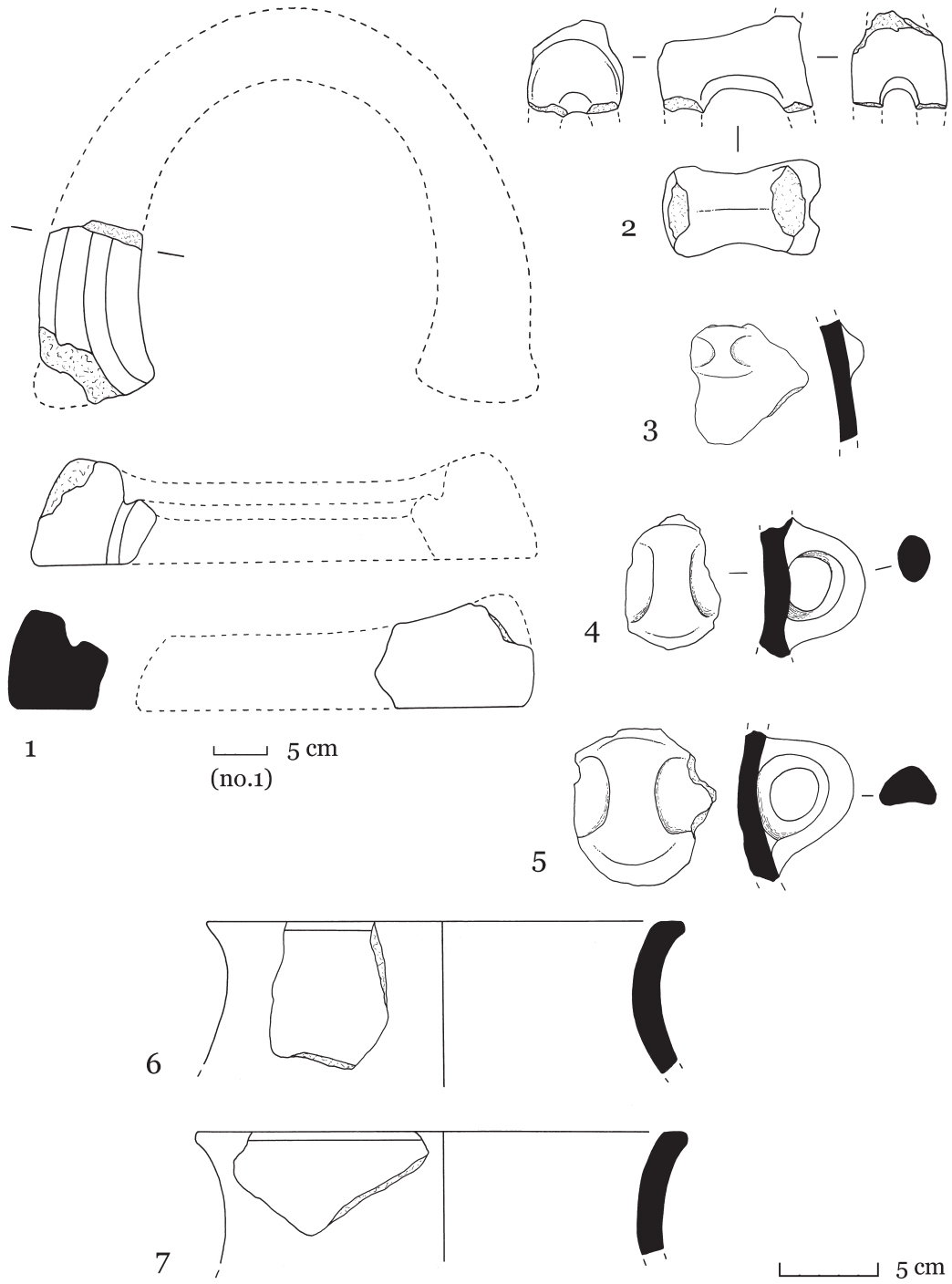


Fig. 29. Structure 4, 1 andiron fragment; 2 terracotta animal figurine; 3-7 pottery.

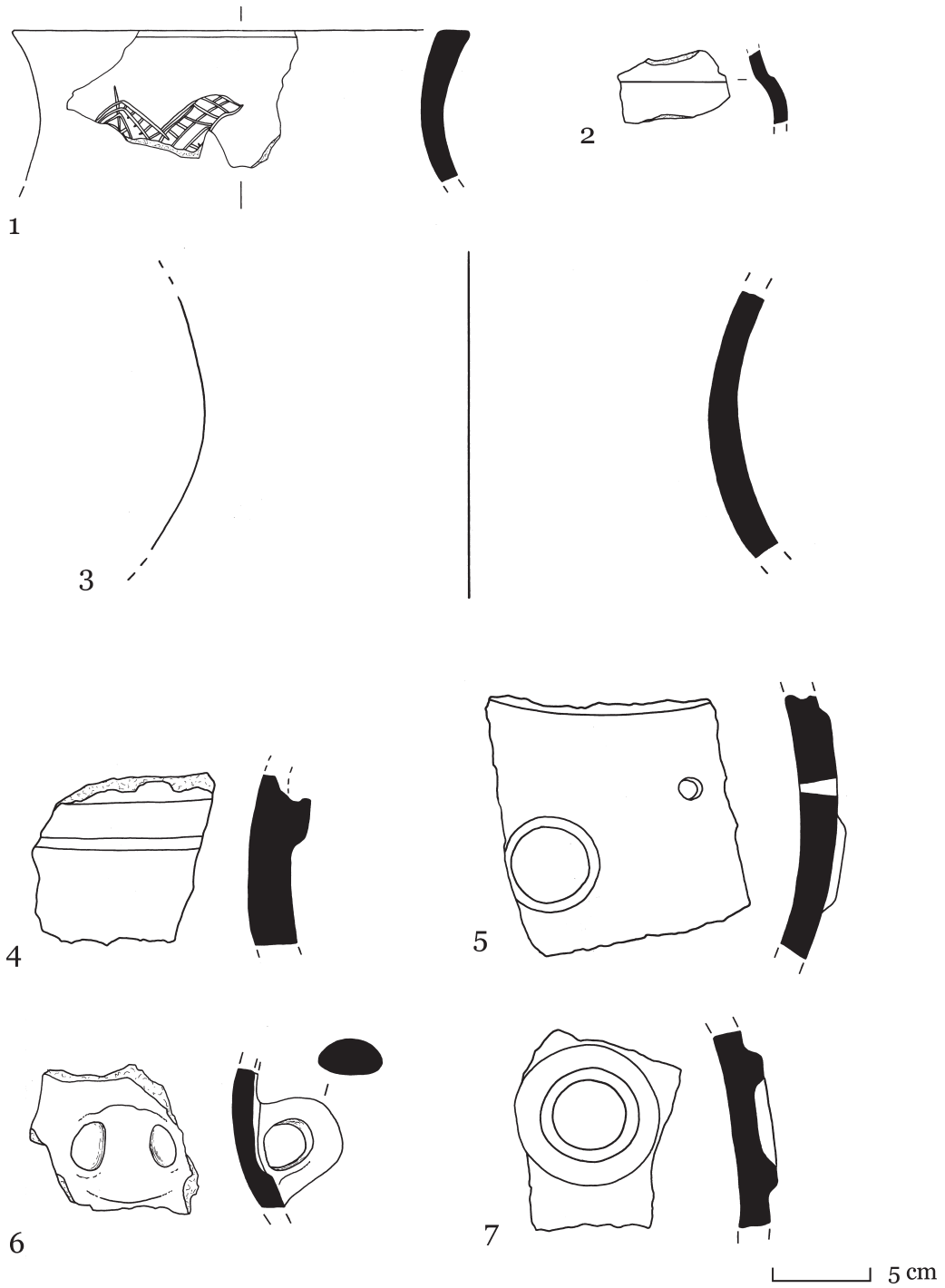


Fig. 30. 1-7, Structure 4.

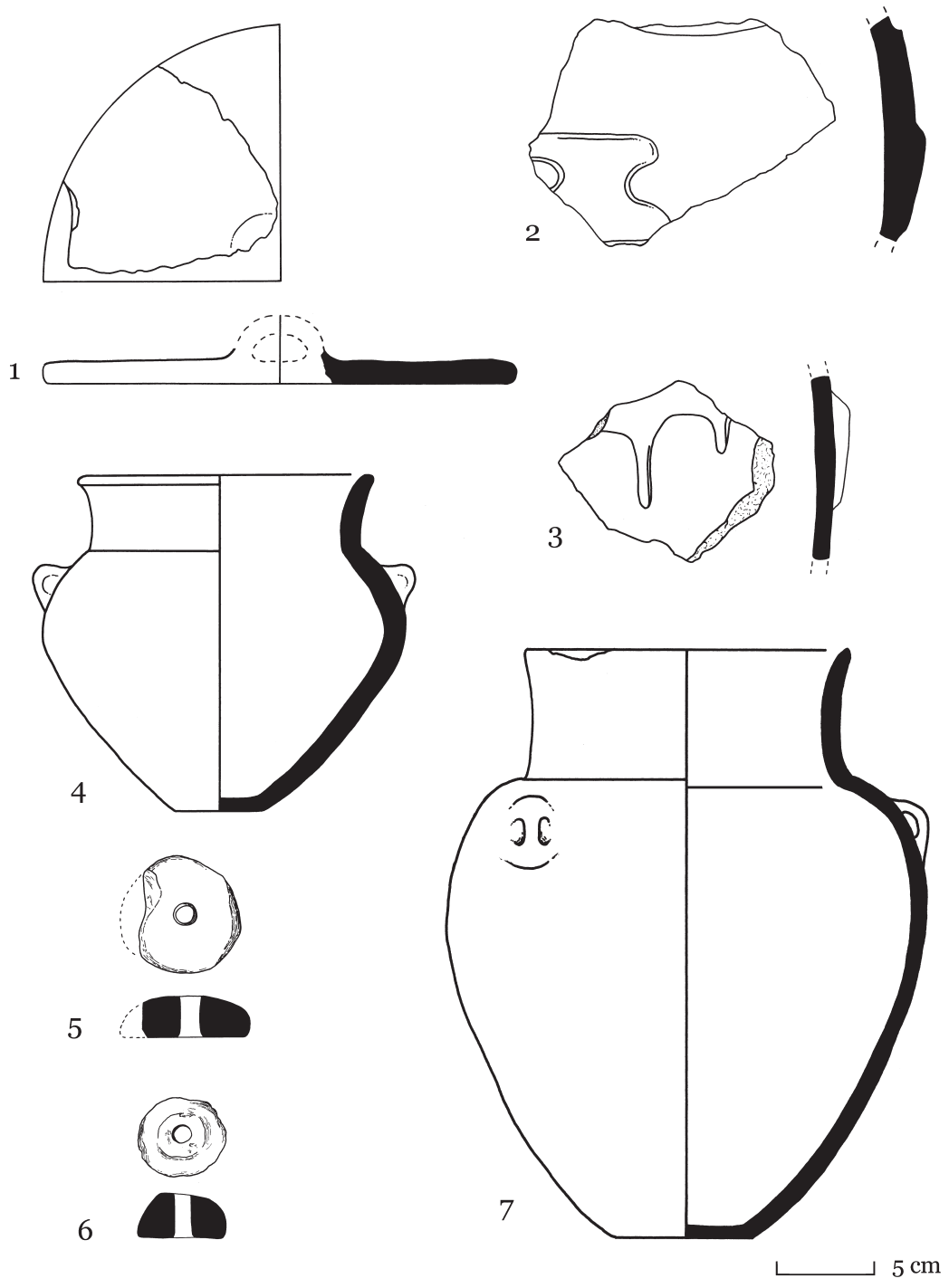


Fig. 31. 1-3, Structure 4; 4-5, Burial 1; 6, Burial 4; 7, Burial 2.

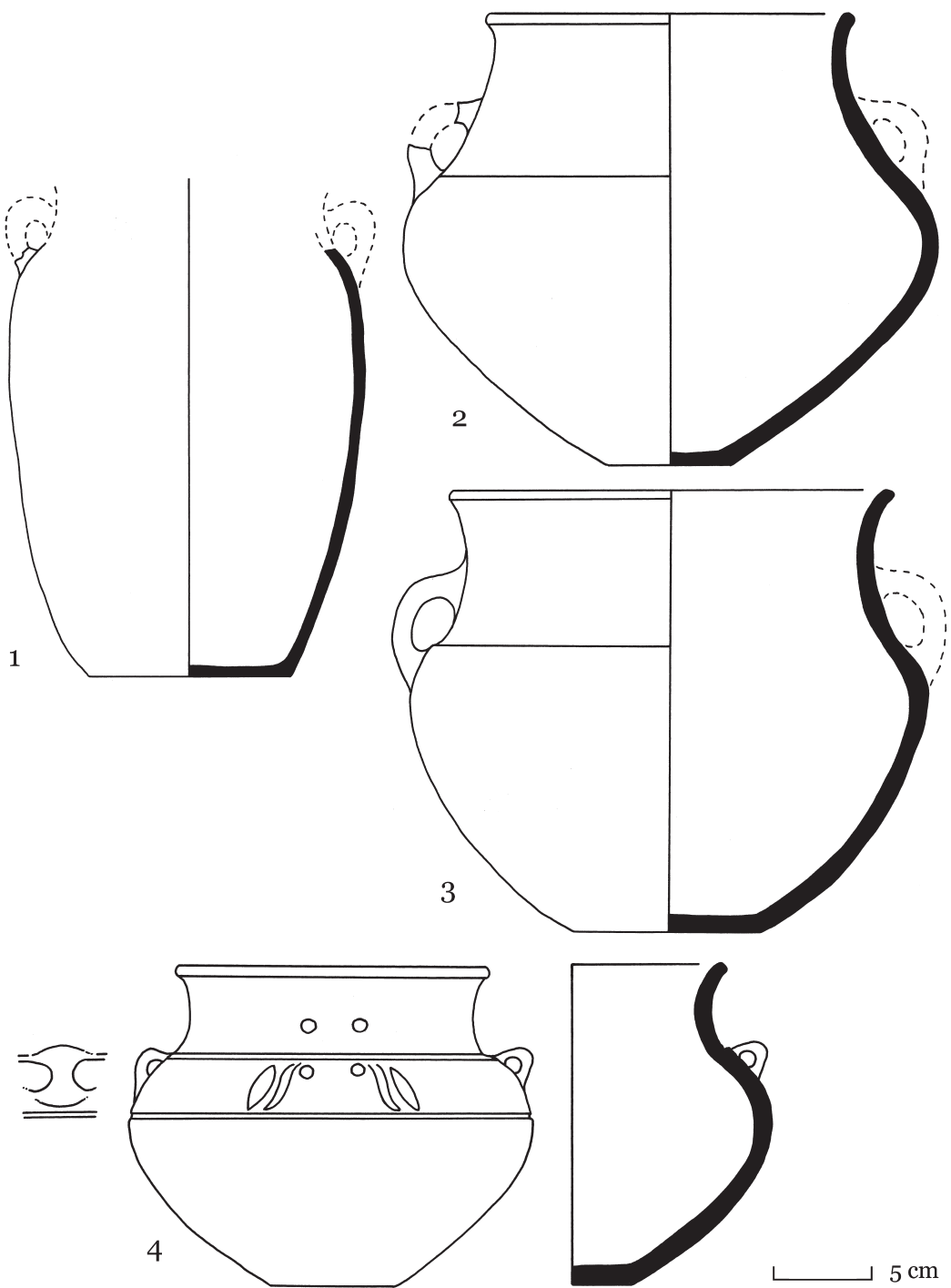


Fig. 32. 1, Burial 2; 2-4, Burial 8.

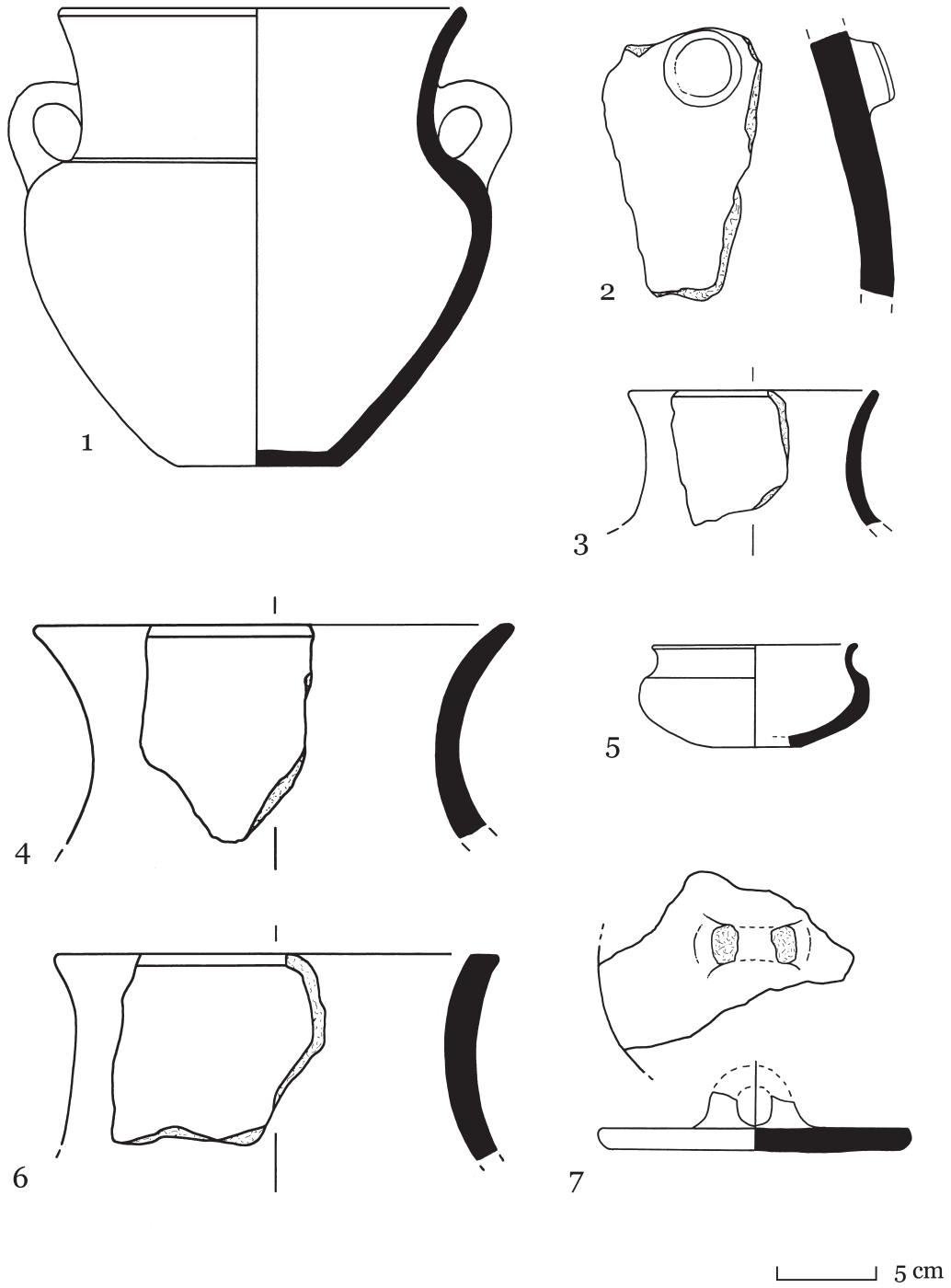
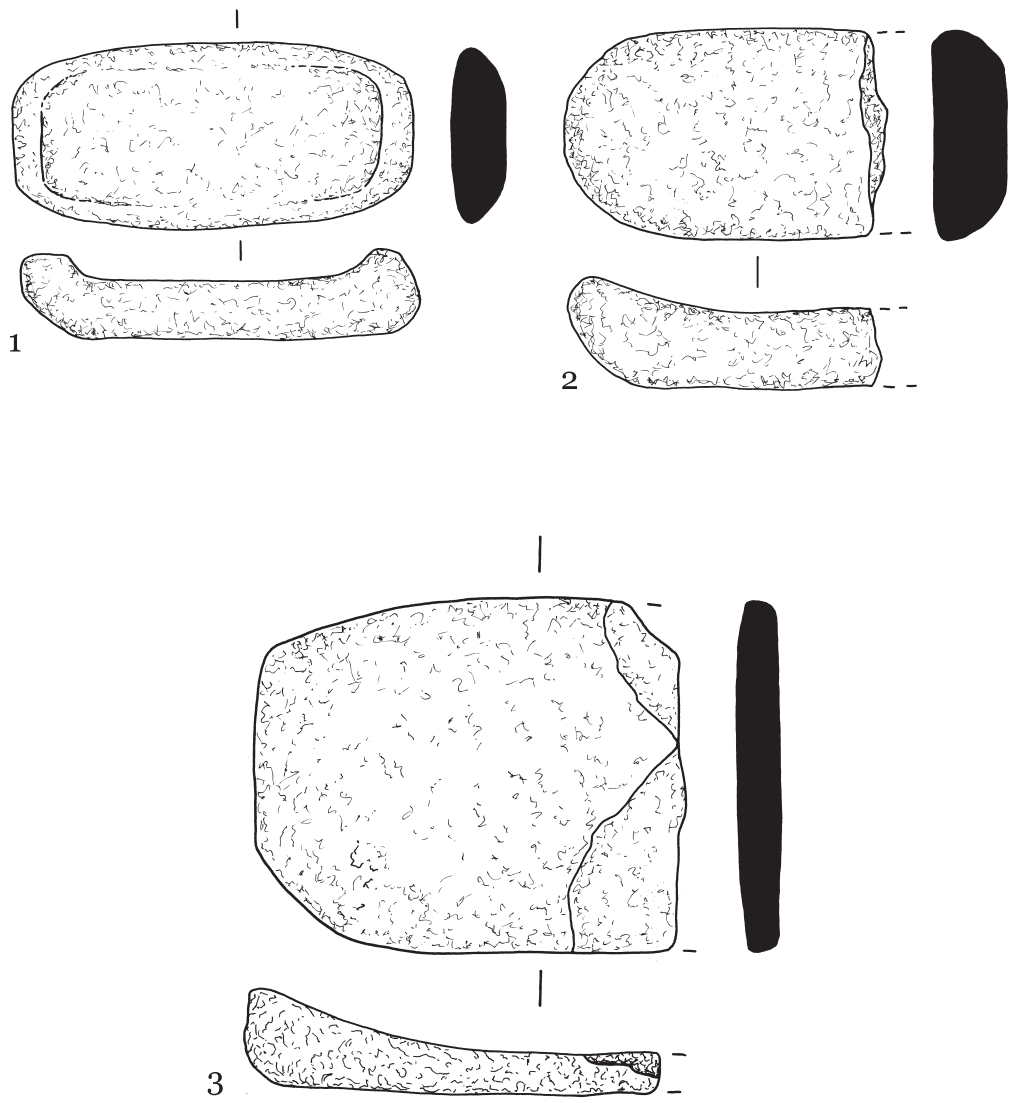


Fig. 33. 1, Burial 9, 2-7, out of context (2009).



5 cm

Fig. 34. Surface finds, stone grinders.

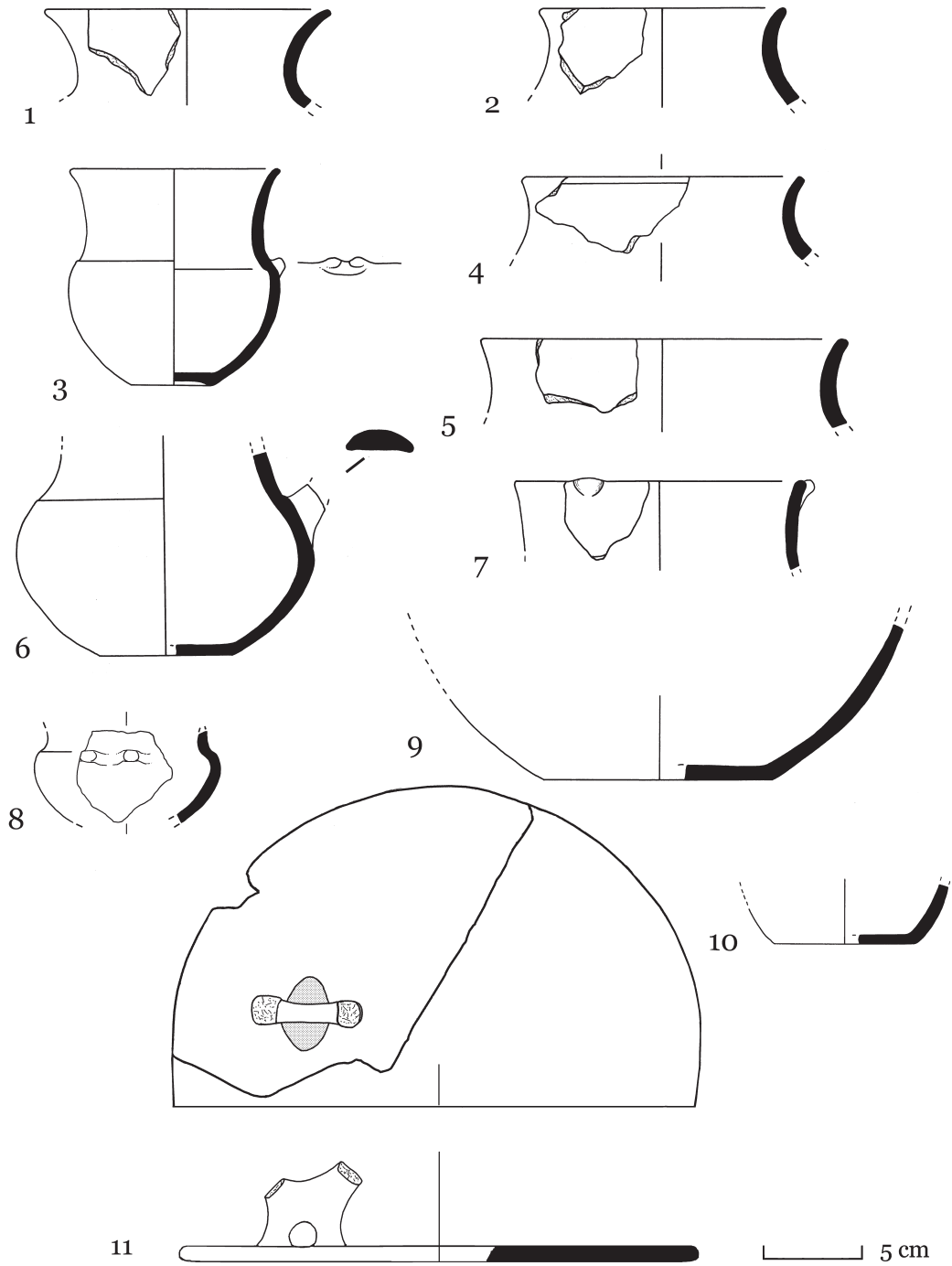


Fig. 35. Pit 1.

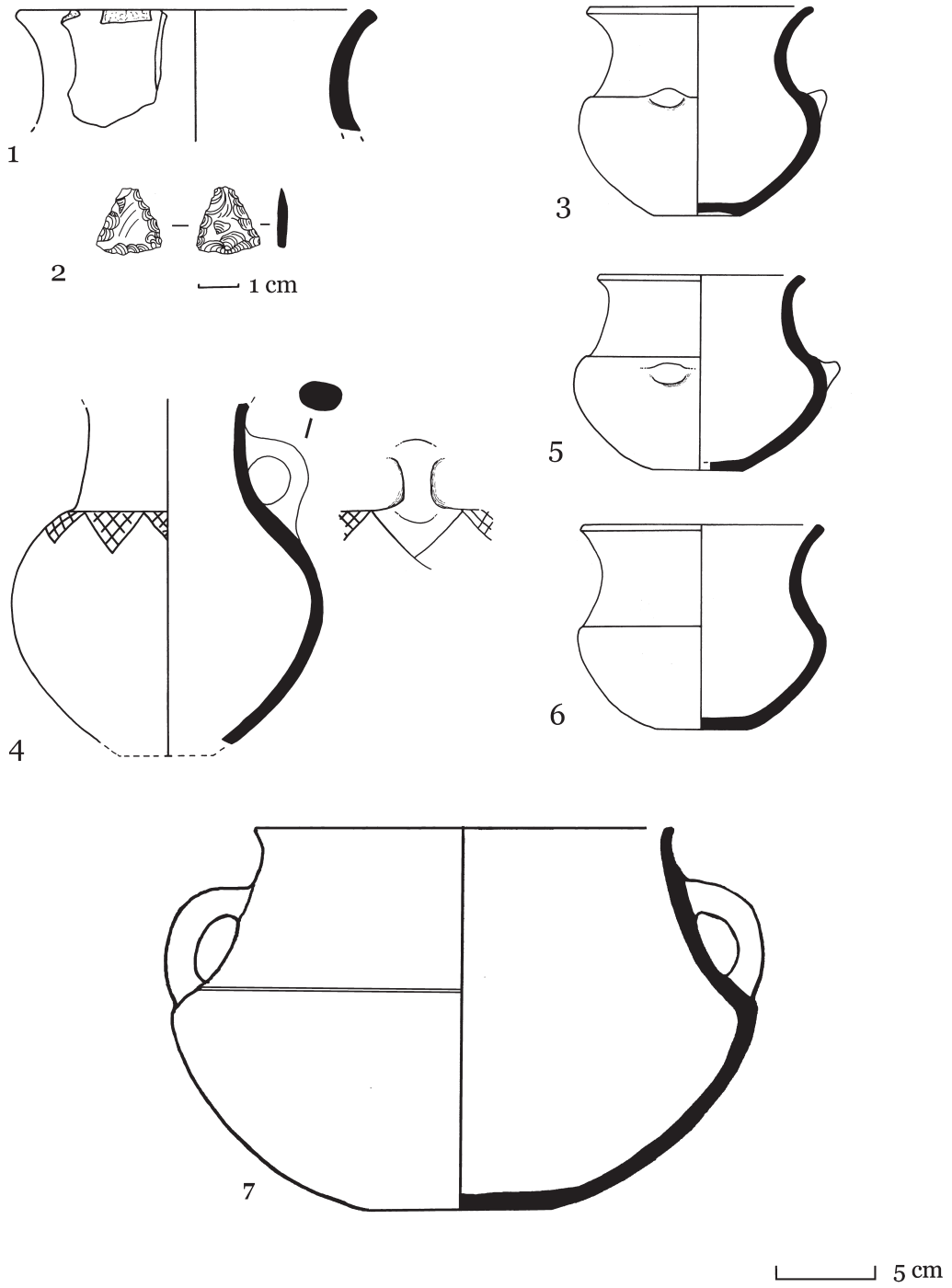


Fig. 36. 1-2, Pit 3; 3-7, Pit 4.

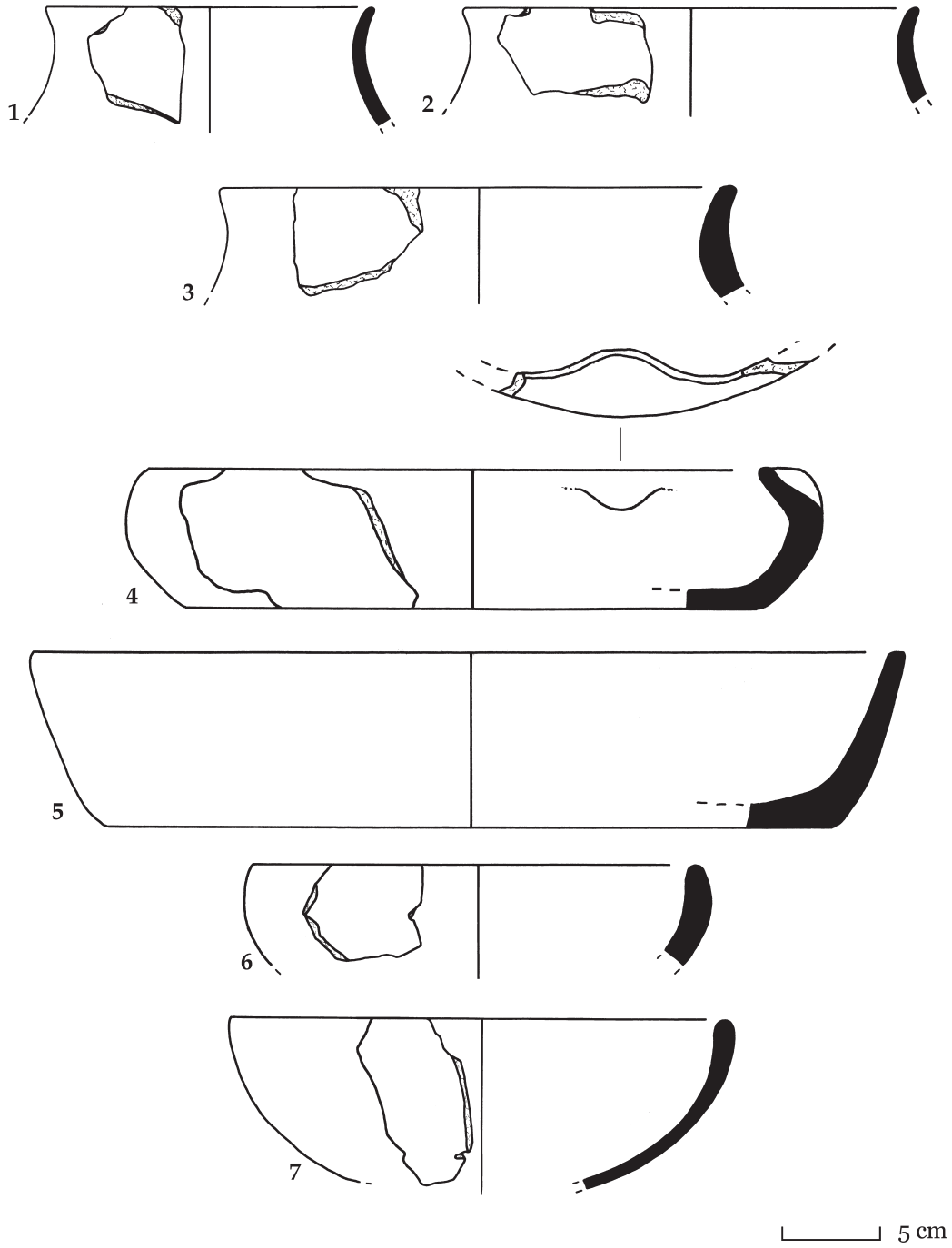


Fig. 37. Pit 4.

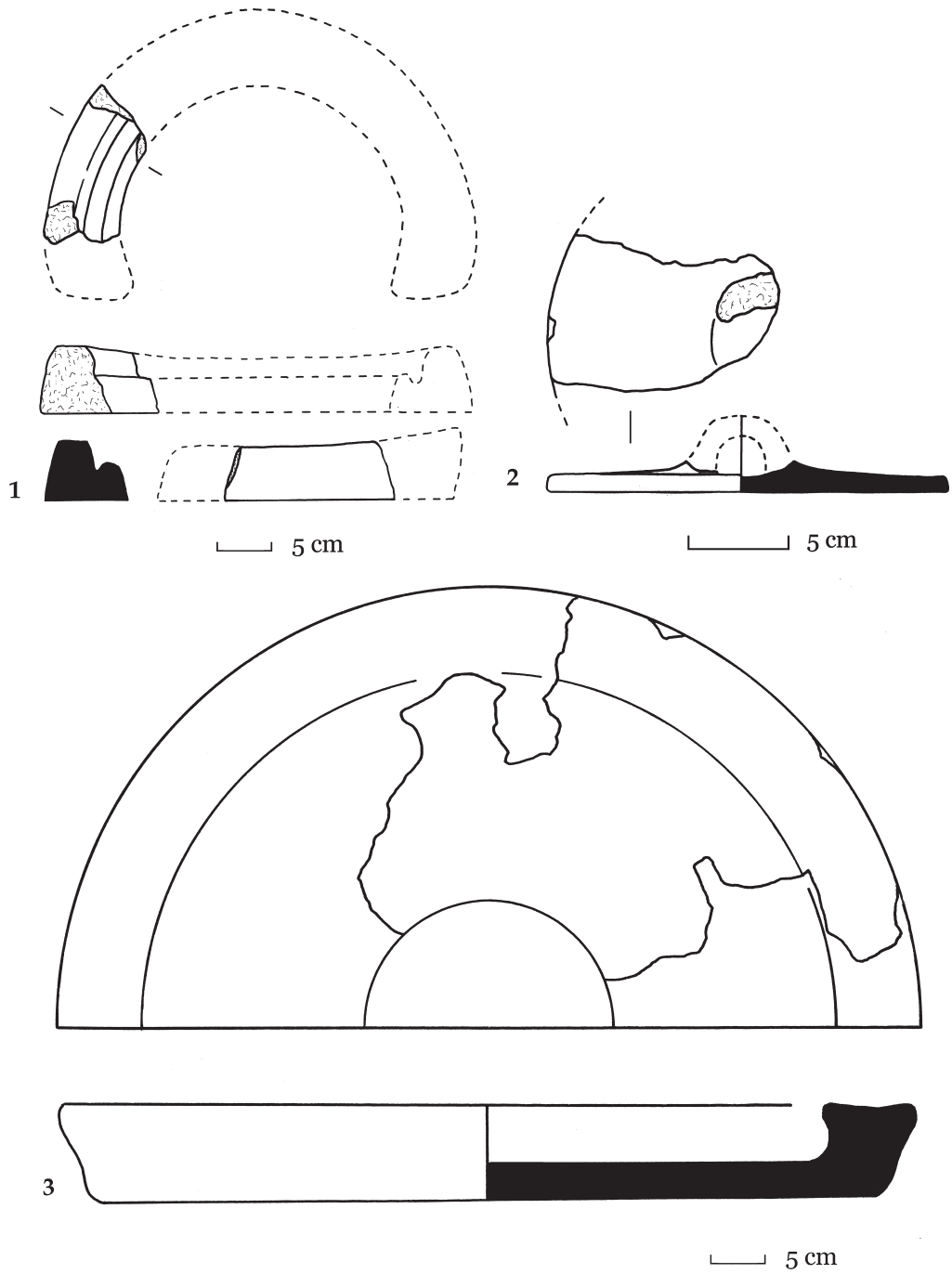


Fig. 38. Pit 4

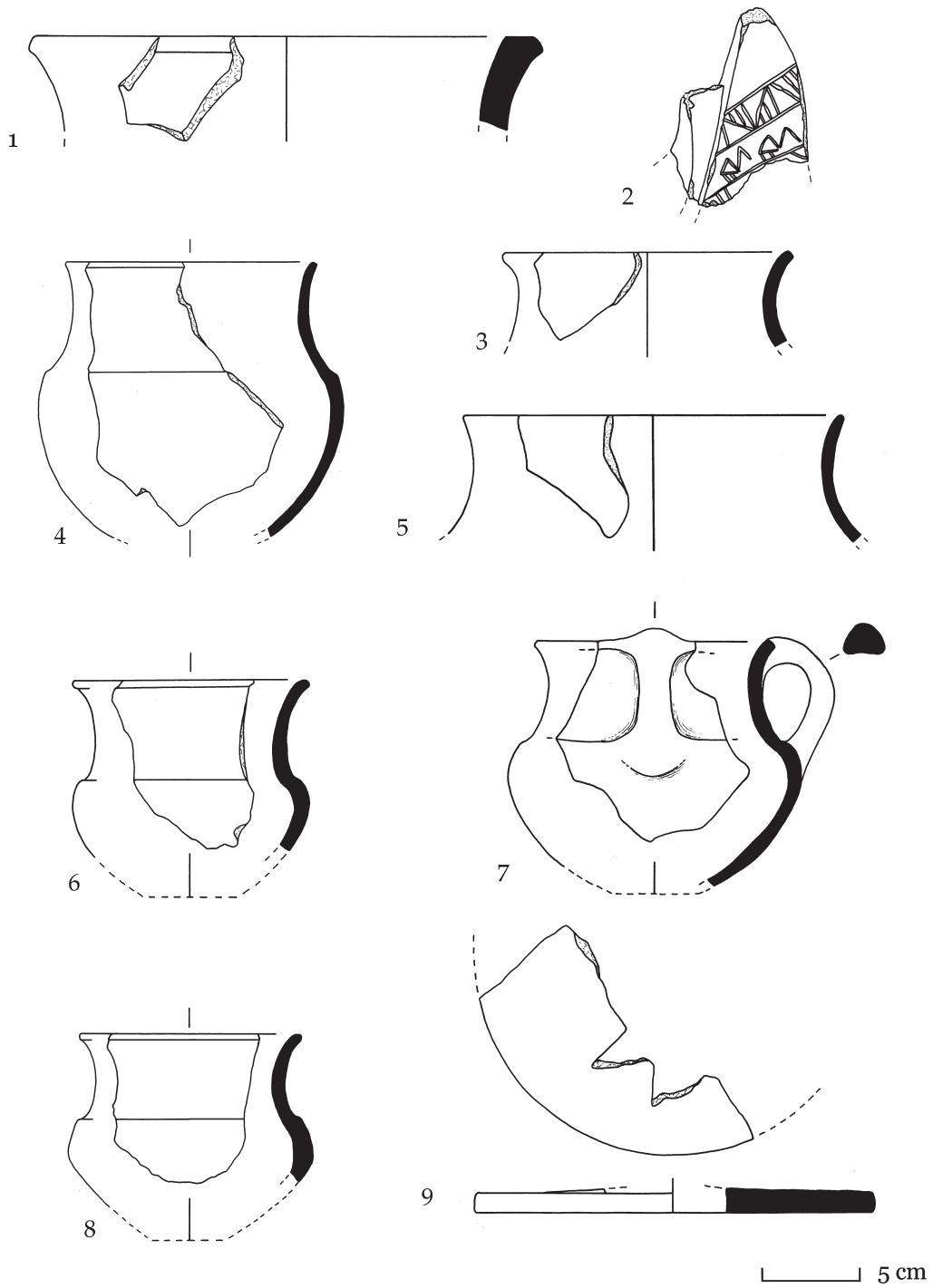


Fig. 39. 1-2, Pit 5; 3-9, Pit 7.

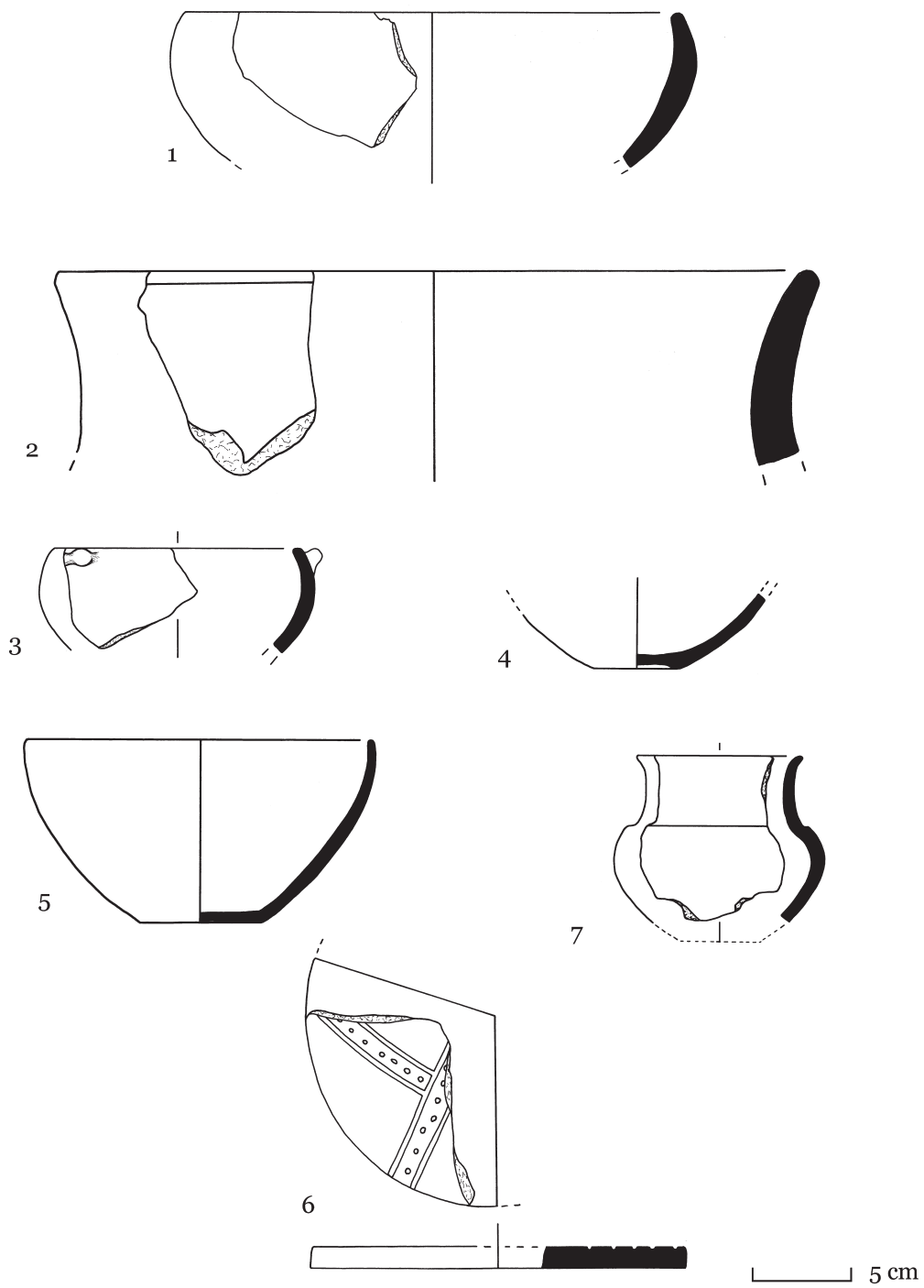


Fig. 40. 1, Pit 8; 2-3, Pit 11; 4, Pit 12; 5-6, Pit 13; 7, Pit 14.

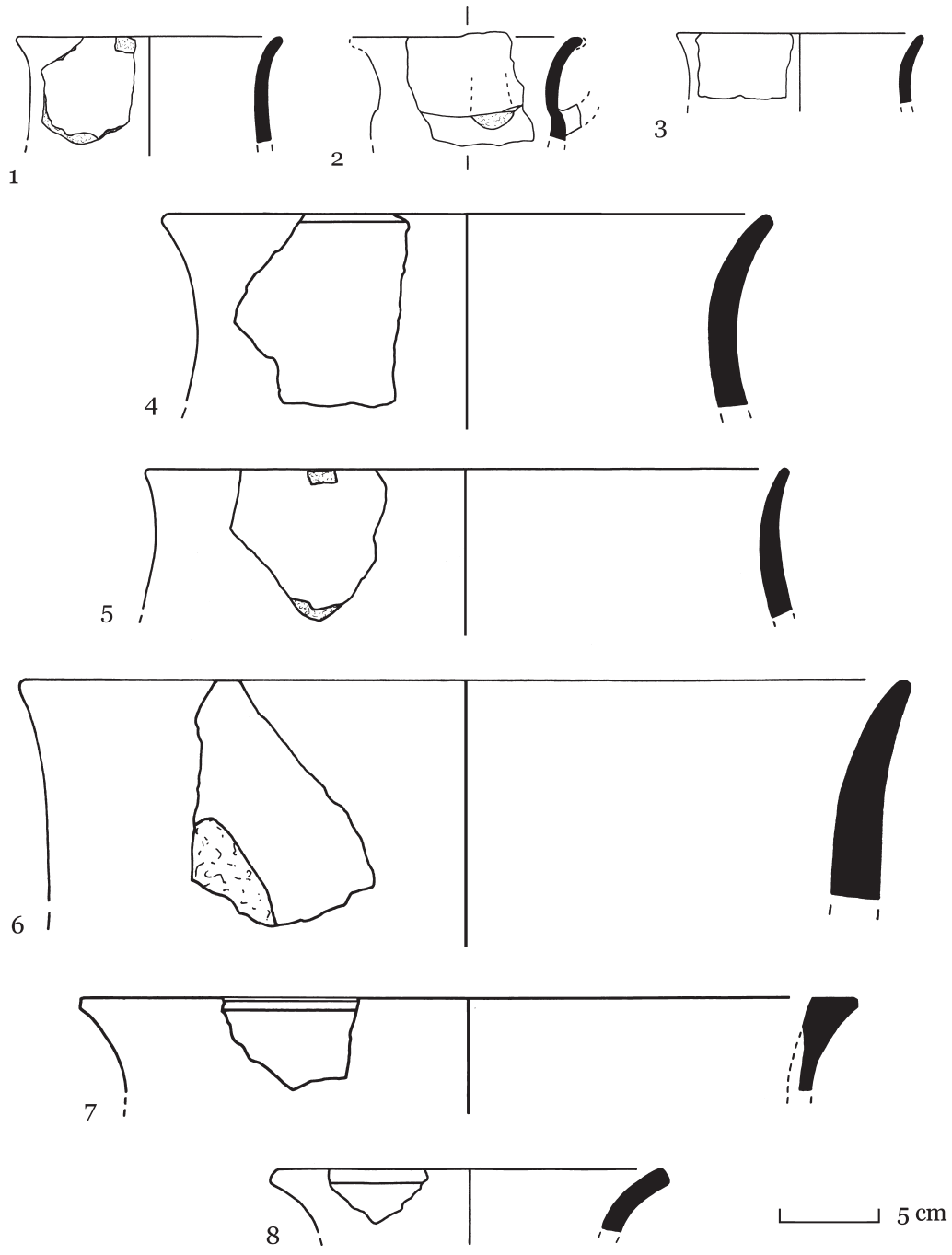


Fig. 41. Choberati 2012, Structure 4, pottery.

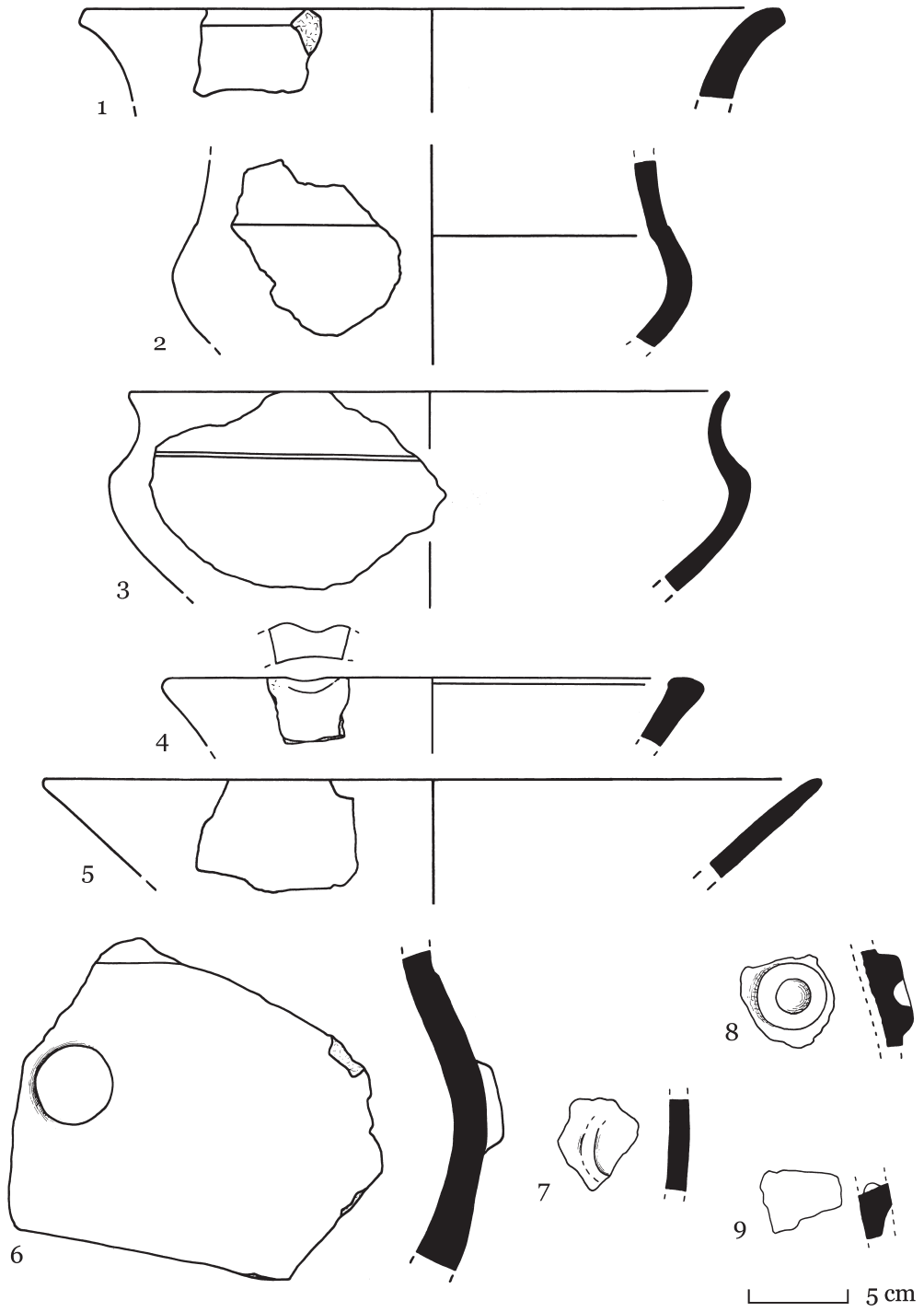


Fig. 42. Choberati 2012, Structure 4, pottery.

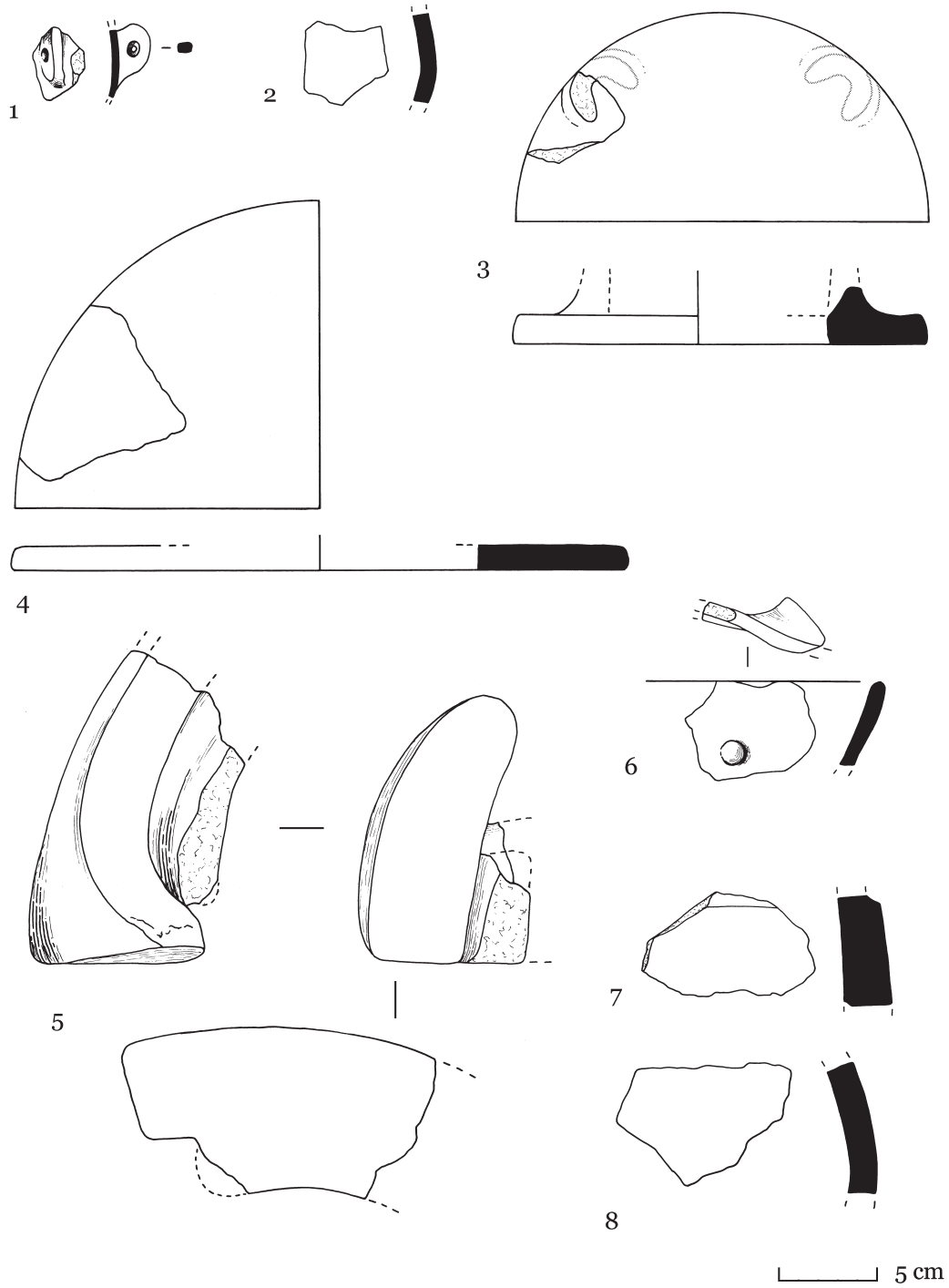


Fig. 43. Choberati 2012, Structure 4, pottery.

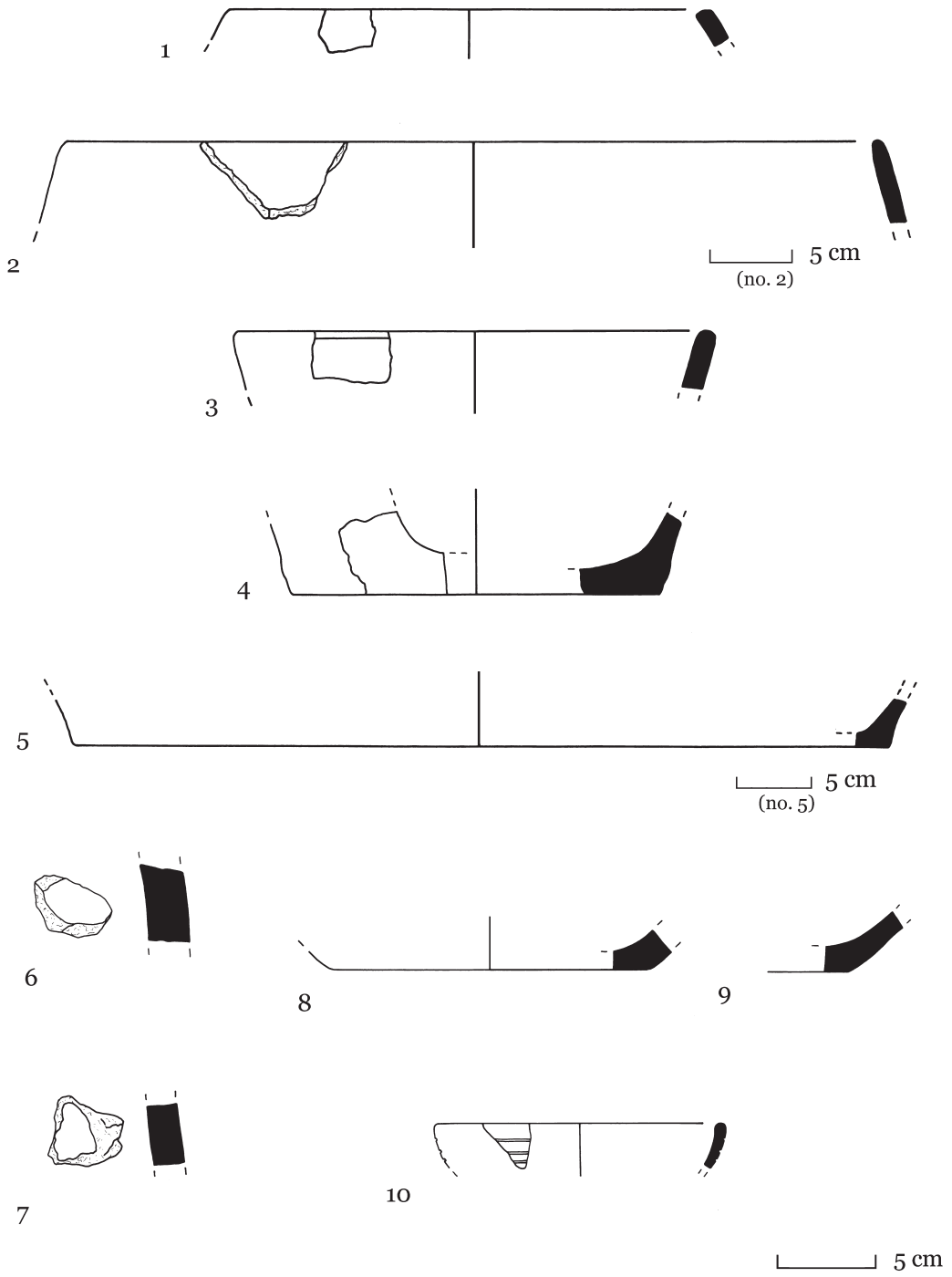


Fig. 44. Choberati 2012, Structure 4, pottery.

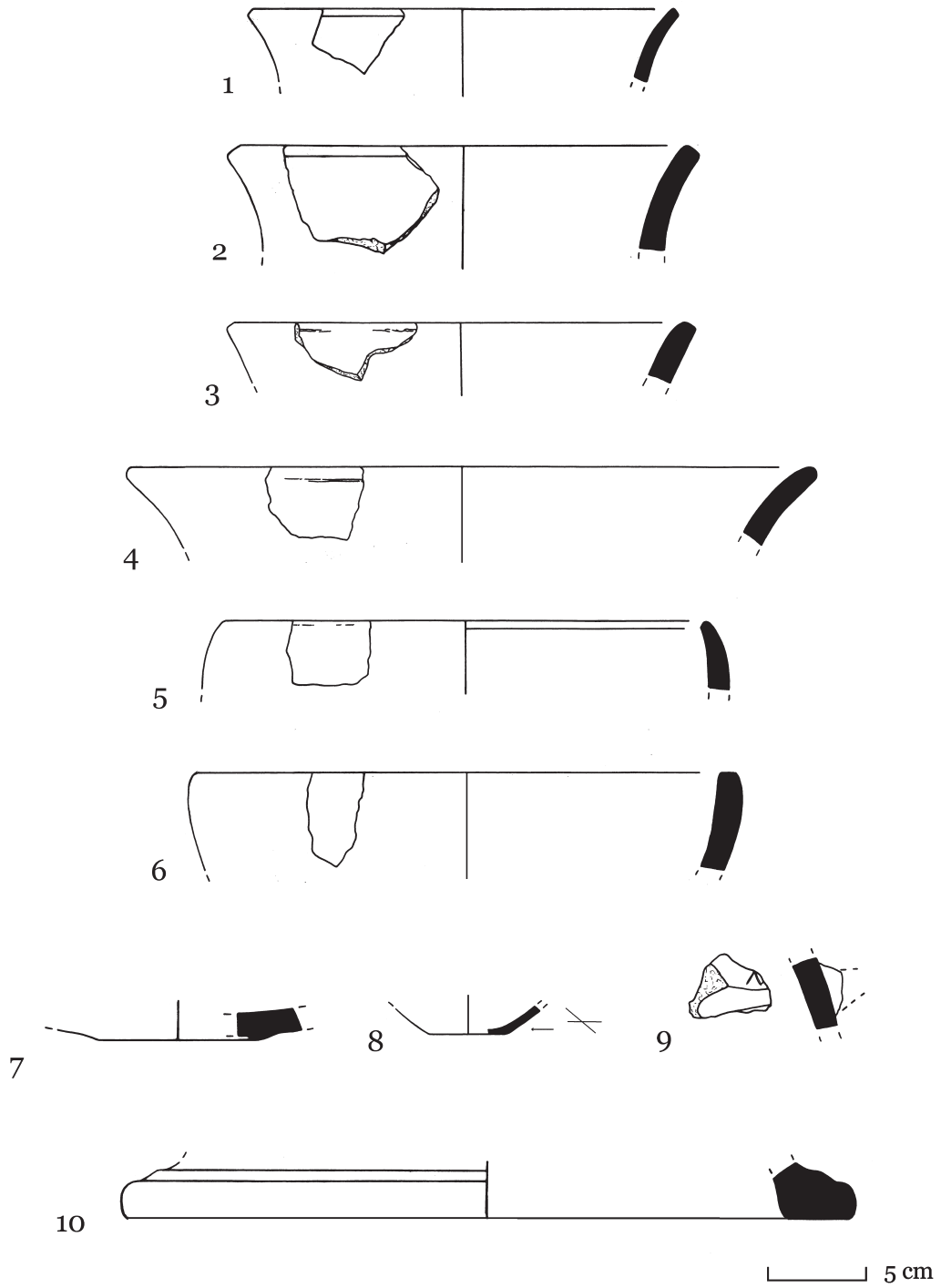


Fig. 45. Chobareti 2012, Square L47, pottery.

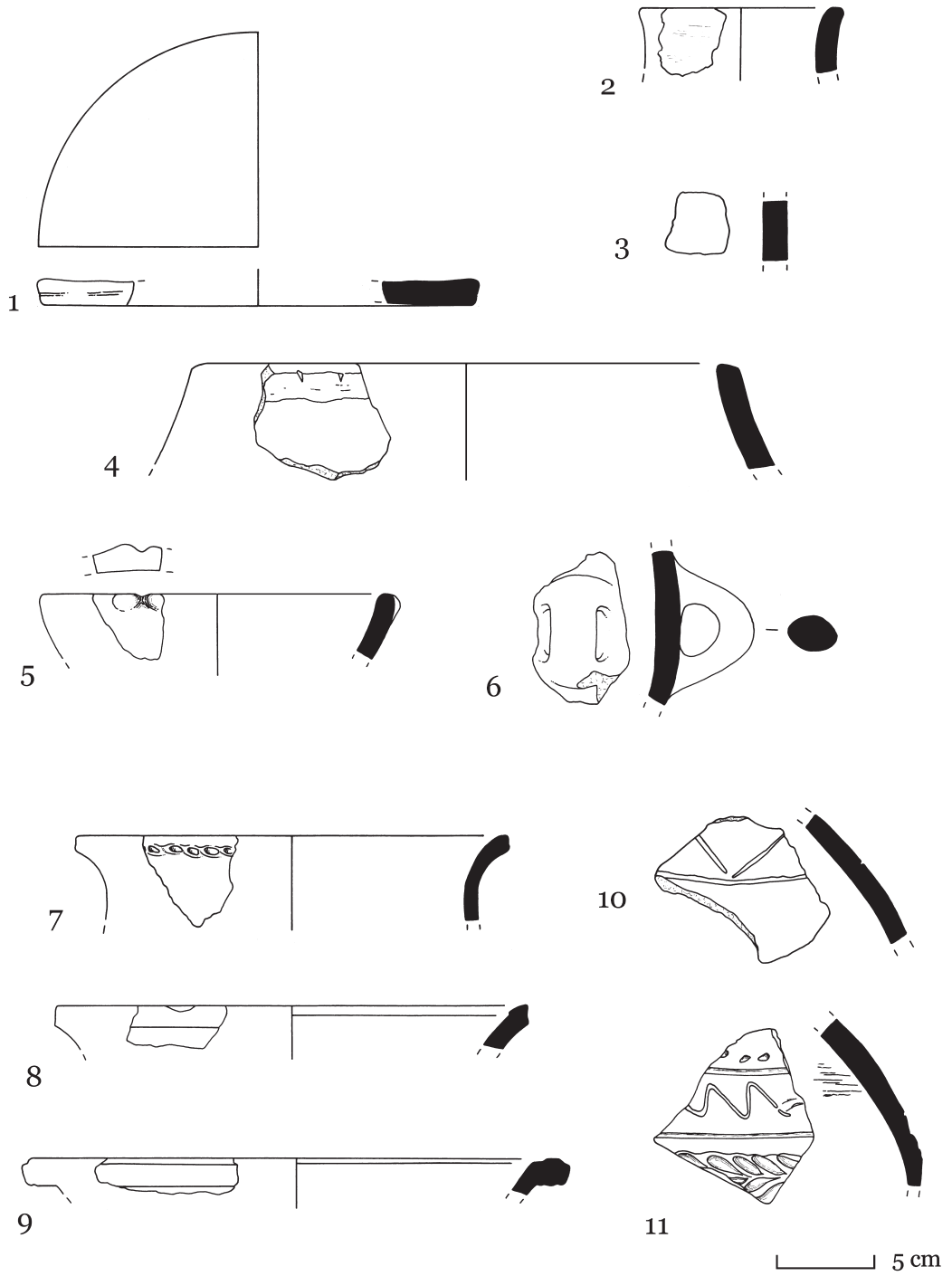


Fig. 46. Chobareti 2012, Square L47, pottery.

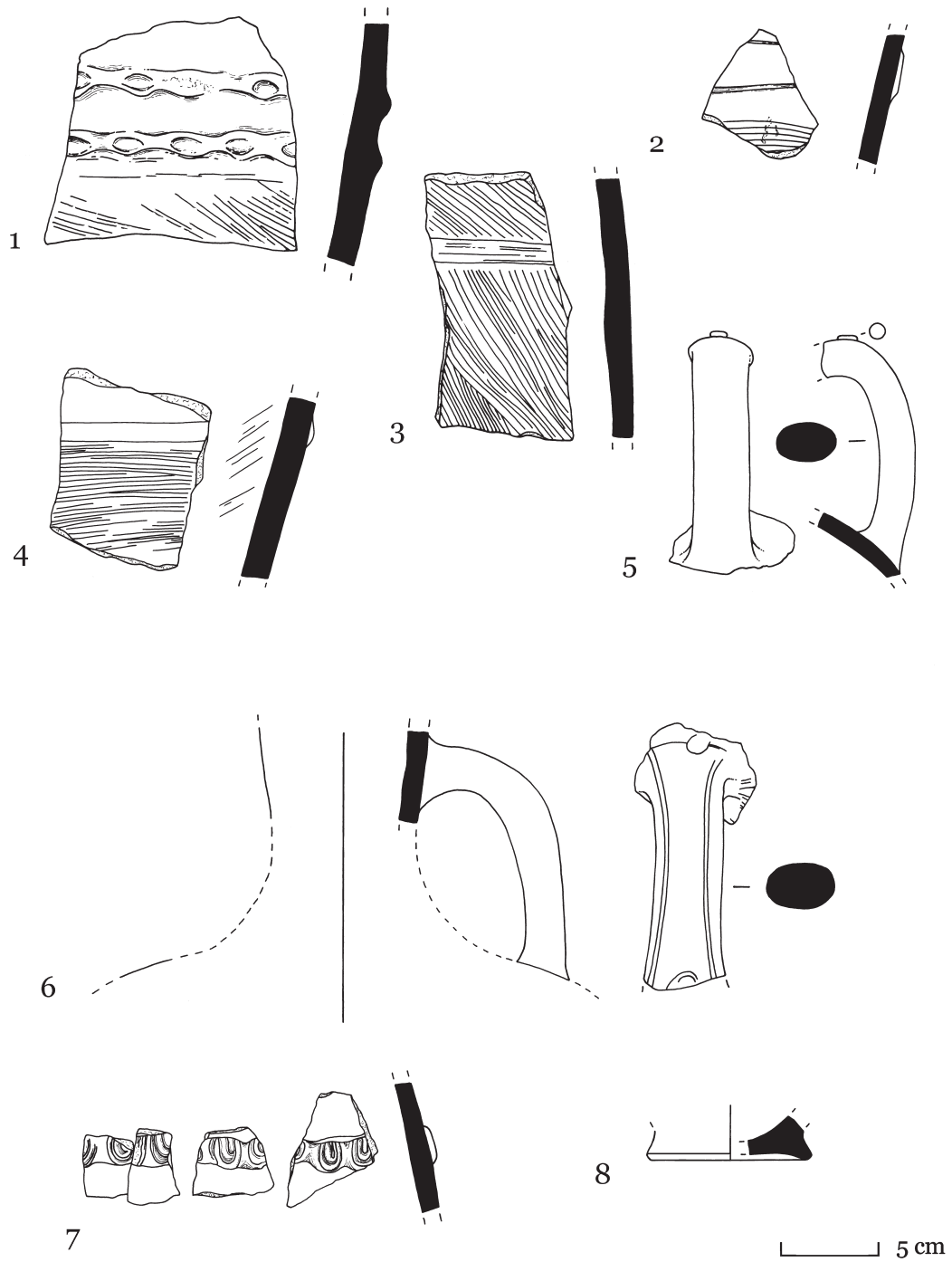


Fig. 47. Chobareti 2012, Squares D49 and D50, pottery.

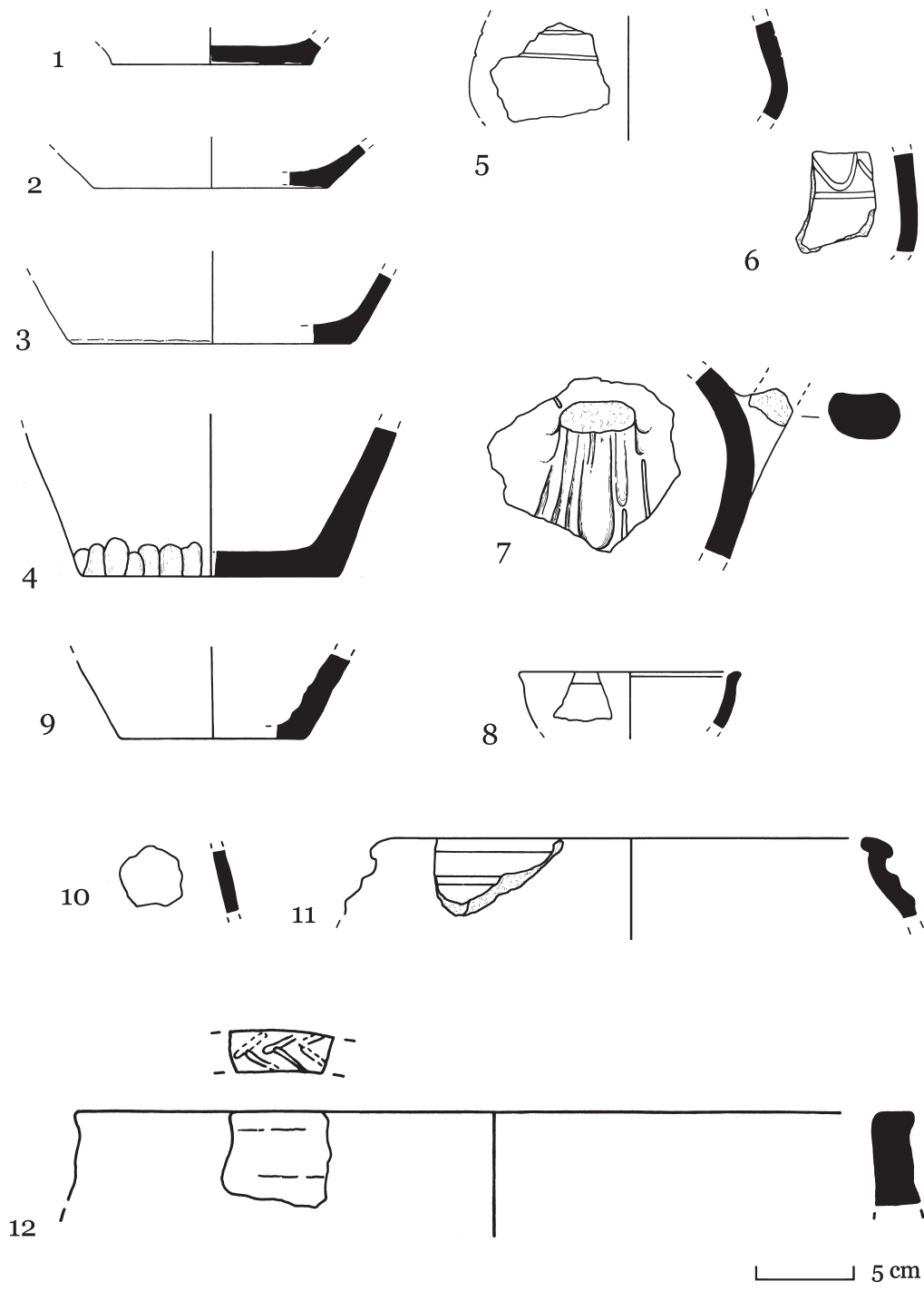


Fig. 48. Chobareti 2012, Squares D49 and D50, pottery.

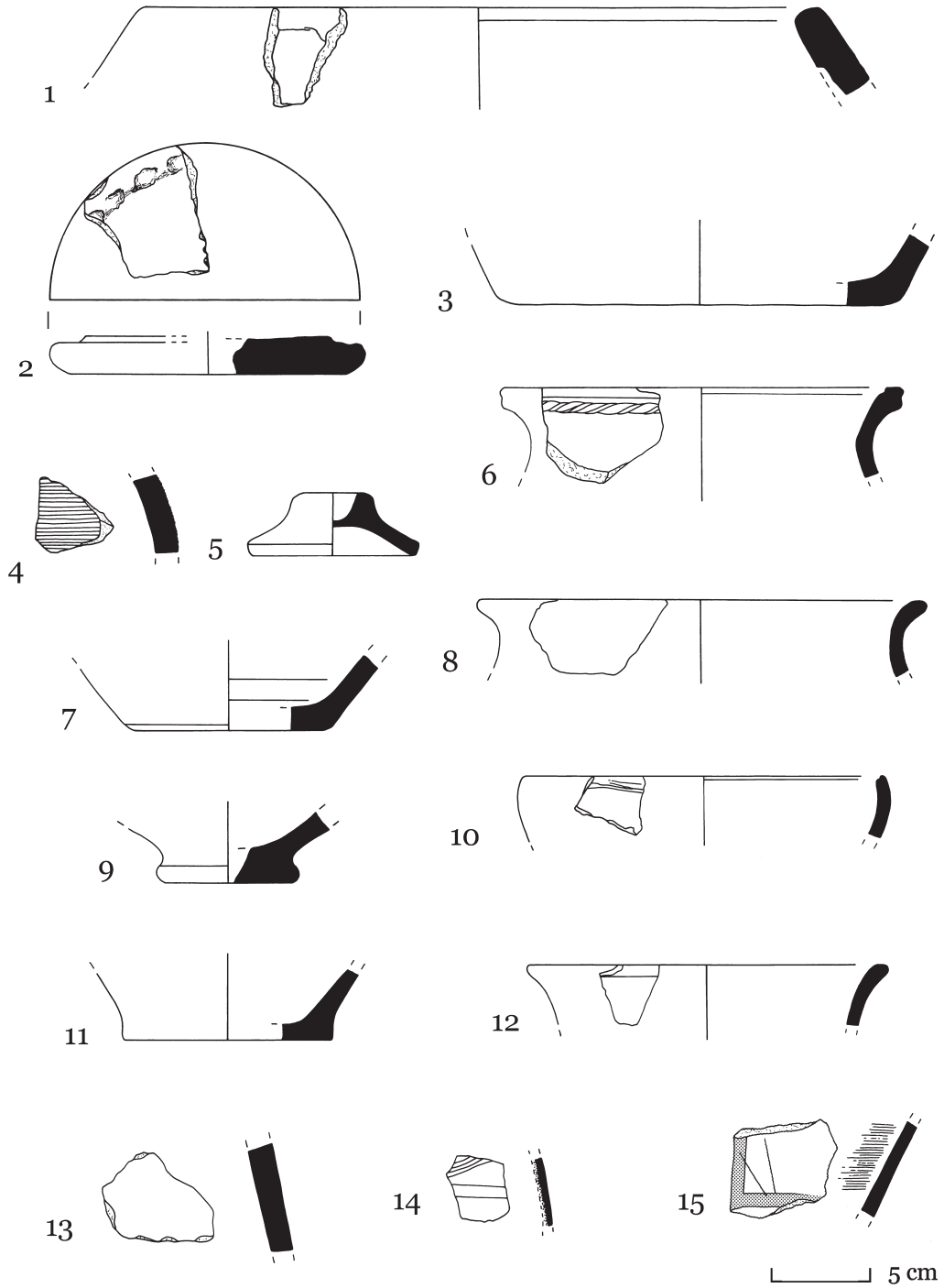


Fig. 49. Chobareti 2012, Squares B48, pottery.

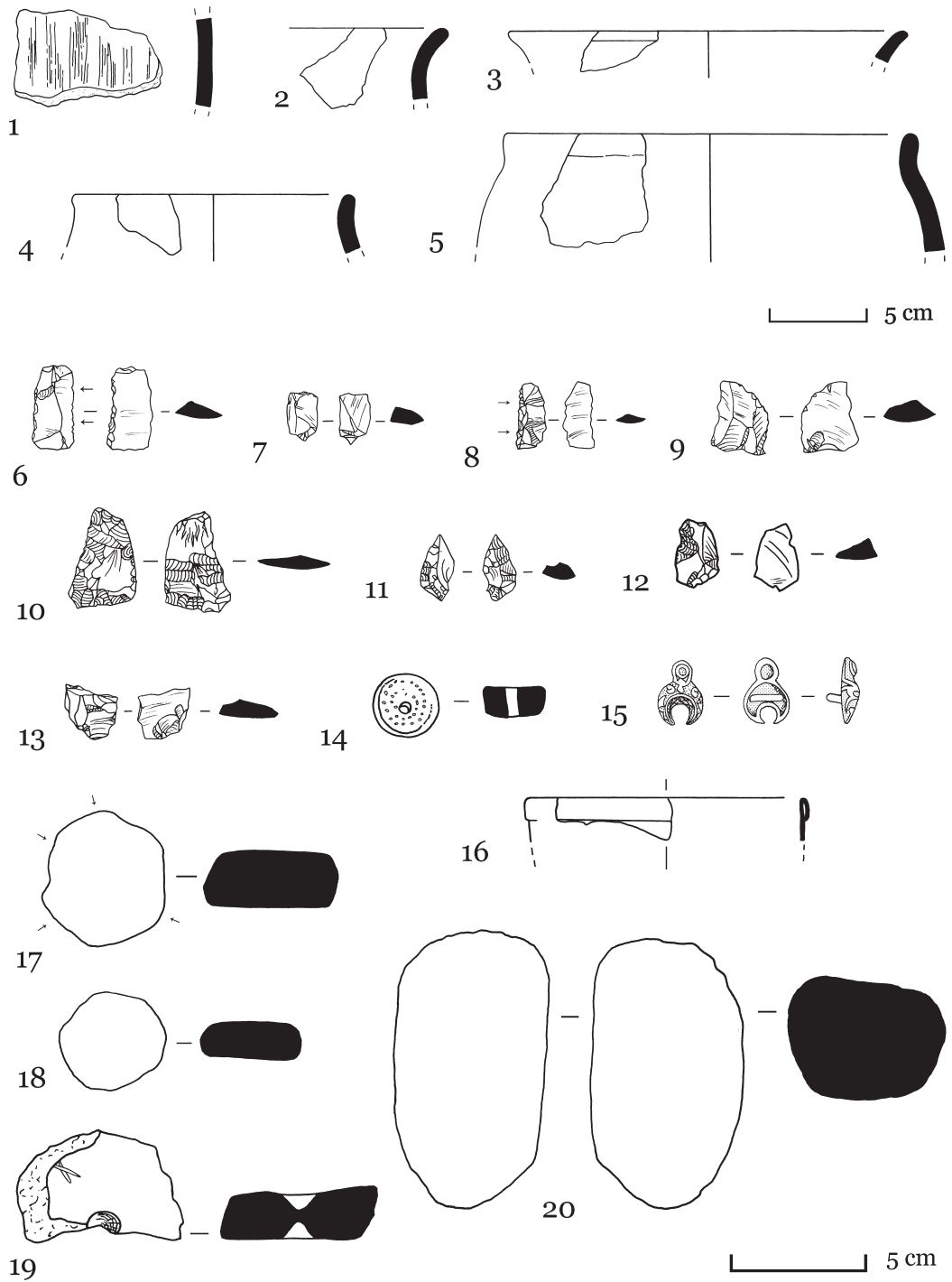


Fig. 50. 1-5 Chobareti 2012, Squares B48, pottery; 6-13 red flint and black obsidian flakes; 14 ceramic bead; 15 gilt silver belt buckle; 16 Glass fragment; 17-19 modified pottery sherds; 20 basalt pestle.

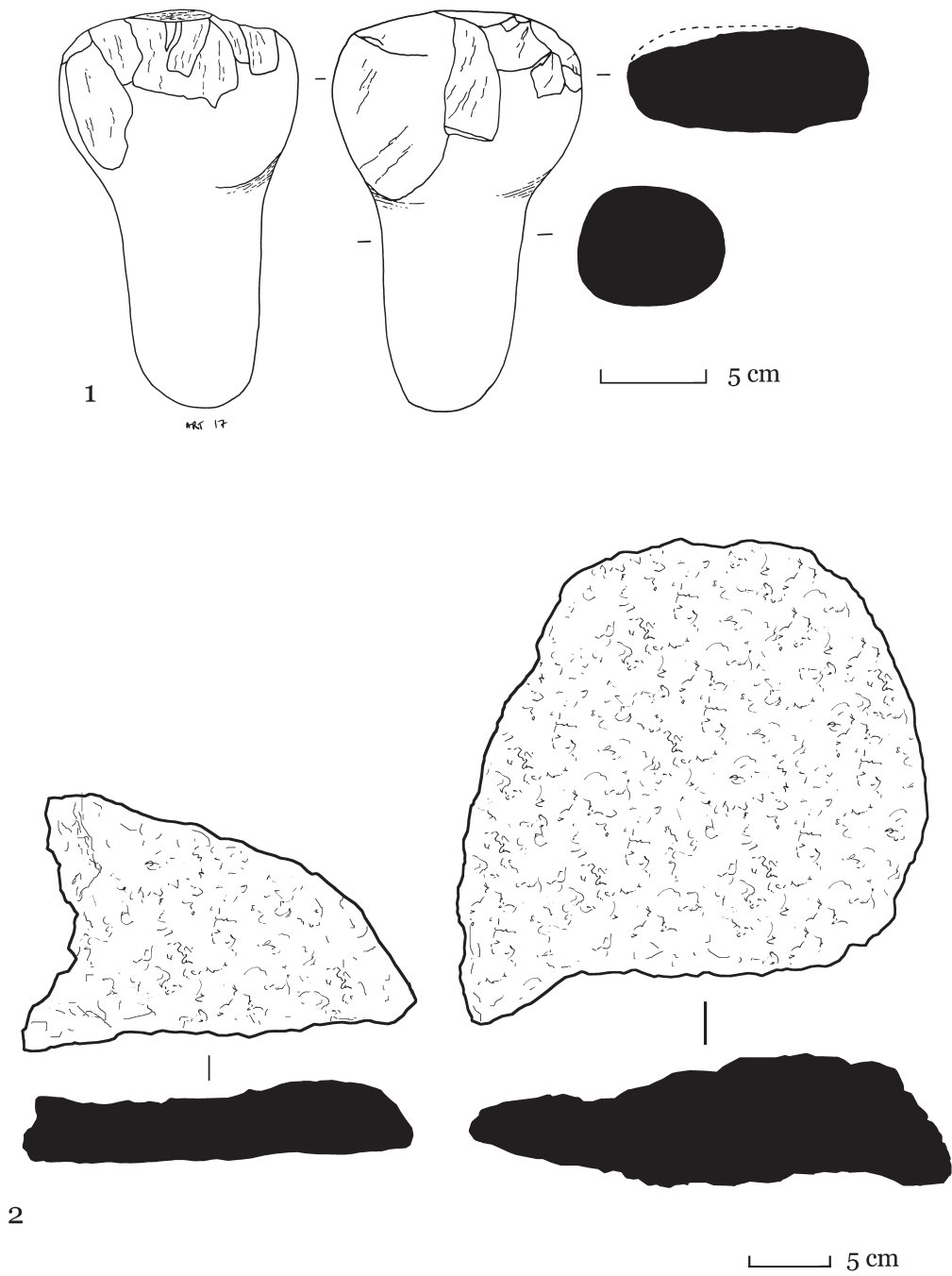


Fig. 51. Chobareti 2012. 1 Square D50.4, basalt hammer stone; 2 Square F42.3 grinding stone fragments.

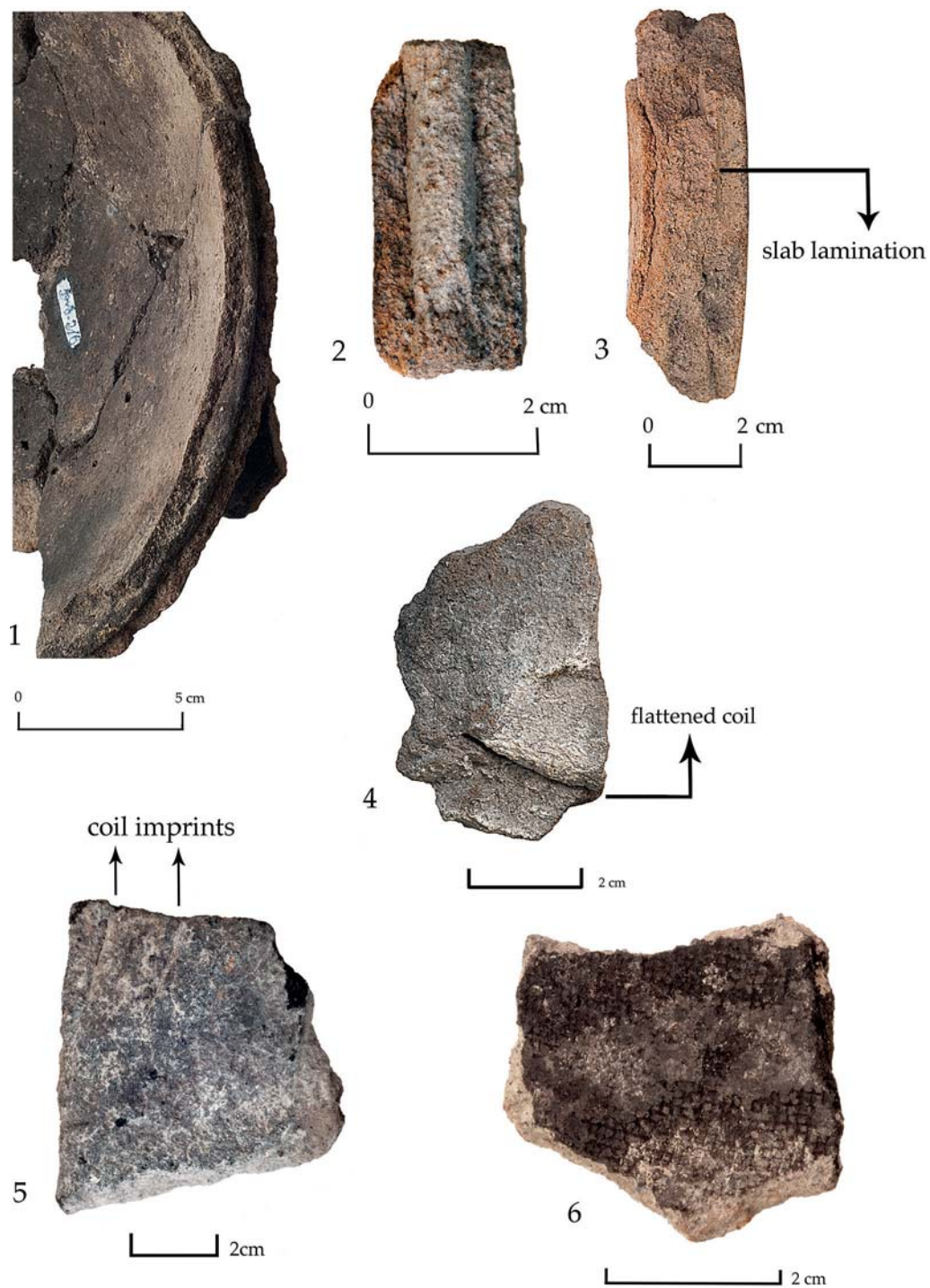


Fig. 52. Selection of pottery sherds showing the method of manufacture. 1–5 Coil technique; 6 Slab technique.



Fig. 53. 1 Structure 4, rim fragment with incised pattern applied after firing; 2 Burial 1; 3, 5 Burial 2; 4 Burial 9; 6 Burial 8.



Fig. 54. 1 Burial 8; 2 Pit 1; 3 Pit 3; 4 Pit 4; 5 Pit 5; 6 Pit 13.

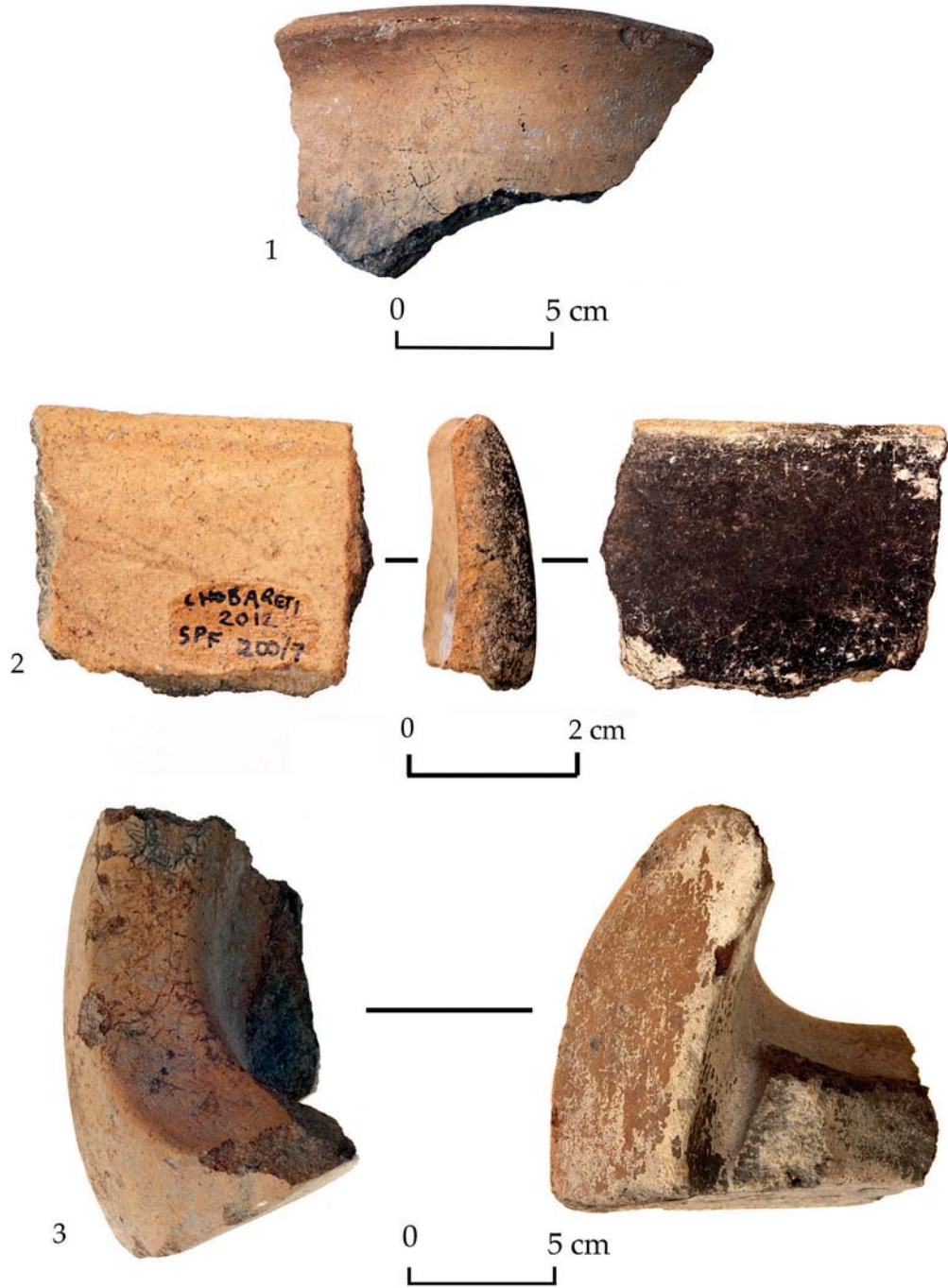


Fig. 55. Chobareti 2012. 1, 3 Structure 4; 2 Square L47.

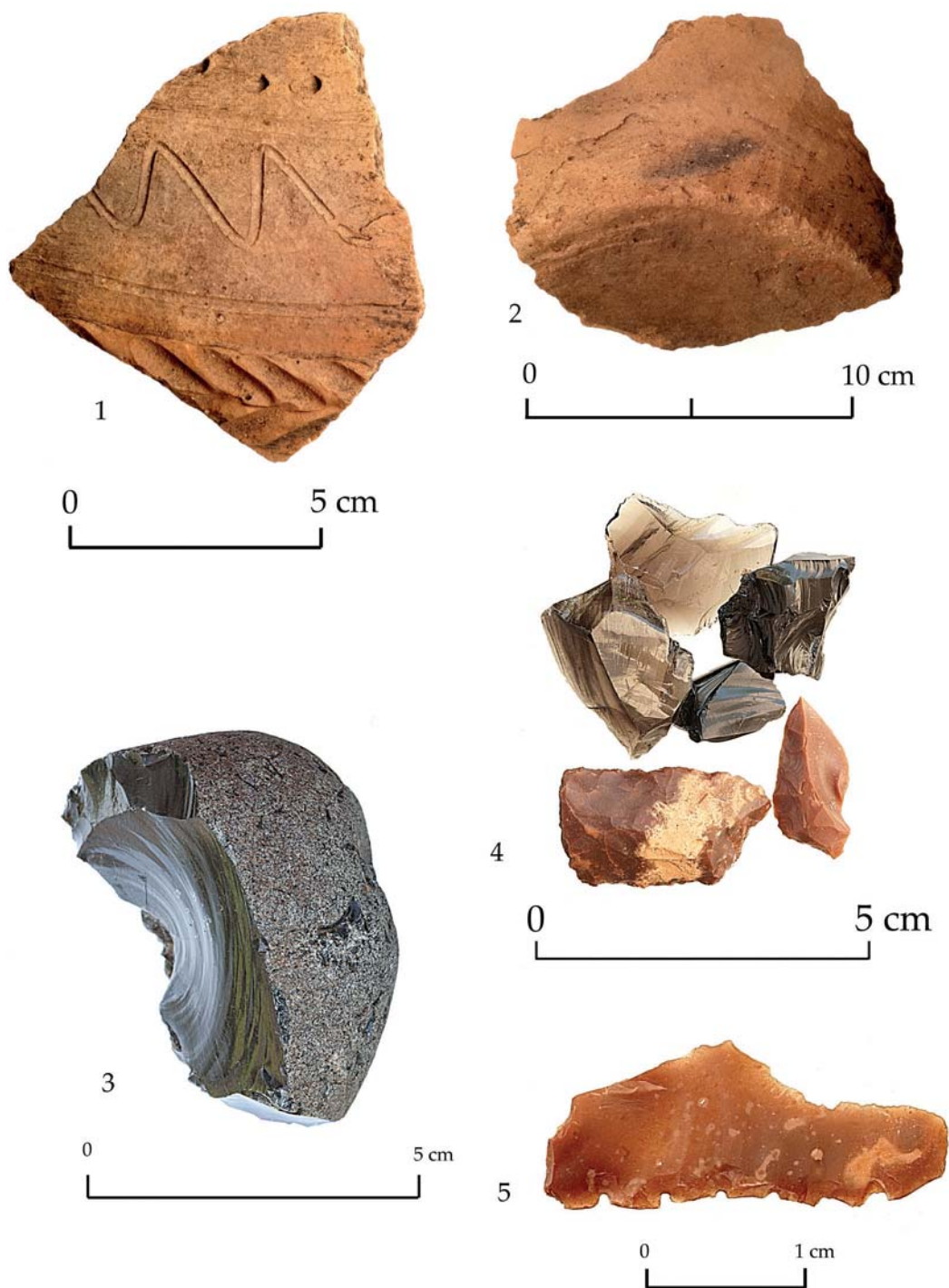


Fig. 56. Chobareti 2012. 1–2 Square D49, pottery fragments; 3 Square B50, obsidian core, riverine pebble; 4 An assortment of grey and black obsidian, and red flint flakes, some showing worked edges; 5 Square N49, red flint denticulate sickle blade.

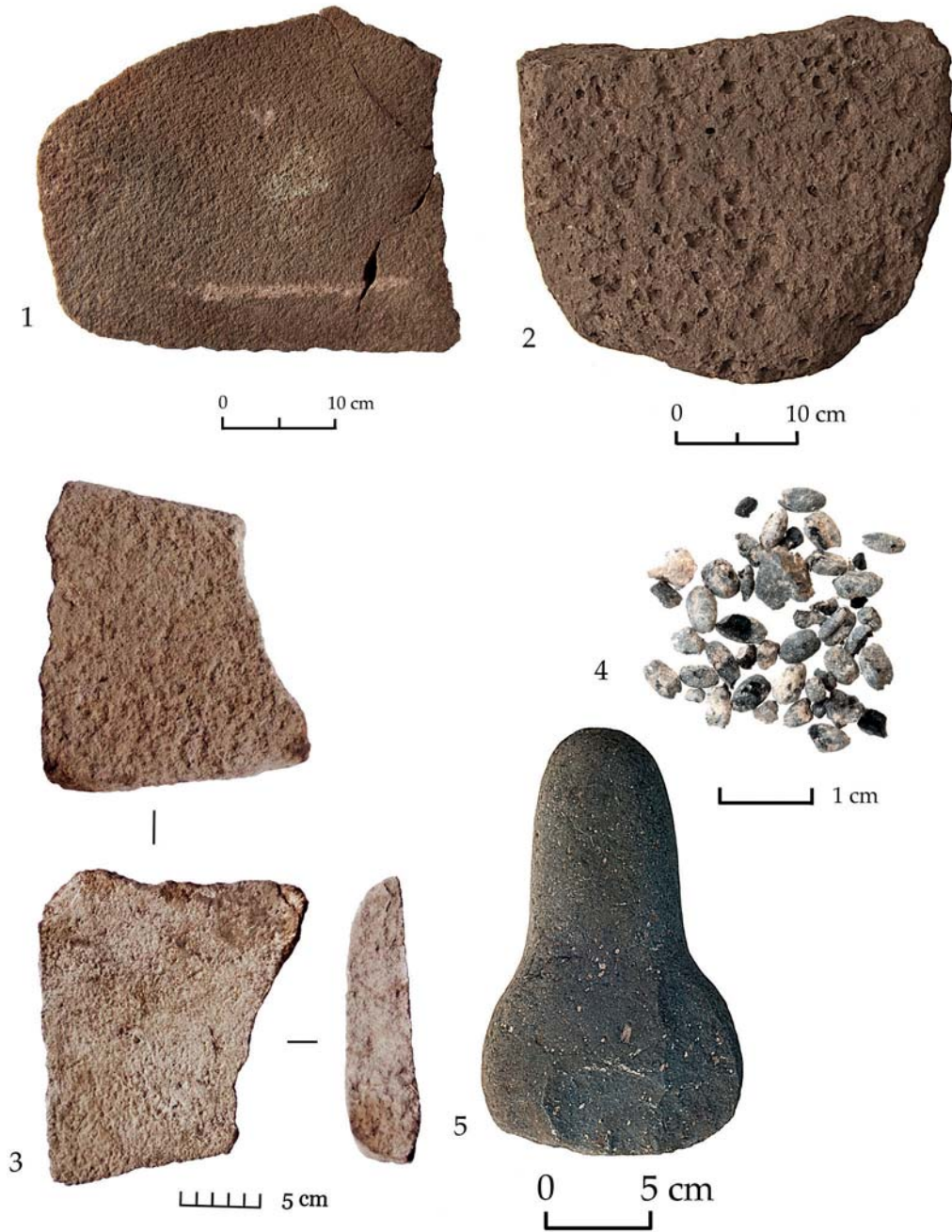


Fig. 57. 1–2 Chobareti 2009, basalt grinders; 3 Chobareti 2012, Structure 4, Square F42.4 fragment of a basalt grinder; 4 Chobareti 2012, carbonised seeds from Structure 4; 5 Square D50.3, basalt hammer stone.

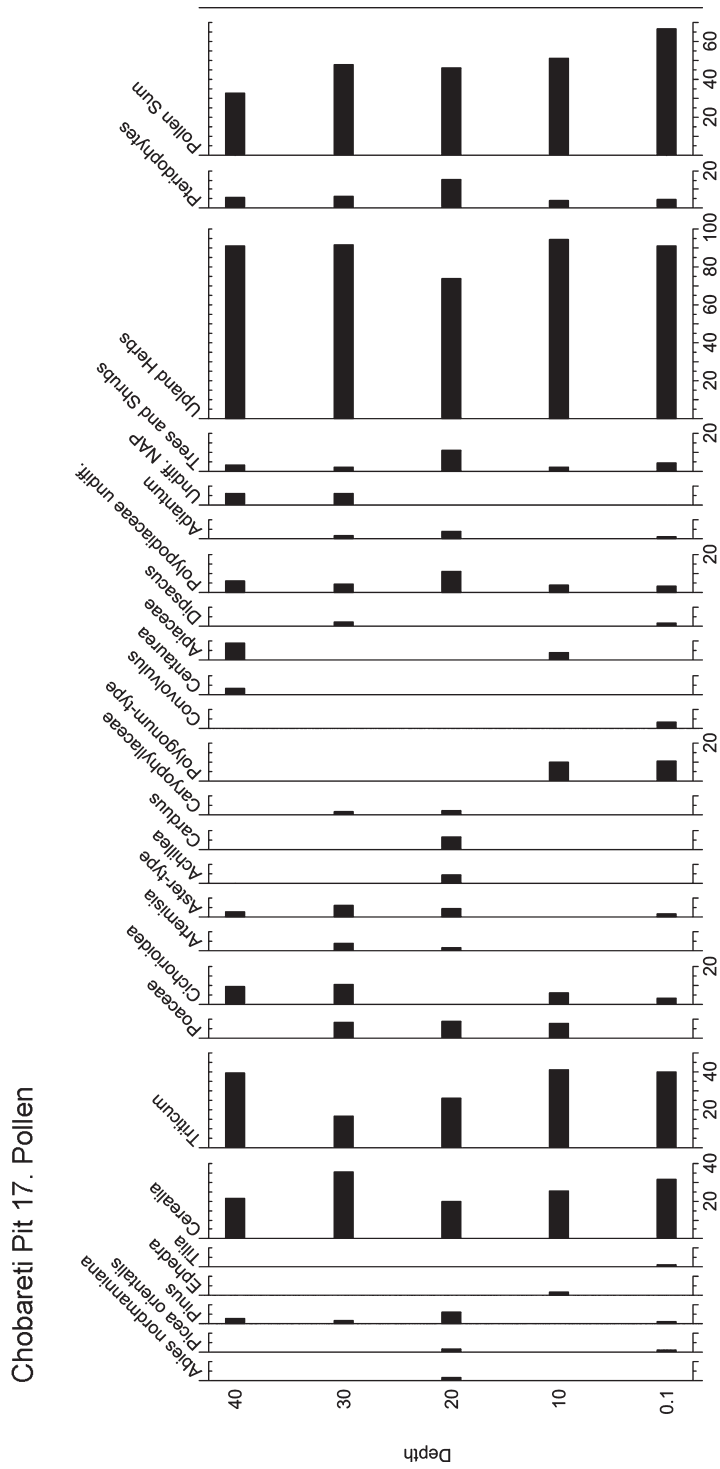


Fig. 58. Pollen diagram, Pit 17.



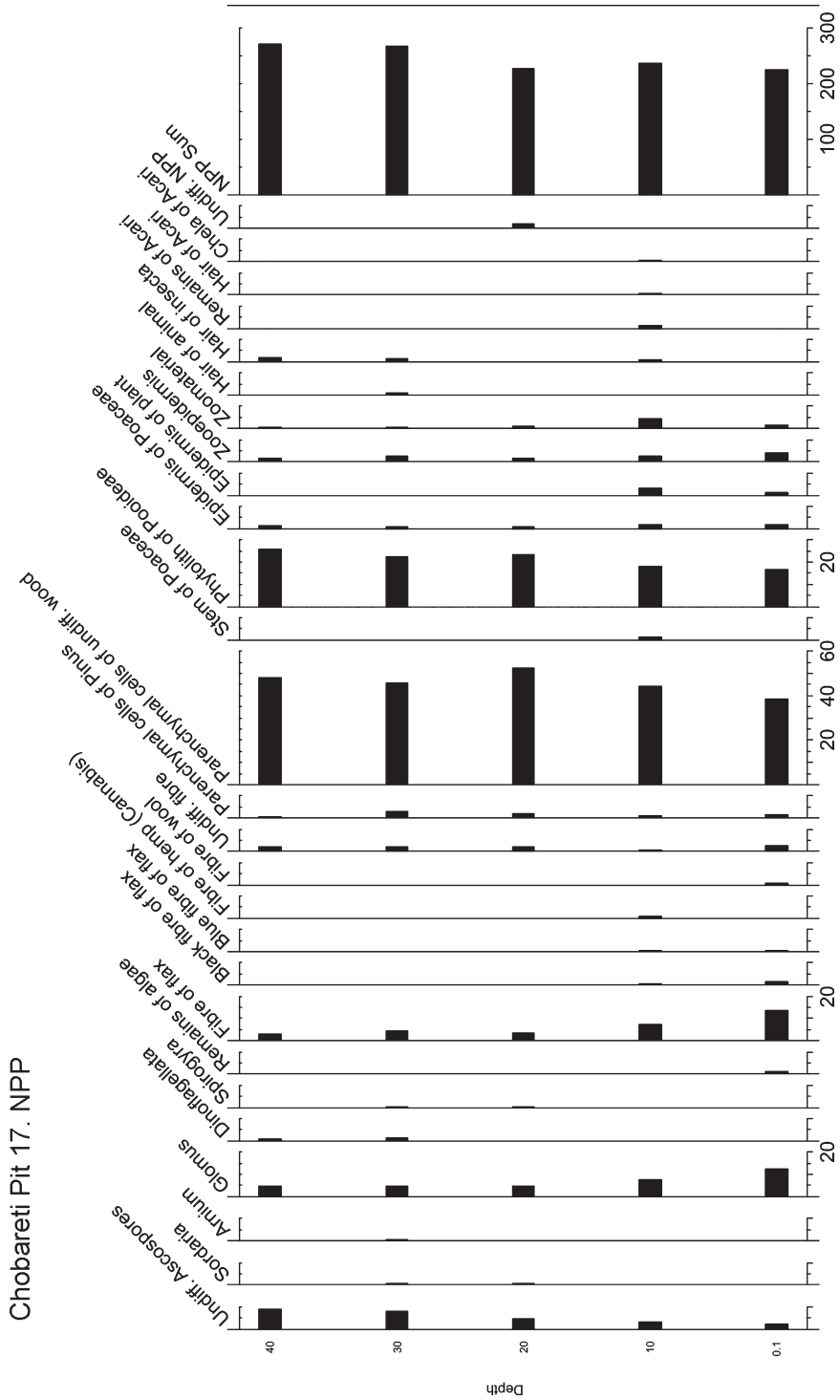


Fig. 60. Non-pollen palynomorphs (NPP) diagram, Pit 17.

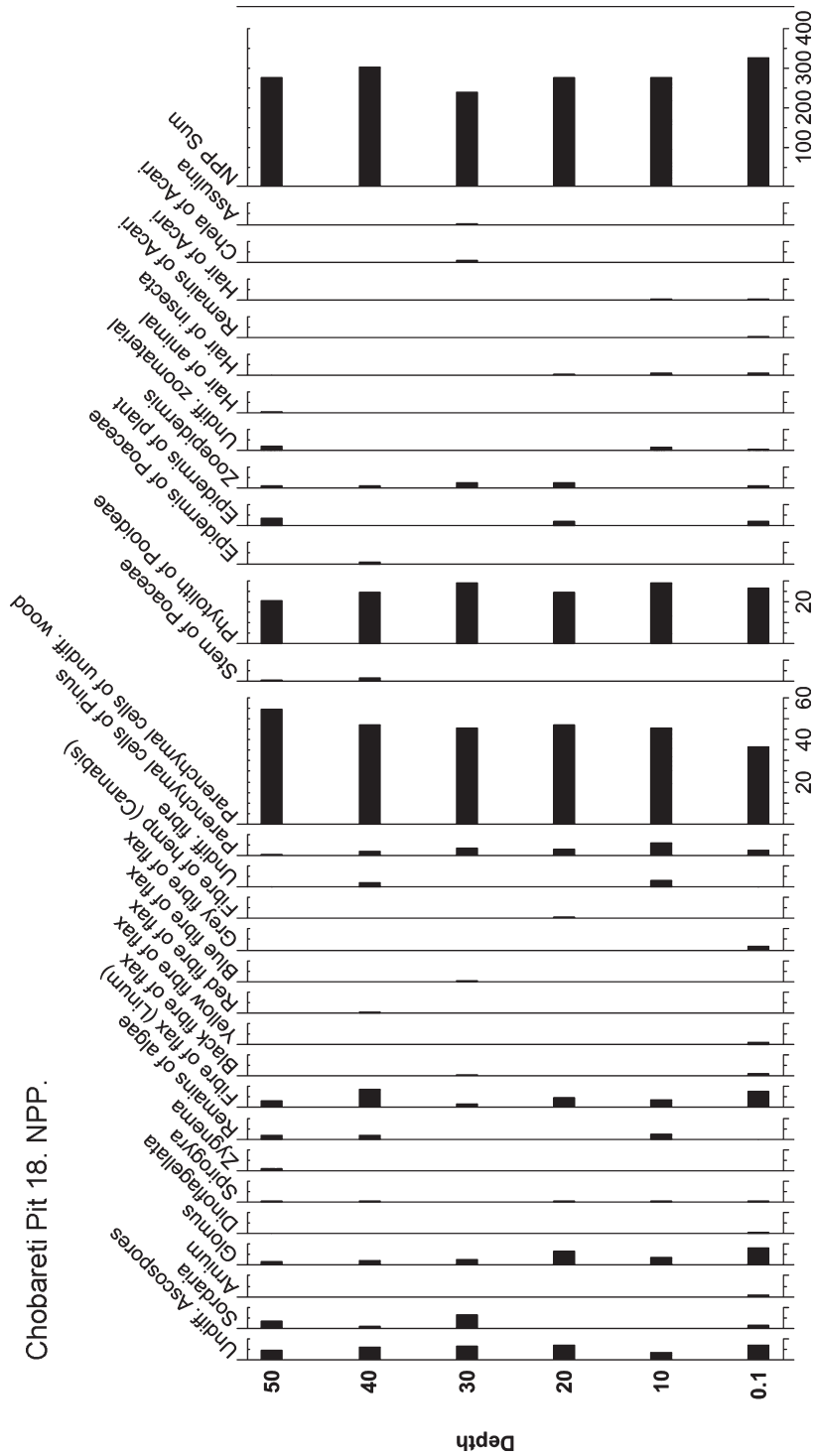


Fig. 61. Non-pollen palynomorphs (NPP) diagram, Pit 18.

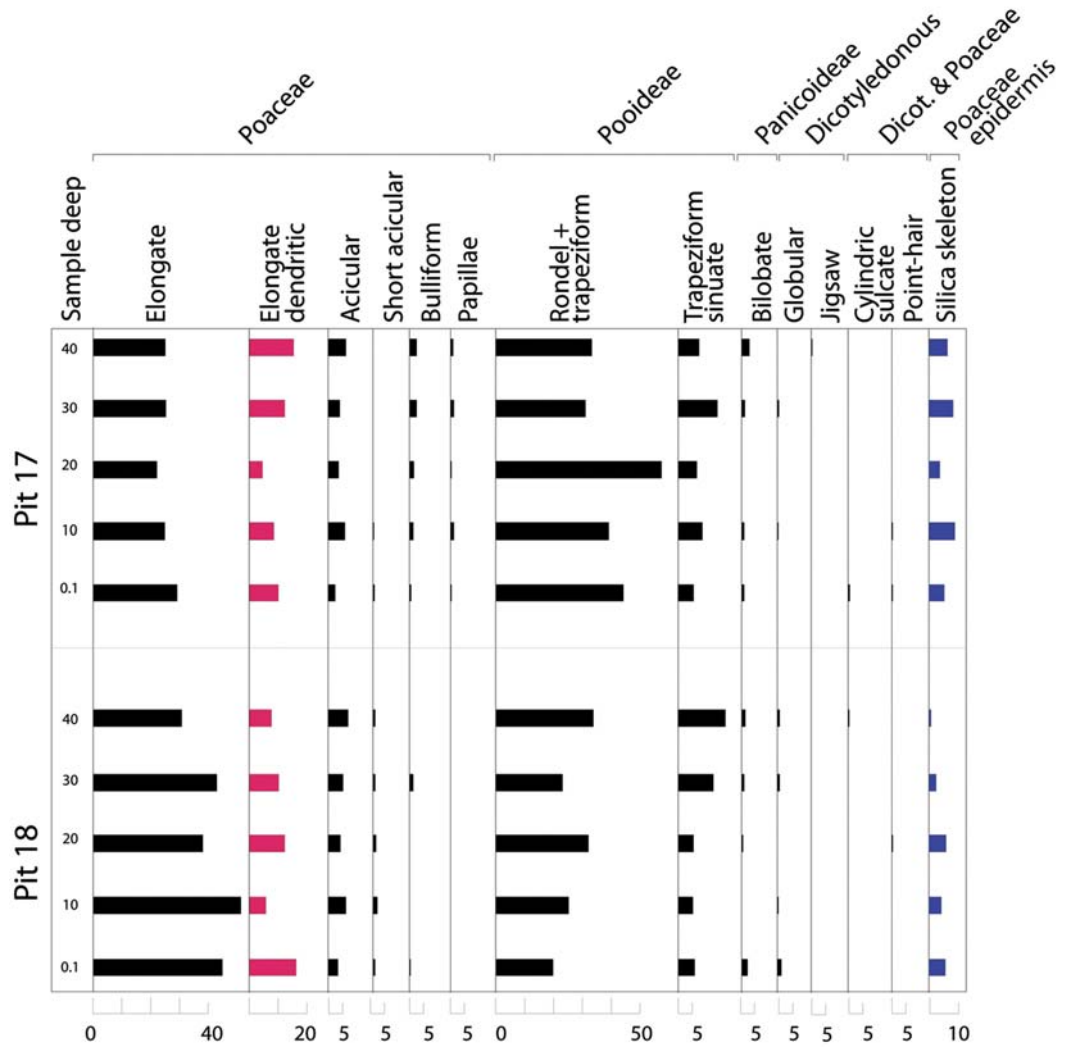


Fig. 62. Phytolith diagram, Pits 17 and 18.

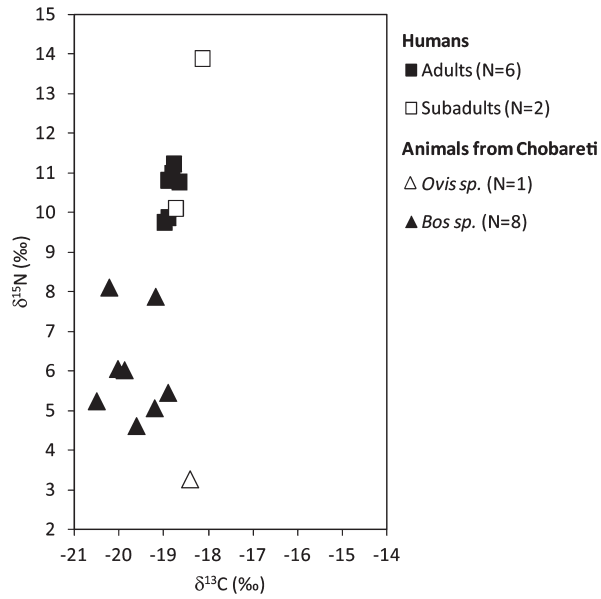


Fig. 63. Carbon and nitrogen stable isotope ratios for animals and humans skeletal remains from Chobareti.

Samples	Pit 16 Ashy layer	Pit 17 Lower part	Pit 17 Upper part	Pit 18 Lower part	Pit 18 Upper part	Total
Samples volumes (litres)	4,9	8,7	12	12,5	10,5	48,6
<b>Domesticated plants</b>						
cf. <i>Cerealia</i> , caryopsis	41	9	17	5	15	87
<i>Cerealia</i> , caryopsis	95	41	16	9	22	183
<i>Cerealia</i> , embryo	95	3	4	1	2	105
<i>Triticum/Hordeum</i> sp., caryopsis	170	84	39	14	8	315
<i>Triticum</i> sp., caryopsis	14	14	17		12	57
<i>Triticum</i> sp., spikelet fork	15					15
<i>Triticum</i> sp., glume basis	4414	138	143	9	91	4795
<i>Triticum</i> sp., rachis fragment	135	20	24	1	13	193
<i>Triticum monococcum</i> , caryopsis	1					1
<i>Triticum monococcum</i> , spikelet fork	2					2
<i>Triticum monococcum/dicoccum</i> , spikelet fork	45	5		4	2	56
<i>Triticum monococcum/dicoccum</i> , glume basis	83					83
<i>Triticum monococcum/dicoccum</i> , rachis fragment	112					112
<i>Triticum</i> cf. <i>dicoccum</i> , caryopsis	13					13
<i>Triticum</i> cf. <i>dicoccum</i> , glume basis	23					23
<i>Triticum dicoccum</i> , caryopsis	36	6	4	3	6	55
<i>Triticum dicoccum</i> , spikelet fork	50		1		1	52
<i>Triticum dicoccum</i> , glume basis	87	61	33		21	202
<i>Triticum dicoccum/nudum</i> , caryopsis	31	8	1	8	5	53
<i>Triticum dicoccum/nudum</i> , spikelet fork	121					121
<i>Triticum dicoccum/nudum</i> , glume basis	1105					1105
<i>Triticum</i> cf. <i>aestivum/durum/turgidum</i> , caryopsis	18					18
<i>Triticum aestivum/durum/turgidum</i> , caryopsis	80	6	7	2	10	105
<i>Triticum</i> hexaploid ( <i>aestivum</i> group), spikelet fork	1038	1	6		5	1050
<i>Triticum</i> hexaploid ( <i>aestivum</i> group), glume basis	1023	11		2	5	1041
<i>Triticum</i> hexaploid ( <i>aestivum</i> group), rachis fragment	423	3	9		3	438
cf. <i>Hordeum vulgare/distichum</i> , caryopsis	8	1		2		11
<i>Hordeum vulgare/distichum</i> , caryopsis					1	1
<i>Hordeum vulgare/distichum</i> hulled, caryopsis	6					6
cf. <i>Panicum miliaceum</i> , caryopsis		3				3
<b>TOTAL CEREALS</b>	<b>9284</b>	<b>414</b>	<b>321</b>	<b>60</b>	<b>222</b>	<b>10,301</b>
<b>Tree and shrub</b>						
<i>Rosa</i> sp., seed		1				1
<i>Rubus</i> sp., seed		1				1
<i>Taxus baccata</i> , seed		2			1	3
<b>Ruderal and arable-weeds</b>						
cf. <i>Avena</i> sp., caryopsis		1			1	2
<i>Avena</i> sp., caryopsis				2		2
<i>Buglossoides arvensis</i> , seed		1				1
<i>Chenopodium</i> sp., seed	20	24	4	3	7	58
<i>Chenopodium album</i> , seed	6	13	4		8	31
<i>Chenopodium hybridum</i> , seed		3	2		4	9
<i>Euphorbia</i> sp., seed			1		1	2
<i>Euphorbia helioscopia</i> , seed		2				2
<i>Fallopia convolvulus</i> , seed	10	14	3		5	32
<i>Galium</i> sp., seed	49	54	8		15	126
<i>Galium aparine</i> , seed					3	3
<i>Galium aparine/spurium</i> , seed		128	33	3	32	196
<i>Hyoscyamus niger</i> , seed		2				2
<i>Papaver</i> sp., seed	4					4
<i>Polygonum</i> sp., seed		7	9		2	18
<i>Polygonum aviculare</i> , seed		1				1
<i>Rumex</i> sp., seed	25					25
cf. <i>Urtica dioica</i> , seed			1			1
<i>Urtica dioica</i> , seed		2	1			3
<b>Miscellaneous</b>						
cf. <i>Bromus</i> sp., caryopsis	135		1			136
<i>Bromus</i> sp., caryopsis	161	16	9	4	4	194
Brassicaceae, seed	3					3
<i>Carex</i> sp., seed	1					1
Caryophyllaceae, seed		1				1
Fabaceae type <i>Trifolium</i> , seed	15	23	6	1	9	54
Fabaceae type <i>Vicia</i> , seed		1				1
Lamiaceae, seed		1	2			3
<i>Poa</i> sp., caryopsis	4					4
Poaceae, caryopsis	45	16	5	6	20	92
Poaceae type <i>Poa</i> , caryopsis		4	4		3	11
Polygonaceae, seed	11		7		3	21
Rosaceae type <i>Potentilla</i> , seed		3	1			4
<i>Teucrium</i> sp., seed			1			1
<i>Teucrium</i> cf. <i>botrys</i> , seed		3				3
Foliar scar			3			3
<b>Total</b>	<b>9773</b>	<b>738</b>	<b>426</b>	<b>79</b>	<b>340</b>	<b>11,356</b>
Concentration/litres	1994.5	84.8	35.5	6.3	32.4	233.7

Fig. 64. Quantities of plant macroremains identified in Pits 16, 17 and 18.

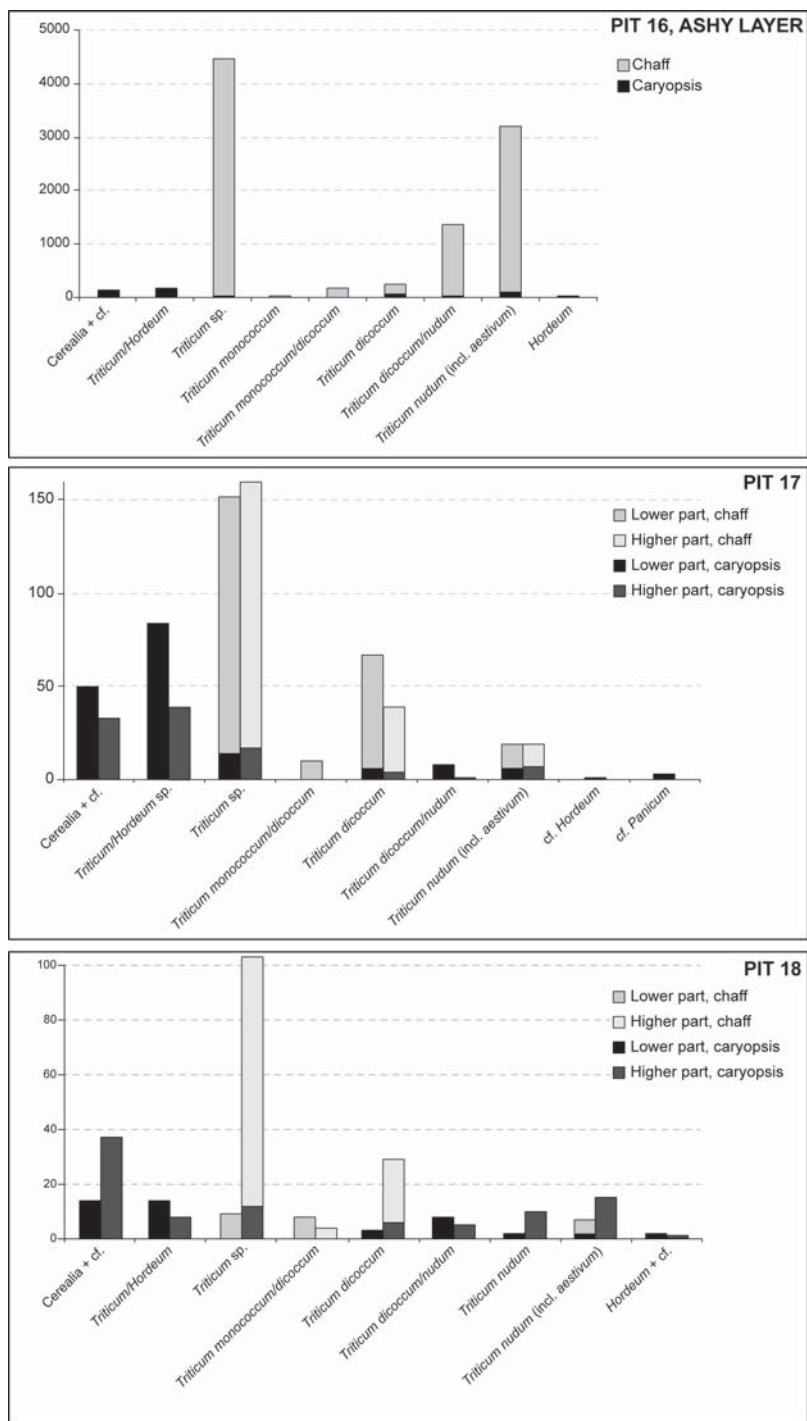


Fig. 65. Histograms showing the different proportions of cereals in Pits 16, 17 and 18, according to the number of caryopsis and chaff. For chaff, we took into account only spikelet fork and glume basis, estimating that one spikelet fork = two glume basis.

