

ZIRIDAVA
STUDIA ARCHAEOLOGICA

26/1

2012

MUSEUM ARAD



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STUDIA ARCHAEOLOGICA

26/1
2012

Editura MEGA
Cluj-Napoca
2012

MUSEUM ARAD

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ZIRIDAVA STUDIA ARCHAEOLOGICA

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The content of the papers totally involve the responsibility of the authors.

Layout: Francisc Baja, Florin Mărginean, Victor Sava

ISSN: 1224-7316



EDITURA MEGA | www.edituramega.ro
e-mail: mega@edituramega.ro

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Late Bronze Age Metal Artifacts Discovered in Şagu, Site “A1_1”, Arad – Timișoara Highway (km 0 + 19.900 – 0 + 20.620)*

Victor Sava, George Pascu Hurezan, Florin Mărginean

Abstract: Bronze objects were only found in 13 of the 322 complexes discovered on the “A1_1” site. The discovery of these bronze objects raises the question of their provenance: were they produced inside the settlement or are they the result of exchanges with other communities? No certain answer can be given in the case of objects found in complex Cx_236, because no indication of local bronze processing can be identified for the BB2-C horizon in Şagu. The number of bronze objects increases and proof of metal processing can be found during the BD/HA1 horizon. Thus, moulds made of clay and sandstone were found in complexes Cx_25, Cx_182, Cx_194 and Cx_198, pottery fragments with bronze smelt traces on the inside were discovered in Cx_198 and casting remains in Cx_66, Cx_182 and Cx_193. Given the above enumerated finds, one can assert that bronze objects were cast on the “A1_1” site during the BD/HA1 horizon.

Keywords: rescue excavation, Lower Mureș, Late Bronze Age, settlement, bronze artifacts.

Introduction

Infrastructure development in the county of Arad and other factors brought numerous benefices to archaeology; thus, more than 50 new sites were identified and catalogued between 2006 and 2009 through field evaluations for the future highway section that connects Nădlac and Timișoara, part of the IVth European corridor. The site located through the archaeological diagnosis performed in 2007 on the border of the village of Şagu is one of these new sites.

The preventive archaeological research of the site labeled “A1_1”, located between kilometers 0+19.900 and 0+20.620, was determined by the need to provide archaeological discharge papers for the 720 meters of land about to be affected by the future highway. The large-scale infrastructure works required for the project allowed for soil removal over an extended surface that contained types of settlements from different periods. The recorded contexts and recovered artifacts are testimonies of less known and less researched historical periods in this region (i.e. the end of the Bronze Age and the Post-Roman, Sarmathian Era). The present study is intended as a mere preamble to a future monograph of the entire site. Taking into consideration the scale of discoveries, this initiative is nevertheless more complex and time-consuming. Through the present paper we only intend to present metal items discovered on site and the relevant contexts in which they were found.

Physical and geographical context

The archaeological site under analysis is located in the piedmont plain of Vinga, the most ancient and complex geographical unit in the area, in fact an ancient delta of River Mureș. The Mureș Valley is the northern limit of this plain, the settlements of Aluniș-Alioș form its southern border, while to the east it borders Podișul Lipovei and to the west Câmpia Jimboliei, by the settlements of Satu Mare-Satchinez. The plain's altitude varies between 180 and 190 m (to the south-east) and 100 m (to the west). In fact, the relief consists of very high terraces and deep valleys¹.

Through repeated surface researches, specialists have noted that the site extends over the third terrace of River Mureș. The location is ideal: there is little chance of flooding, the spot is sheltered from air currents and it provides good visibility, especially to the north.

* English translation: Ana M. Gruia.

¹ Posea 1997, 360–366, fig. 38.

As it is well known, an area's geographical context undergoes constant changes: "Thus, primary biocenoses and forest steppe habitats underwent radical changes, through natural plain areas being turned into agricultural fields"². The idea of associating current and prehistoric geographical factors cannot be taken into consideration due to changes that took place during time. Human intervention in the areas north of River Mureş started in 1774, when the numerous marches of the lower areas started to be drained and channeled; the processes was only completed during the Communist period, in 1960–1970³.

The reconstruction of geographical contexts since prehistory and until the dawn of the modern era is a sinuous and approximate initiative. In order to recreate an approximate picture of the area before it was drained and channeled, one can employ Habsburg military maps compiled in the end of the 18th century and during the 19th century. Besides these, another source to provide useful data consists of maps compiled between 1723 and 1725 by Mercy (the governor of Banat during that period).

Site location

The settlement of Şagu is located 15 km south of the city of Arad, along the national road 69 that connects Arad and Timișoara (Pl. 1/1). Site "A1_1" was identified 200 m south of the mid-distance between Şagu and Cruceni, south of the road connecting the two settlements (Pl. 1/2; 2). The center of the site has the following geographical coordinates: Latitude N46°03'25.52", Longitude: E21°18'33.99". The absolute altitude of site surface varies between 140 and 141 m.

History of research

The first research of the site surface that we are aware of were performed by S. A. Luca during the 1990s. No other research was carried out on the site until 2007. During the archaeological evaluation of the future highway Arad-Timișoara section, one team from the Museum Complex of Arad re-identified this site between kilometers 0+19.900 –0+20.620 of the above mentioned section.

The report prepared by specialists from the Museum Complex in Arad (P. Hügel, G. P. Hurezan, Fl. Mărginean and Zs. Kopeczny) notes that the site develops lengthwise between kilometers 0+19.900 –0+20.620 m and the entire estimated surface of the site reaches 357,700 m² (720 × 496 m; 35.77 ha). Several items were recovered from the multi-layer site: pottery fragments, elements from grinders and adobe pieces dated to the 3rd–5th centuries A.D. and pottery, a small iron knife and a saddle stirrup dated to the interval between the 10th and the 11th century A.D.

Two years later (2009), while archaeologically expertising the location of a clay deposit site, Fl. Mărginean and V. Sava performed surface research both inside and around the site. They collected numerous pottery fragments from the Late Bronze Age and some that can be dated to the 3rd–5th and 11th–13th centuries A.D. From the perspective of the quantity of discovered pottery, most of it can be dated to the Late Bronze Age (BD/HA1), while only a few atypical fragments belong to each of the other two eras (3rd–5th and 11th–13th centuries A.D.) The same surface research allowed archaeologists to determine the maximum pottery density in the south-eastern perimeter, over a surface of 100 × 100 m.

Representatives of the Museum Complex in Arad performed archaeological research on the site during 2010 that aimed at safeguarding the archaeological patrimony that was about to be affected by the future Arad-Timișoara highway.

Site dimensions

Measurements taken in 2009 partly confirm the dimensions noted in the archaeological diagnosis report for the Arad-Timișoara highway: in length, along the west-east axis, it measured 450 m while in width, along the north-south axis it measured 720 m, thus the estimated size of the entire site reaches 324,000 m² (32.4 ha). The settlement dated to the end of the Bronze Age BD-HA1, is

² Berindei, Măhăra 1971, 33.

³ Posea 1997, 79.

measuring 530 m in length and ca. 450 m in width. The site's length (of 530 m) is exact since it has been verified through excavations, while the 450 m of width were determined through field research thus the width of the Bronze Age site can be, for now, considered as approximate. Nevertheless, one can state that the prehistoric settlement covered ca. 238,500 m², i.e. 23.85 ha.

The habitation of the 3rd–5th centuries develops between kilometers 0+19.900 –0+20.170, along just 270 linear m. The width of this settlement cannot be estimated since no significant pottery fragments dated to this period have been identified on the surface. Due to this drawback, one cannot estimate the size of the settlement dated to the 3rd–5th centuries A.D. Though several early medieval items were discovered, no such complexes have been delimited in the area under research.

Description of research methodology

Since the methodology followed during the excavation of large-size archaeological objectives that are to receive archaeological discharge papers lacks unity, a strategy intended to combine both the constructor's needs and archaeological scientific rigor was designed in the beginning of 2010.

Thus, in order to speed the works, the team requested the mechanical removal of the upper layer over the entire site area about to be affected by the highway section. This stage was performed with slope blade excavators. The first stage envisaged the removal of the vegetation layer that measured ca. 0.20–0.25 m, but we had to remove a layer of up to 0.10–0.15 m because *in situ* archaeological remains (undisturbed) started to appear at a depth of 0.10–0.15 m; among them there were two hearths. This 0.10/0.15 m thick layer was removed over the entire length and width of the site's affected side (720 m; 28,800 m²; 2.88 ha). Each complex was marked, excavated and recorded and new layers were removed until the archaeological sterile was met; at that level we identified complexes that went deeper into the yellow clay layer. Each complex was labeled with identification numbers, from 1 onwards.

All archaeological complexes located on a site require unitary, but as complete as possible excavation techniques and recording system. Thus all such complexes have standard record files containing data such as their dimension, the depth where they have been identified, the type of complex, an exhaustive description of the filling (in the case of complexes dug in the soil), identified artifacts etc. These records were filled throughout the excavation of a complex and all files were filled in by the same person. In the end of each day, all complete records were digitalized.

Various excavation techniques were used for the different types of complexes, but the same principles applied. Complexes dug in the ground were initially emptied by half, in order to create a profile. Usually, such complexes were sectioned along their north-south axis or along the long sides. In case of larger pits, they were cross sectioned in order to allow for a better documentation. Each of these levels was numbered, described and its color was determined according to a standard catalogue (Munsell Soil – color charts 2009).

When an archaeological complex could not be sectioned (since it contained too many artifacts, or for other reasons), its horizontal deposition levels were excavated and recorded; the deposition levels could include up to nine layers. In order to best document each such layer, they were photographed, drawn and described separately in the standard record files.

After each archaeological complex was half excavated and a profile obtained, it was photographed and drawn. After the completion of these operations, the other half was emptied and the entire emptied archaeological complex was photographed and drawn dimensionally.

All artifacts were collected according to the archaeological complexes in which they were discovered. The artifacts were collected in plastic bags and each bag contained the name of the site, the identification number of the archaeological complex, the level of discovery and depth of discovery of the artifacts. Special artifacts, the most interesting or spectacular ones, were collected in separate bags and deposited in other boxes.

An electronic database was designed in order to allow easy access to data collected during the excavation. The database contained standard record files of each complex, all its photographs (and the time when it was identified, sectioned, intermediate photos, images of details, when emptied and, if required, photos of each layer) and drawings (of the profile, when emptied, or, if such was the case, of each level).

General stratigraphy of the site

After the site was uncovered, we could note the fact that the culture layer was only preserved over 90 m, between kilometers 0+20.230 –0+20.320 m, containing 41 complexes (especially concentrations of pottery and hearths) that belong to the Late Bronze Age.

Despite the fact that *in situ* archaeological complexes have been identified in the culture complex, parts of this level were disturbed by modern and contemporary agricultural works. One argument that supports this statement is the discovery of modern pottery fragments (dated to the 18th–19th century) among the prehistoric artifacts inside the culture level.

The rest of the culture level on site surface was destroyed by successive plowing that we were able to identify in some areas down to –0.60 m. Several hearths escaped untouched by plowing, such as those labeled Cx_19 (kilometer 0+20.090) and Cx_21 (kilometer 0+20.370). The archaeological sterile level (yellow clay) was found on the entire surface of the site at ca. –0.60 m.

Catalogue

1. *Miniature axe* (Pl. 3/1). Bronze. The head is emphasized, slightly wider by the socket mouth, thinner and wider towards the blade. The socket mouth is not perforated throughout. The blade is slightly nicked; the rest of the head does not show traces of usage. The entire surface is covered in grayish green (5GY – 5/2⁴) patina and in some places there are traces of light olive green (5GY – 5/4) oxidizing. Length: 5.5 cm; blade width: 1.28 cm; head thickness: 0.48 cm; thickness by the socket mouth: 0.58 cm; blade thickness: 0.18 cm; weight: 5 gr. Cx_26.
2. *Needle fragment* (Pl. 3/2). Bronze. A small part of the needle is preserved. One of the sides is round in section, while the other side is rectangular. The patina is light grayish green (5GY – 6/2). Length: 2.4 cm; thickness: 0.2 cm, weight: 0.8 gr. Cx_33, ▼ 0.10; level 1.
3. *Needle fragment* (Pl. 3/3). Bronze. The tip and part of the shaft are preserved. The body is hexagonal in section and the tip is rectangular. The color of the patina on the lower part is grayish green (5GY – 6/2) and pale green (5G_2 – 6/2) in the upper part. Length: 5.26 cm; thickness in the upper part: 0.3 cm; thickness in the lower part: 0.16 cm, weight: 2 gr. Cx_35, ▼ 0.63 m, level 1.
4. *Ring fragment* (Pl. 3/4). Bronze. The item is concave in section and the body is wavy. The patina is grayish green (5GY – 5/2). Length: 1.8 cm; width 0.08 cm; weight: 0.6 gr. Cx_40, ▼ 0 –0.10 m, level 1.
5. *Fragmentary saw blade* (Pl. 3/5). Bronze. The teeth are not very visible. One can note the braking line at both ends; at one end the blade is slightly turned outwardly, while at the other end it turns inwardly. The patina is very dark grayish green (5GY – 3/2) and does not cover the entire body; it is absent mainly on the lateral areas. The item is of a weak red (5R – 4/4) color. Length: 3.08 cm; width: 1.59 cm; thickness: 0.11 cm; weight: 3 gr. Cx_79, ca. ▼ 0.10 m.
6. *Wire fragment* (Pl. 3/6). Bronze. At one end it is rectangular in section, while throughout the rest it is round. The item is bent. The patina is light grayish green (5GY – 6/2). Length: 7.2 cm; width: 0.18 cm; weight: 1 gr. Cx_84, ▼ 0.20 m, level 1.
7. *Wire fragment* (Pl. 3/7). Bronze. The item is round in section and is bent. The patina is light grayish green (5GY – 6/2). Length: 7 cm; width: 0.12 cm; weight: 0.8 gr. Cx_156.
8. *Fragmentary saw blade* (Pl. 3/8). Bronze. The end of the saw is preserved and part of the main body. The end is highlighted through two triangular extensions. The teeth are rather well visible. The patina is very dark grayish green (5GY – 3/2). Length: 6.2 cm; width: 1.5 cm; thickness: 0.19 cm; weight: 5 gr. Cx_170, southern corner.
9. *Dagger handle fragment with orifices for fastening the hilt* (Pl. 3/9). Bronze. The end of the handle becomes narrower and is provided with orifices, of which only two are preserved. Casting traces are visible on the surface. The patina is light grayish green (5GY – 6/2). Length: 3.18 cm; width: 2.3 cm; thickness: 0.32 cm; diameter of the orifice on the handle: 0.4x0.3 cm; weight: 6 gr. Cx_201, ▼ 0.34 m.

⁴ To determine the colors we used Munsell Soil-Color Charts 2009.

10. *Finger ring with multiple spirals* (Pl. 4/1). Bronze. The ring consists of four spirals, is slightly concave in section and has rounded ends. One of the spirals is pushed inwardly. The patina is grayish green (5GY – 5/2). Length: 21.5 cm; inner diameter: 1.56 × 1.52 cm; outer diameter: 1.79 × 1.8 cm, width: 0.12 cm; weight: 4 gr. Cx_230, ▼ 0.23 cm, level 1.
11. *Saltaleon fragment* (Pl. 4/2). Bronze. The item is slightly bent. The patina is grayish green (5GY – 5/2). Length: 2.7 cm; width: 0.42 cm; thickness: 0.08 cm; weight: 0.9 gr. Cx_236, ▼ 0.20 cm.
12. *Reversed-heart-shaped pendant* (Umgekehrt herzförmige, durchbrochene Anhänger) (Pl. 4/3). Bronze. The patina is grayish green (5GY – 5/2). Length: 3.2 cm; width: 3.04 cm; thickness: 0.28 cm; weight: 4 gr. Cx_236, ▼ 0.10 cm.
13. *Appliqué* (Pl. 4/4). Bronze. It has two circular orifices (performed from the outside), on each side of the item, measuring 0.02 cm in diameter. One end is bent inwardly and the rest of the item is twisted due to mechanical factors. It is cracked, especially on the margins. The patina is grayish green (5GY – 5/2). Preserved diameter: 2.66x2.1 cm, width: 0.04 cm; weight: 0.6 gr. Cx_291, ▼ f 0.15 cm.
14. *Fragment of an item with uncertain function* (Pl. 4/5). Bronze. It is rectangular in section and the patina is pale green (5G_/2 – 6/2). Length: 2.94 cm; width: 0.44 cm; thickness: 0.22 cm; weight: 1 gr. Cx_295.
15. *Ring* (Pl. 4/6). Bronze. It is concave in section and has flat, overlapping ends. The patina is pale green (5G_/2 – 5/2). Length: 4.7 cm; width: 0.2 cm; inner diameter: 1.2x1.2; outer diameter: 1.44x1.98 cm; width: 0.1 cm; weight: 0.4 gr. Inside the culture layer.
16. *Bronze plate* (Pl. 4/7). Part of the edge is preserved. The patina is grayish green (5GY – 5/2). Length: 1.98 cm; width: 1.72 cm; thickness: 0.16 cm; weight: 0.9 gr. Inside the culture layer, 1 m north of de Cx_113.
17. *Needle fragment* (Pl. 4/8). Bronze. The tip and part of the shaft have been preserved. The shaft is circular in section. The patina is grayish green (5G_/2 – 4/2). Length: 5.32 cm; thickness in the upper part: 0.3 cm; thickness in the lower part: 0.2 cm, weight: 2 gr. Inside the culture layer, around kilometer 0+20.300.
18. *Bronze plate* (Pl. 4/9). The body of the item is very slightly bent and its patina is grayish green (5G_/2 – 5/2). Length: 3.3 cm; width: 2.74 cm; thickness: 0.19 cm; weight: 6 gr. Inside the culture layer, 5 m north-west of Cx_02.
19. *Bronze plate* (Pl. 4/10). The body of the item is slightly bent and its patina is pale green (5G_/2 – 8/2). Length: 2.02 cm; width: 1.6 cm; thickness: 0.1 cm; weight: 1 gr. Inside the culture layer, around kilometer 0+20.220.

Description of finding contexts

Cx_26. *Waste pit*. The edges of this context were clear and they were identified due to differences in color. The filling of the pit consisted of two layers. The first was identified between 0 and –0.50/0.60 m; the soil was darker and pigmented with adobe. This layer included pottery and animal bone fragments. The second layer was identified between –0.60–1.13 m; the soil of this layer was light grey in color, with numerous yellow intrusions and of clayish consistence. It included several artifacts, such as pieces from an oven and a grinder fragment. There were also one pottery fragment decorated with grooves forming a garland, a bowl decorated on the outside with incisions in shape of a star and pottery fragments decorated with wide grooves. The pit was almost circular in shape, with walls tilted outwardly and flat bottom. Identification depth: 142.08 m; length: 1.20 m; width: 1.05 m; depth: 1.13 m.

Cx_33. *Waste pit*. The edges of this context were clear and they were identified due to differences in color. The filling of the pit consisted of two layers. The first was identified between 0 and –0.55 m and consisted of grey soil pigmented with adobe and coal. The soil was of clayish consistence. Most artifacts were discovered in this first layer: the bronze needle, a perforated fish vertebra, pottery fragments decorated with wide grooves, fragments of adobe and animal bone remains. The bone fragment was discovered at a depth of –0.10 m, in the central area of the western side. The second layer was identified between –0.55 m and 0.78 m. The filling consisted of grayish-yellow, little pigmented, clayish soil. The shape of the pit was oval, with walls tilted outwardly and flat bottom. Identification depth: 142.09 m; length: 2.55 m; width: 1.70 m; depth: 0.78 m.

Cx_35. Waste pit. The edges of this context were clear and they were identified due to differences in color. The filling of the pit consisted of two layers. The first continued until 0.90 m and consisted of grayish-yellow soil pigmented with adobe. Both layers had clayish consistence. A large part of the pottery fragments, clay weights, ornamented fragments from movable hearths and the needle fragment were discovered in this first layer. Among the pottery fragments, some are decorated with grooves placed as to form garlands. The second layer was identified between -0.90 and 1.35 m. It was of grayish-yellow color. The shape of the pit was circular, with almost straight walls and flat bottom. Identification depth: 142.11 m; length: 1.26 m; width: 1.28 m; depth: 1.35 m.

Cx_40. Waste pit. The edges of this context were clear and they were identified due to differences in color. This complex cut through Cx_41 towards the north-east. The filling of the pit consisted of two layers. The first layer continued until the depth of 0.37 m; the soil was dark grey, of ash-like consistence, pigmented with a large quantity of ashes. Ash lenses were found on the upper part of the complex. The layer contained several pottery fragments decorated with grooves, adobe fragments, animal bone fragments and the bronze ring fragment. The second layer was identified between -0.37 and -0.76 m; the soil was grayish-yellow, with intrusions of yellow clay, slightly pigmented with adobe and was of ash-like consistence. This second layer contained more artifacts than the first. The shape of the pit was oval, with walls tilted outwardly and slightly alveolar bottom. Identification depth: 142.053 m; length: 1.44 m; width: 1.12 m; depth: 0.76 m.

Cx_79. Waste pit. The edges of this context were clear and they were identified due to differences in color. The filling consisted of dark brown soil, pigmented with coal and very few adobe fragments. It contained pottery fragments decorated with wide grooves, animal bone fragments and one piece from a bronze saw. The latter was discovered in the center of the pit, at ca. -0.10 m. The shape of the pit was almost oval, narrower towards the north, with straight walls and alveolar bottom. Identification depth: 142.02 m; length: 1.45 m; width: 1.34 m; depth: 0.28 m.

Cx_84. Waste pit. The edges of this context were clear and they were identified due to differences in color. The filling of the pit consisted of two layers. The first continued until the depth of 0.33 m. The soil was of grayish-yellow color, pigmented with adobe and coal and had ash-like consistence. Layer 2 was identified between 0.33 and 0.42 m. The soil of this layer was dark grey in color, pigmented with a little adobe and coal. A lens of ash was identified in the center of the pit, between the two layers. The bronze wire was found in the first layer, besides pottery fragments decorated with wide grooves, human bone fragments and ornamental fragments from movable hearths (these fragments in particular were identified in the first layer). The shape of the pit was almost oval, with walls slightly tilted inwardly and alveolar bottom. Identification depth: 142.040 m; length: 1.40 m; width: 1.06 m; depth: 0.42 m.

Cx_156. Waste pit. The edges of this context were clear and they were identified due to differences in color. After emptying the pit, archaeologists were able to identify two layers. The first measured 0.56 m in thickness, was of a dark grey color, pigmented with a lot of adobe and a few coal fragments and was of clayish consistence. The second layer was identified between the depths of 0.56 and 0.90 m, was light grey, little pigmented and of clayish consistence. The most numerous pottery fragments were found inside the second layer, some decorated with incisions placed in the shape arches or decorated with grooves, adobe fragments and animal bone remains. The shape of the pit was irregular, with walls slightly tilted outwardly and alveolar bottom. Identification depth: 141.702 m; length: 1.90 m; width: 1.71 m; depth: 0.90 m.

Cx_170. Clay extraction pit? The edges of this context were clear and they were identified due to differences in color. A single layer has been identified, of a dark grey color, pigmented with adobe in the upper part, especially along the south-western side. Few artifacts were recovered from the filling, among which a lobed bowl, small fragments of adobe, animal bone remains and one saw fragment. The shape of the pit was irregular, with almost straight walls and alveolar bottom. Identification depth: 141.140 m; length: 6.40 m; width: 5.64 m; depth: 0.80 m.

Cx_201. Waste pit. The edges of this context were clear and they were identified due to differences in color. The filling consisted of a single layer of very dark grey soil, pigmented with little adobe and of ash-like consistence. Besides the bronze plate fragments, archaeologists have also uncovered pottery fragments decorated with wide grooves, animal bone remains, one grinder fragment and a clay weight.

The shape of the pit was circular, with straight walls and flat bottom. Identification depth: 140.840 m; length: 1.38 m; width: 1.45 m; depth: 0.36 m.

Cx_230. Waste pit. The edges of this context were clear and they were identified due to differences in color. The filling of the pit consisted of four layers. The first continued down to 0.34 m, was of a very dark brown-grey color, pigmented with coal and adobe and had ash-like consistence. The second layer was identified between -0.34 and -0.50 m, was brown-yellowish in color, with numerous intrusions of yellow clay, pigmented with coal and of ash-like consistence. The third layer was identified between -0.50 and -0.73 m, was dark grey in color, unpigmented and of ash-like consistence. The final layer was identified between -0.73 and -0.92 m, was of a dark brown color, unpigmented, with ash-like consistence. The multi-spiral bronze ring was discovered in the first layer. Besides the few pottery fragments decorated with wide grooves, there were also some animal bone remains. The shape of the pit was oval, with walls strongly tilted outwardly and alveolar bottom. Identification depth: 140.878 m; length: 1.70 m; width: 1.40 m; depth: 0.92 m.

Cx_236. Waste pit. The edges of this context were clear and they were identified due to differences in color. A single layer was identified, dark grey in color, pigmented with adobe and a little coal, with intrusions of yellow clay and of clayish consistence. The pendant and the saltaleon were discovered at -0.10 and -0.20 m, respectively, on the eastern side of the southern wall. Besides these bronze items, the filling of the pit also included pottery fragments decorated with incisions. The shape of the pit was circular, with straight walls and flat bottom. Identification depth: 140.377 m; length: 1.80 m; width: 1.70 m; depth: 0.52 m.

Cx_291. Waste pit. The edges of this context were clear and they were identified due to differences in color. A single layer was identified, of dark brown color and sandy consistence. Besides the bronze appliqué, there were also pottery fragments decorated with incised arches, circular incisions and wide grooves, one fragment from a lobed bowl and animal bone remains. Its shape was almost rectangular, with straight walls and alveolar bottom. Identification depth: 137.321 m; length: 2.90 m; width: 2.60 m; depth: 0.30 m.

Cx_295. Waste pit. The edges of this context were clear and they were identified due to differences in color. After emptying the pit, archaeologists identified three filling layers. The first was 0.10 m thick and consisted of fragments from movable hearths and pottery. The second layer, identified between -0.10 and -0.25 m, consisted of large fragments from movable hearths, mainly located on the northern side of the pit, pottery fragments and a bi-trunk-shaped pot located on the southern side. The third layer was identified between -0.25 m and -0.50 m and consisted of undecorated movable hearths fragments and a grinder fragment. In the last layer, reaching down to -0.78 m, archaeologists uncovered pottery fragments decorated with grooves and very few fragments from movable hearths. The shape of the pit was oval, with walls slightly tilted outwardly and almost flat bottom. Identification depth: 136.083 m; length: 2.15 m; width: 1.46 m; depth: 0.78 m.

Chronological identification of discoveries

Since bronze items discovered on the “A1_1” site in Şagu cannot be dated to narrow chronological intervals, we have decided to associate them to the pottery material discovered in each complex. We will subsequently discuss the chronological framing of each complex.

Besides a bronze miniature axe with emphasized head (Pl. 3/1), the pit labeled Cx_26 contained pottery fragments decorated with grooves forming garlands, decorating bi-trunk-shaped pots (Pl. 10/5) and cups (Pl. 10/4, 8). The pottery fragment illustrated on Pl. 10/5 was almost certainly part of a bi-trunk-shaped pot. The shape of such pots originated in the urns typical to period BD/HA1, that already displayed characteristic traits such as the bi-trunk-shaped body and decoration placed on the maximum diameter of their belly⁵. The earliest examples were found in Biharkeresztes⁶, Doboz⁷, Hódmezővásárhely⁸, Karaburma⁹ and Nagyhalász¹⁰. Among the most recent, one can

⁵ Szabó 2002, 45, fig. 2, IV.B.1.

⁶ Szabó 2002, pl. 134/1.

⁷ Szabó 2002, pl. 146/6.

⁸ Szabó 2002, fig. 26, IV.B.2.

⁹ Todorović 1977, grob 2, grob 3, grob 49, grob 109, grob 185, grob 226.

¹⁰ Kemenczei 1984, pl. CXXIX/9; Szabó 2002, fig. 26, IV.B.2.

mention the item in Kalakača¹¹ (dated sometime during stage HB2-HB3), two items in Teleac level III¹² – associated by the authors of this site’s monograph to stage HB3-HC¹³ and Dej¹⁴, contemporary to the third level in Teleac. Grooves forming garlands, that decorated bi-trunk-shaped pots, but other items as well, were widely spread towards the end of the so-called pre-Gáva horizon (BD-HA1), in Cornuțel¹⁵, Jánosszállás¹⁶, Moldova Nouă – “Cariera de banatite”¹⁷, Polgár¹⁸, Susani – “Grămurada lui Ticu”¹⁹, Timișoara – “Fratelia”²⁰ and Vladimirescu²¹. The cup fragment illustrated on Pl. 10/8 has analogies in Susani – “Grămurada lui Ticu”²² and Battonya²³, in the HA1 horizon. Thus, on the basis of these analogies, one can establish that the pit conventionally labeled Cx_26 belongs to the HA1 chronological horizon.

The needle fragment shown in Pl. 3/2, identified in Cx_33, of which a small part is preserved, cannot be dated. Unfortunately, neither does the pottery discovered in the same context. One of the pottery fragments is decorated with vertical grooves. As it is well known, grooves are typical to the so-called second phase of the Cruceeni-Belegiš culture²⁴, paralleled to HA1²⁵.

Besides a bronze needle fragment (Pl. 3/3), complex Cx_35 also contained a bowl decorated with grooves forming garlands (Pl. 11/4) and the upper part of a bi-trunk-shaped vessel decorated with horizontal grooves and grooves forming garlands (Pl. 12/1). As previously mentioned (see the discussion of Cx_26) bi-trunk-shaped vessels thus decorated belong to the HA1 horizon.

Besides the ring fragment (Pl. 3/4) discovered in Cx_40, the saw blade (Pl. 3/5) discovered in Cx_79 and the wire fragment (Pl. 3/6) in Cx_84, pottery fragments decorated with grooves were found, that can probably be dated in HA1 as in the case of Cx_33. The saw blade fragment is the only one of the three bronze items that could be dated more precisely. This type of artifact is widely spread in the Cincu-Suseni series (HA1), though it also features in deposits such as those in Uriu, Jupalnici-Turia and Moigrad-Tăuteu²⁶.

Another bronze item that cannot be dated is the wire fragment with round section (Pl. 3/7) discovered in Cx_156. Nevertheless, its chronological framing can be narrowed down on the basis of pottery fragments discovered in the same complex. Among the most representative such items, one can mention the cup fragment decorated with horizontal, vertical and arcade-like placed incisions (Pl. 13/1) and two fragments decorated with grooves (Pl. 13/2–3). Decorative elements consisting of incisions forming arcades were also found in Giroc “Mescal”²⁷, Timișoara “Fratelia”, in the Cruceeni-Belegiš environment phase I and in Sântana “Cetatea Veche”²⁸.

Another saw blade was identified in the clay extraction pit labeled Cx_170. Several pottery items were discovered near this bronze item, among which a lobed bowl (Pl. 13/4). The latter type was found in both the BD chronological level in Debrecen²⁹ and in HA1 contexts, such as the one in Susani³⁰.

The dagger fragment with orifices for fixing the handle (Pl. 3/9) and the multi-spiral-shaped ring (Pl. 4/1), discovered in Cx_201 and Cx_230 respectively, were associated with pottery fragments decorated with wide grooves (Pl. 13/5–7). Thus, such pits can be paralleled to Cx_26, Cx_33, Cx_35, Cx_40, Cx_79 and Cx_84.

¹¹ Medović 1988, fig. 295/10.

¹² Vasiliev *et al.* 1991, fig. 32/5, 7.

¹³ Vasiliev *et al.* 1991, 100.

¹⁴ Horedt 1964.

¹⁵ Gumă 1993, pl. XIII/12.

¹⁶ Szabó 2002, pl. 35/1–2.

¹⁷ Gumă 1993, pl. XVII/3.

¹⁸ Szabó 2002, pl. 70/2.

¹⁹ Stratan, Vulpe 1977.

²⁰ Gumă 1993, pl. XVI/3.

²¹ Pădureanu 1985, pl. VII/2.

²² Stratan, Vulpe 1977, Taf. 7–8.

²³ Szabo 2004, Abb. 12/7.

²⁴ Tasić 1984, 33; Szentmiklosi 2009, 132–134.

²⁵ Tasić 1984, 40; Bukvič 2000, 35, 223–224.

²⁶ Ciugudean *et al.* 2006, 39; Bejinariu 2007, 40.

²⁷ Szentmiklosi 2009, pl. LXVII/1–2, 6, 8; LXVIII/6–9; LXXIII/4; LXXIV/10.

²⁸ Gogâltan, Sava 2010, fig. 37.

²⁹ Szabo 2004, Taf. 12/17–47.

³⁰ Stratan, Vulpe 1977, Taf. 4/6a-b; 5/218; 15.

A reversed-cross-shaped pendant (Pl. 4/3) and a saltaleon (Pl. 4/2) were discovered in Cx_236. Out of the two items, the pendant is the one that provides the dating of the entire complex. Such a pendant was discovered in tomb no. 17 in the necropolis of Detek³¹, in the tumular environment, in tomb no. 2 in Szentes³², in Zákányszék, (BB2)³³, but also in the Piliny environment, in Nagybátony (B2-C)³⁴. Other pendants of this type were discovered in the tombs from Hetény (the Koszider horizon)³⁵ and in tomb D359 in Tiszafüred “Majoroshalom” part of the Hajdúdámson-Apa-Ighiel-Zajta group³⁶.

The appliqué discovered in Cx_291 (Pl. 4/4) was associated with pottery decorated with incisions forming arcades (Pl. 14/3, 5, 8, 12) and with grooves (Pl. 14/4, 6, 11). The bronze appliqué is not a good dating element since items of this type can be found since the Hajdúdámson-Apa-Ighiel-Zajta horizon³⁷ and until the Cincu-Suseni horizon³⁸. On the basis of pottery finds, the items discovered in this complex are contemporary to those in Cx_156.

The other bronze items (Pl. 4/5–10) cannot be attributed to any chronological horizon. Nevertheless, taking into consideration the fact that the entire settlement, with the exception of some Sarmathian complexes, belongs to various phases of the Late Bronze Age, these bronze items can be dated to the same period.

One can easily note that the vast majority of bronze items that can be dated (in themselves or in association with various pottery fragments) belong to the BD/HA1 chronological horizon. The pendant and the saltaleon discovered in Cx_236 belong, as an exception, to the B2-C horizon.

The significance of discoveries

Bronze items were only identified in 13 of the 322 complexes discovered on the “A1_1” site. Two such items, a saltaleon (Pl. 4/2) and a pendant (Pl. 4/3), were found in Cx_236, thus 14 items were discovered in archaeological complexes. The other five items were found inside the culture layer.

As for their function, up to the present state of research, the above mentioned complexes are believed to be refuse pits. As an exception, Cx_170 might be a clay extraction pit, later on turned into a refuse pit, due to its significant size, irregular shape and the fact that the pottery kiln Cx_180 was located near by.

The discovery of these bronze items makes one wonder if they were produced on site or reached it through exchanges with other communities. No certain answer can be given for items discovered in complex Cx_236, since the BB2-C horizon in Şagu did not reveal traces of local bronze processing. The number of bronze items increases during the BD/HA1 horizon and there is already proof of local processing. Clay and sandstone molds were thus found in complexes Cx_25, Cx_182, Cx_194 and Cx_198; pottery fragments with traces of melted bronze on the inside were found in Cx_198 and casting traces in Cx_66, Cx_182 and Cx_193. Taking into consideration the above mentioned discoveries, one can state that bronze items were cast on the A1_1 site during the BD/HA1 horizon.

Considering the large size of the excavated area, 28000 m², representing ca. 8–10% of the entire estimate surface of the site, one can note that the number of bronze items is very small (just 19). Besides, the 19 items cumulate a very small quantity of metal, i.e. 45 grams. The case is not unique, since there are other sites as well, of large size but with a small number of such finds, such as the ones in Petea “Csengersima”³⁹ and Nyíregyháza – Oros “Úr Csere”⁴⁰. Another site, relatively well researched, is the fortification in Sântana “Cetatea Veche”, but unlike the above mentioned cases, an impressive number of bronze objects was discovered there⁴¹. 53 bronze items were discovered during the numerous field researches (32 items) and archaeological excavations (21 items). The difference

³¹ Kemenczei 1989, abb. 3/9.

³² Nagy 2005, abb. 1/18.

³³ Sánta 2004, abb. 10/15.

³⁴ Kemenczei 1984, Taf. 6/23.

³⁵ Mozsolics 1973, Taf. 2/2–3.

³⁶ David 2002, Taf. 271/3–4.

³⁷ David 2002, Taf. 271/6.

³⁸ Petrescu-Dâmbovița 1977, pl. 116/25; 126/17.

³⁹ Marta 2009, 44–45; 83–84.

⁴⁰ Marta *et al.* 2010, 47–53.

⁴¹ Rusu *et al.* 1996, pl. XIV; Gogâltan, Sava 2010, fig. 13–15, 39–42.

between “A1_1” and Sântana “Cetatea Veche” under this respect can be explained by the fact that the latter site was a power center while the first was a settlement in the area of influence of a power center in the Lower Mureș.

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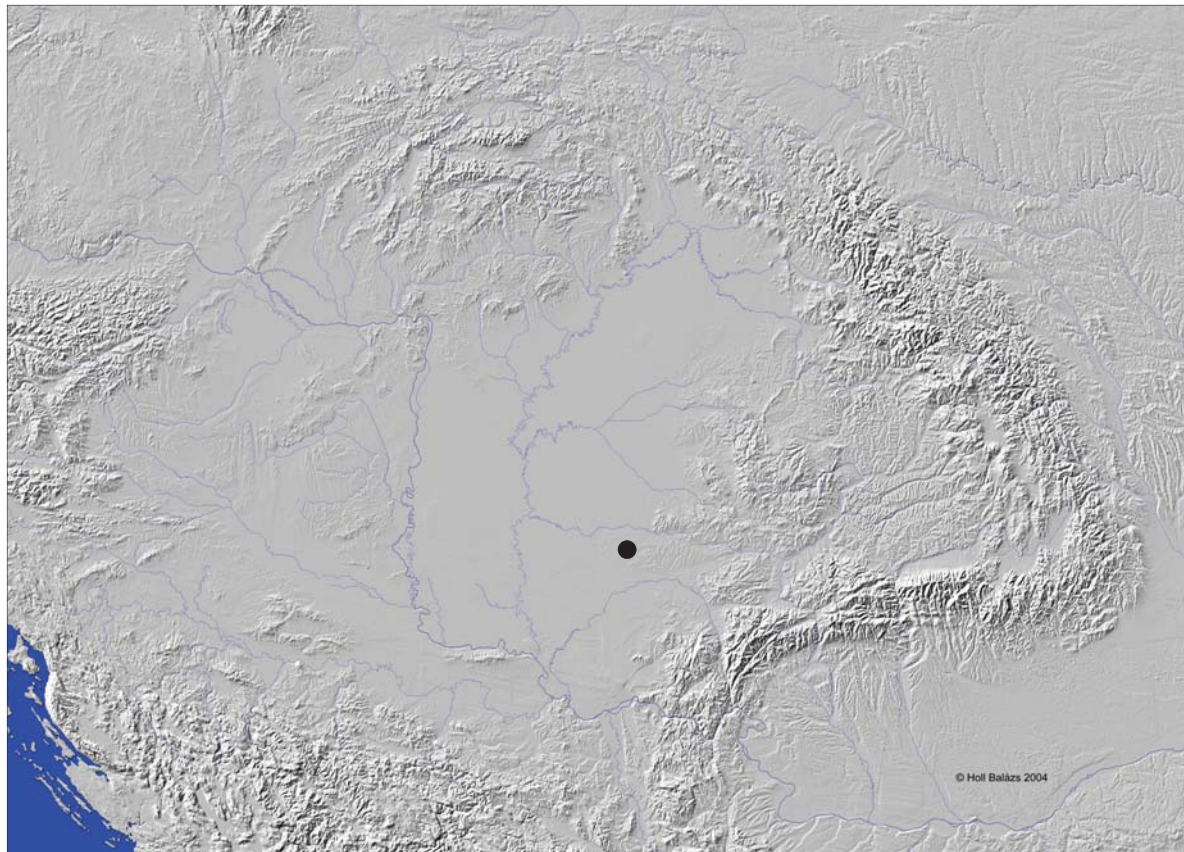
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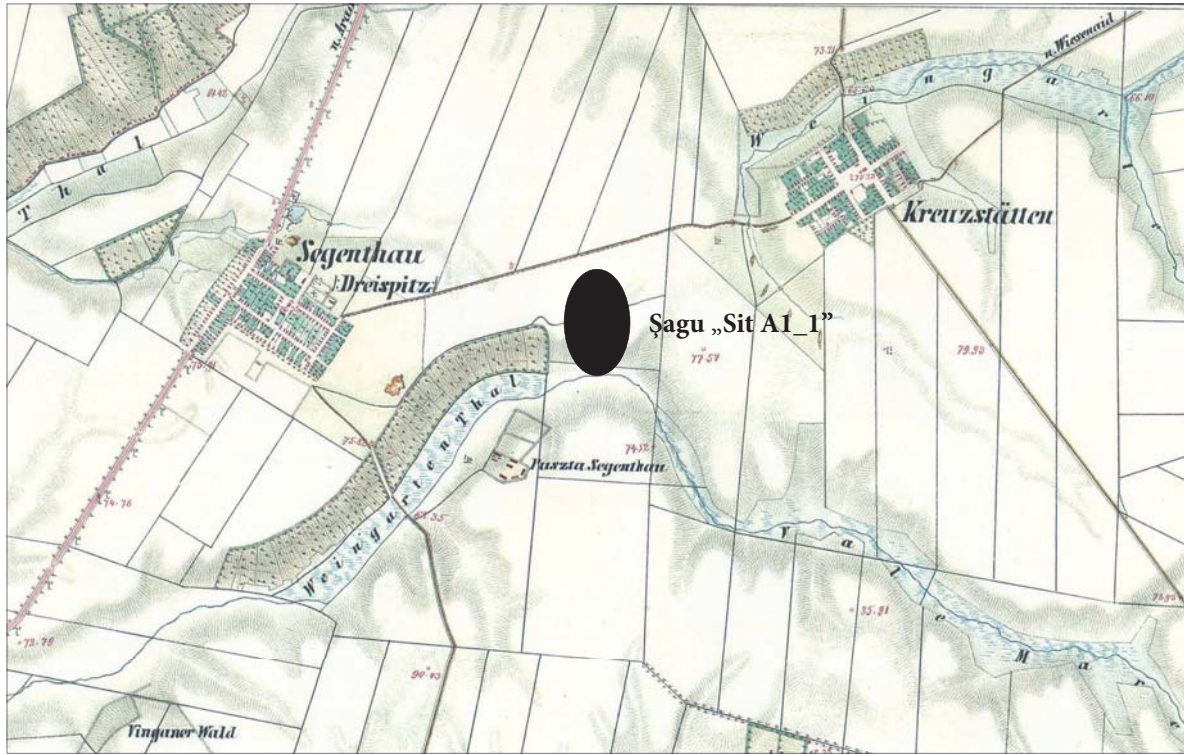


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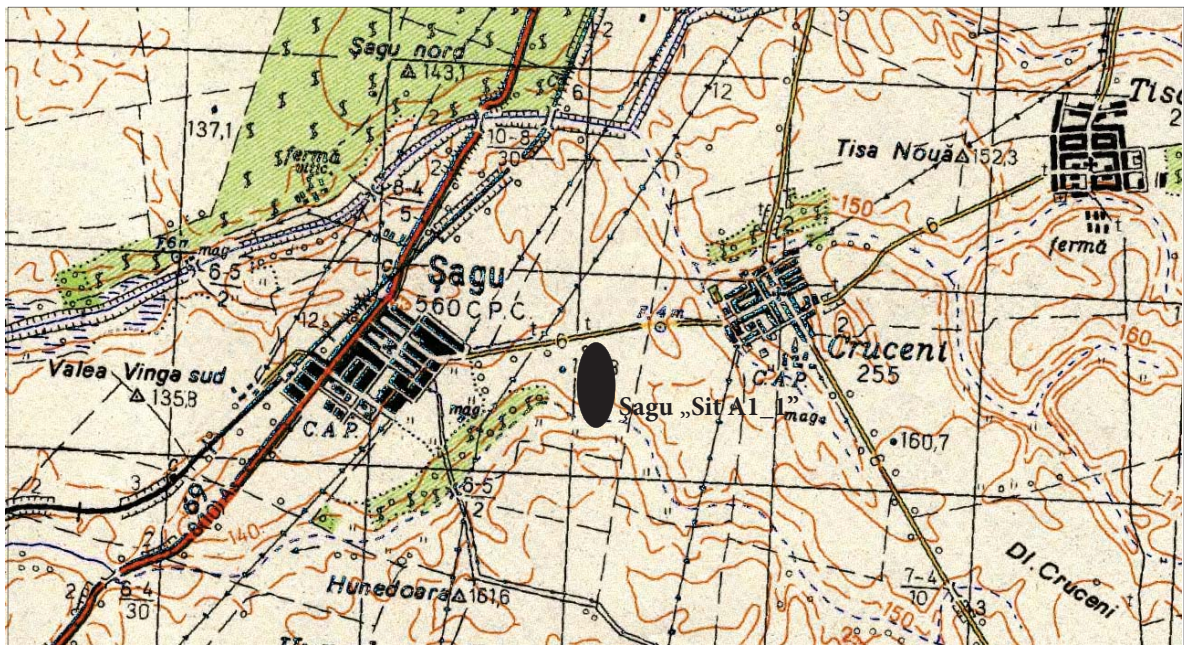


2

Plate 1. 1. Carpathian Basin map with the localization of the site „A1_1”; 2. Satellite image of the area Şagu-Cruceni with the localization of the site „A1_1” (source: Google Earth).



1



2

Plate 2. 1. XIXth century map of Şagu-Cruceni area with the localization of the site „A1_1”; 2. Şagu-Cruceni area map with the localization of the site „A1_1” (1:50.000).

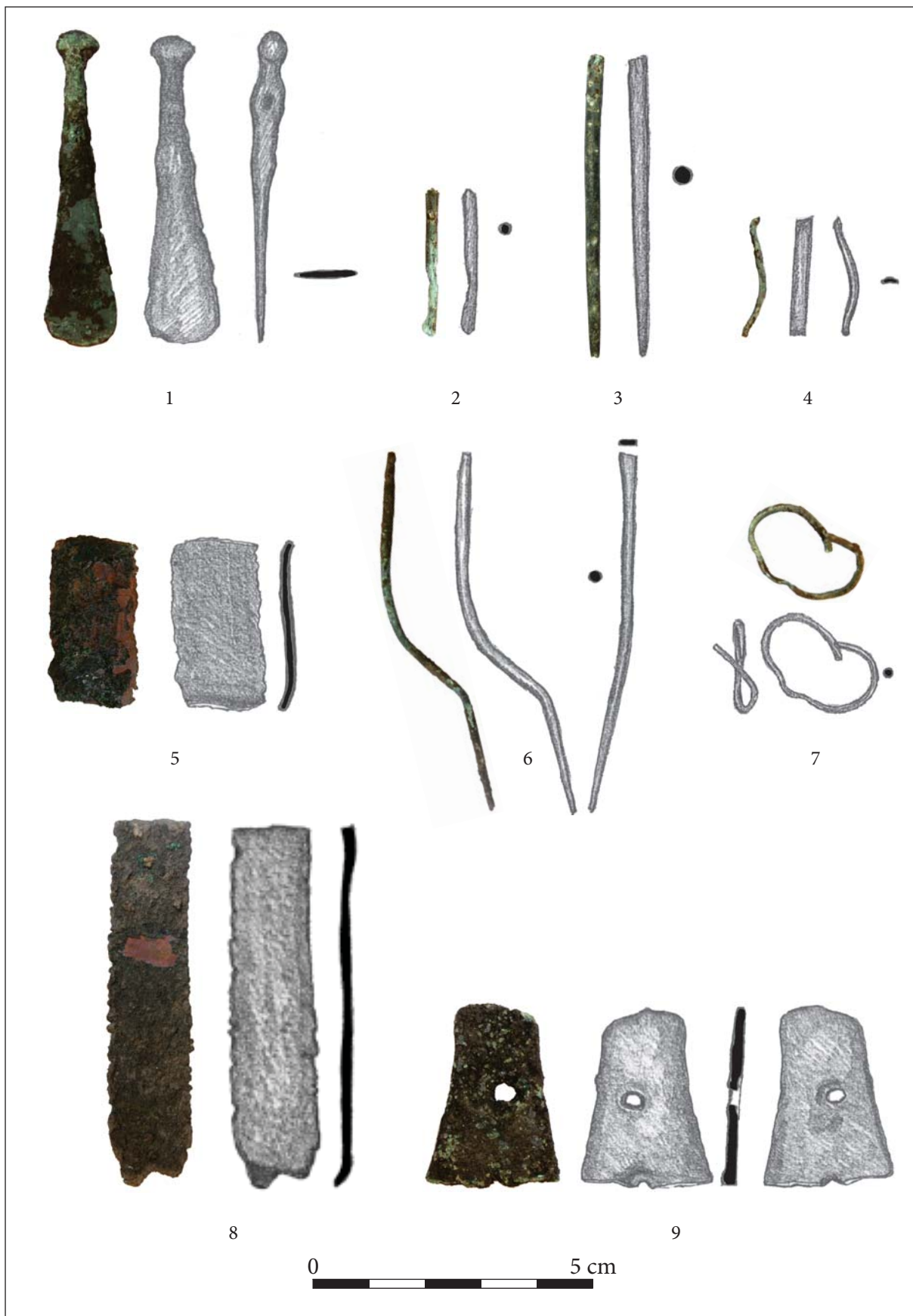


Plate 3. Bronze. 1. Cx_26; 2. Cx_33; 3. Cx_35; 4. Cx_40; 5. Cx_79; 6. Cx_84; 7. Cx_156; 8. Cx_170; 9. Cx_201.



Plate 4. Bronze. 1. Cx_230; 2-3. Cx_236; 4. Cx_291; 5. Cx_295; 6-10. Archaeological stratum.

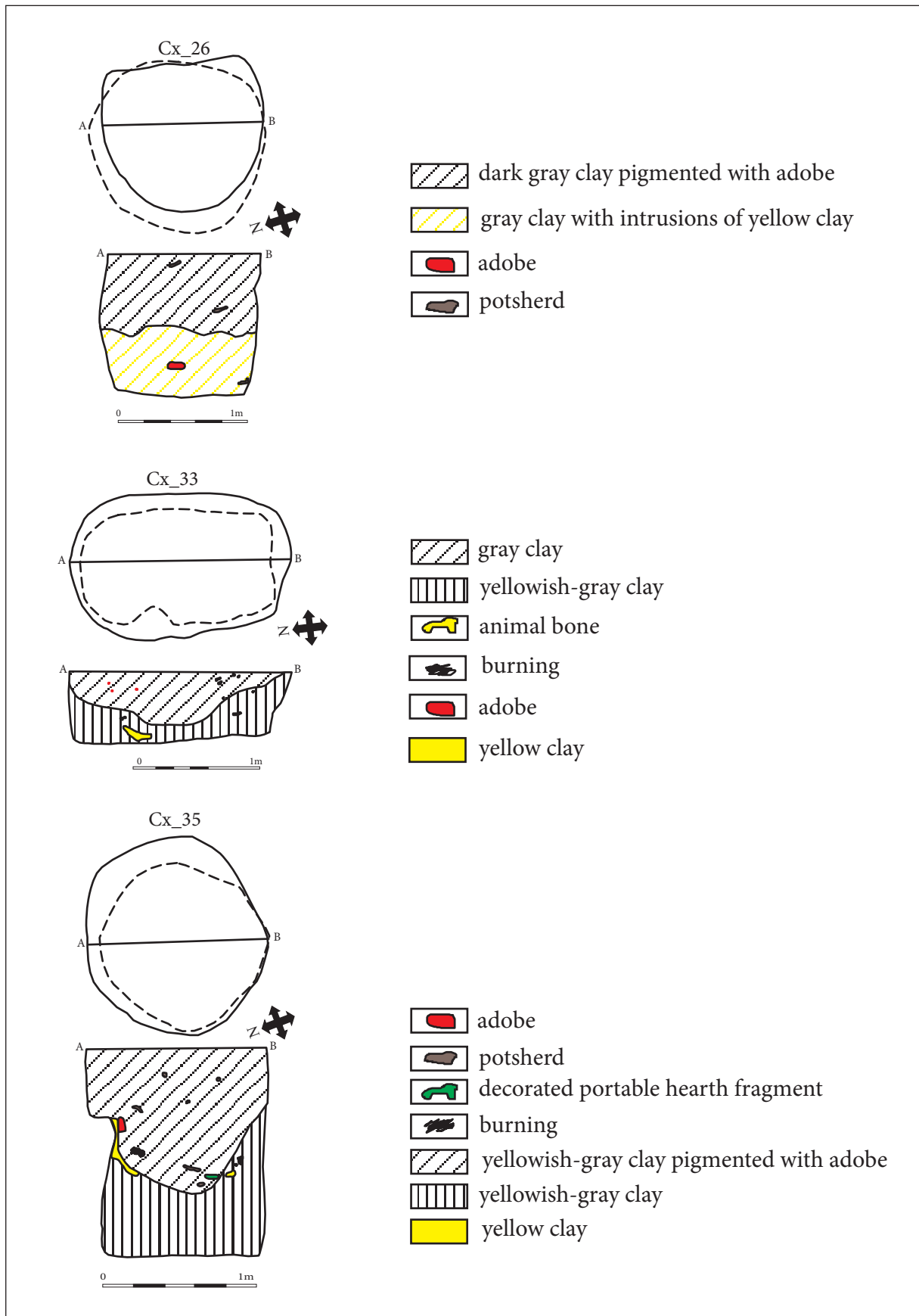


Plate 5. Drawings of the archaeological complexes 26, 33, 35.

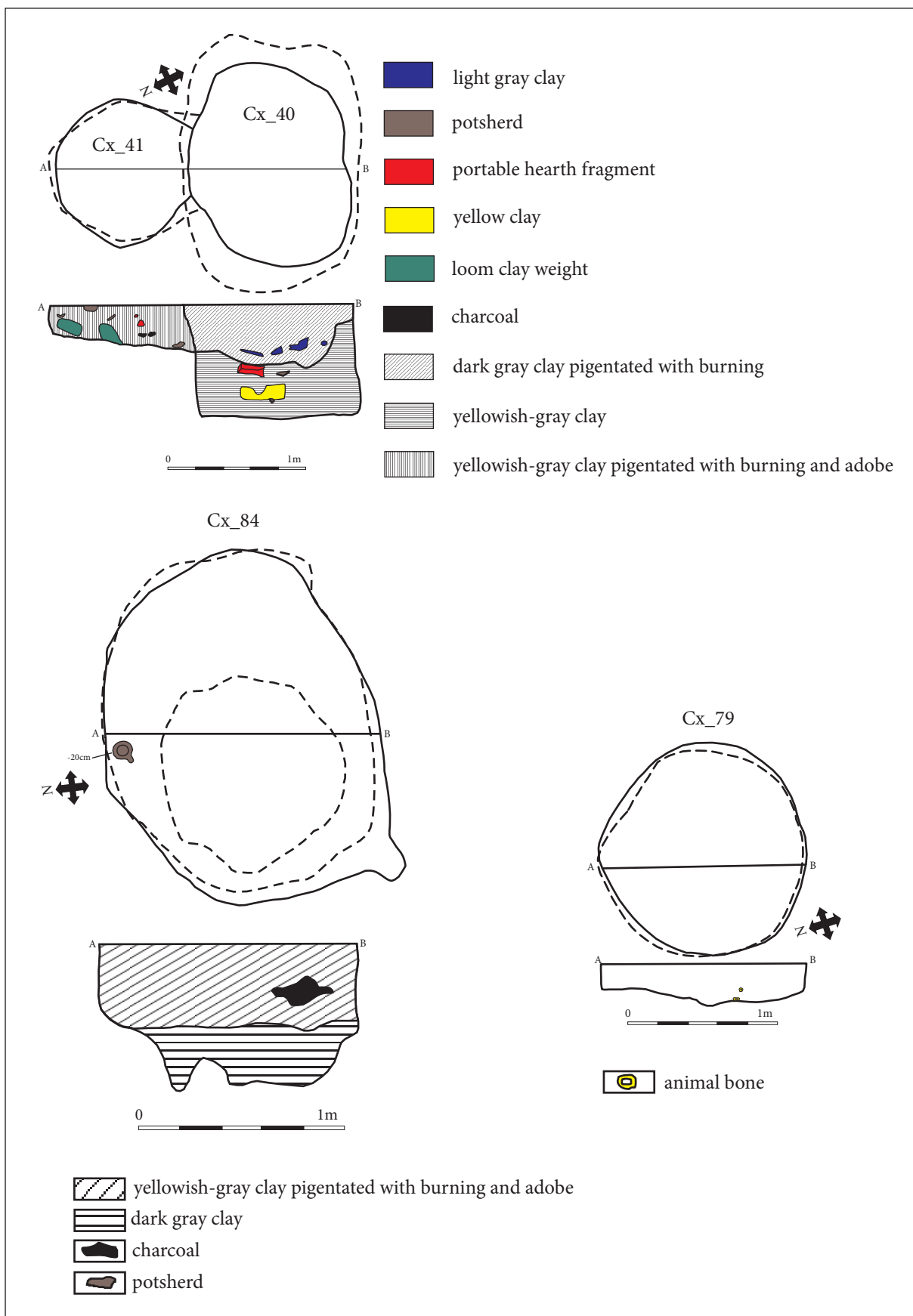


Plate 6. Drawings of the archaeological complexes 40/41, 79, 84.

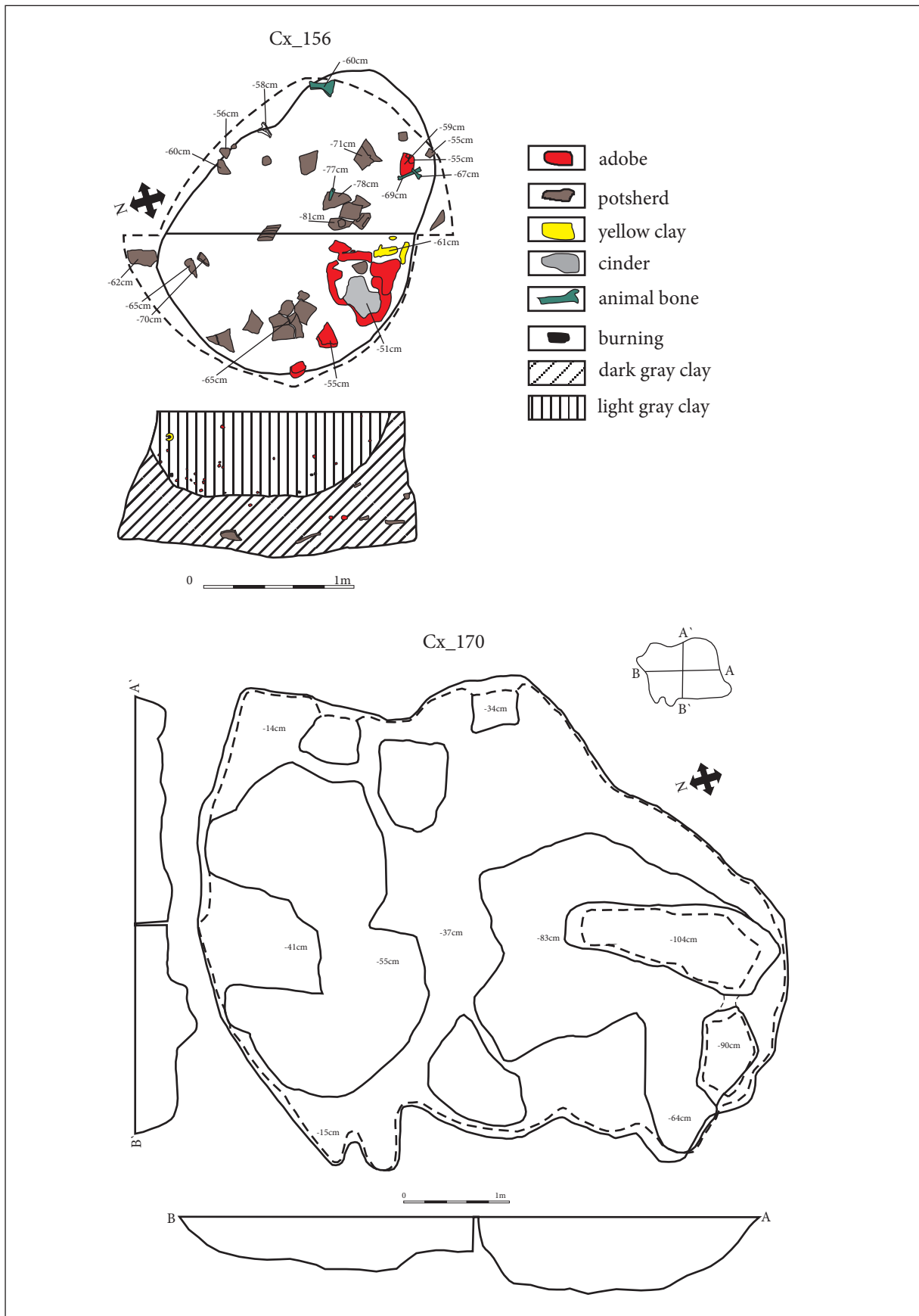


Plate 7. Drawings of the archaeological complexes 156, 170.

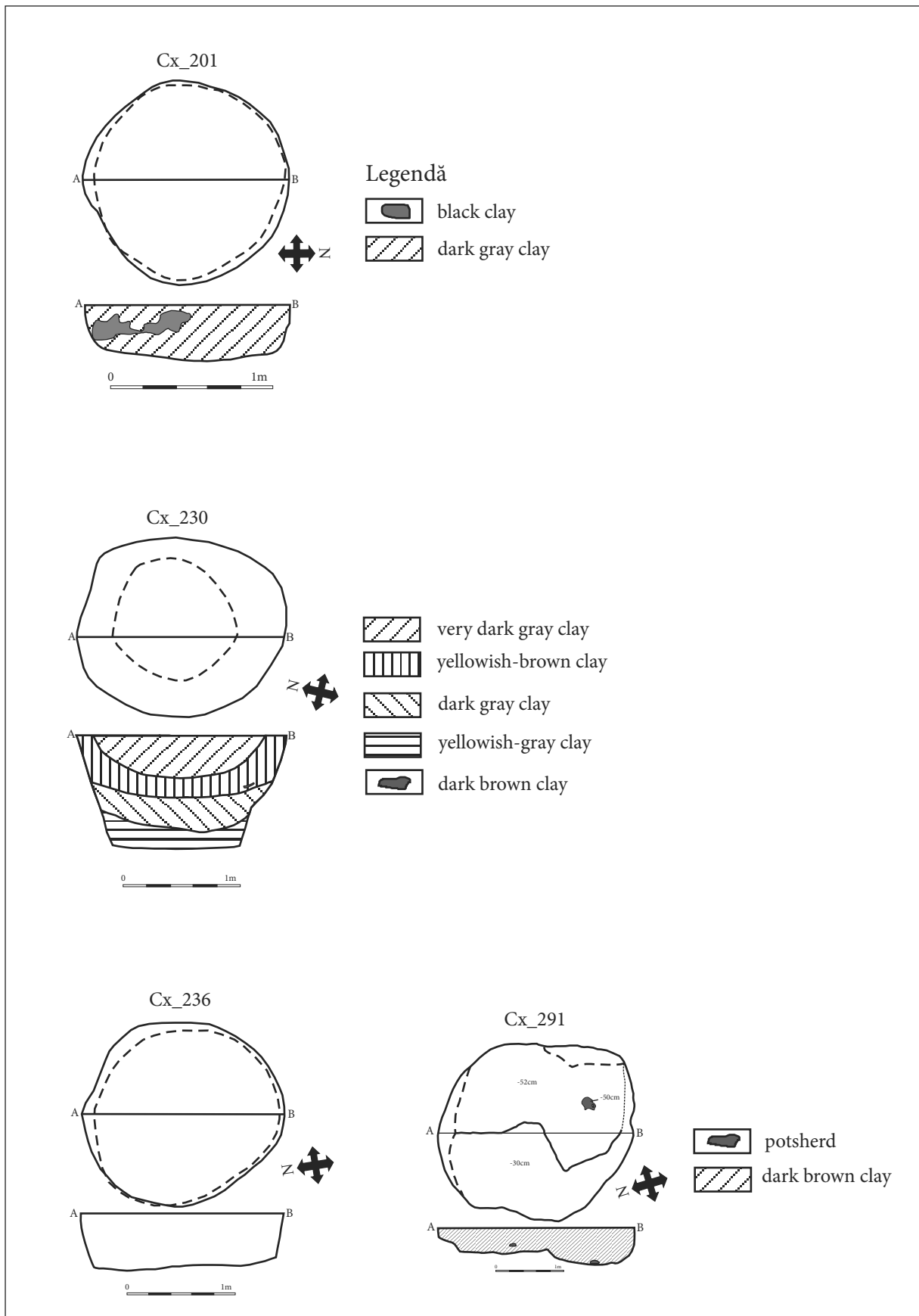


Plate 8. Drawings of the archaeological complexes 201, 230, 236, 291.

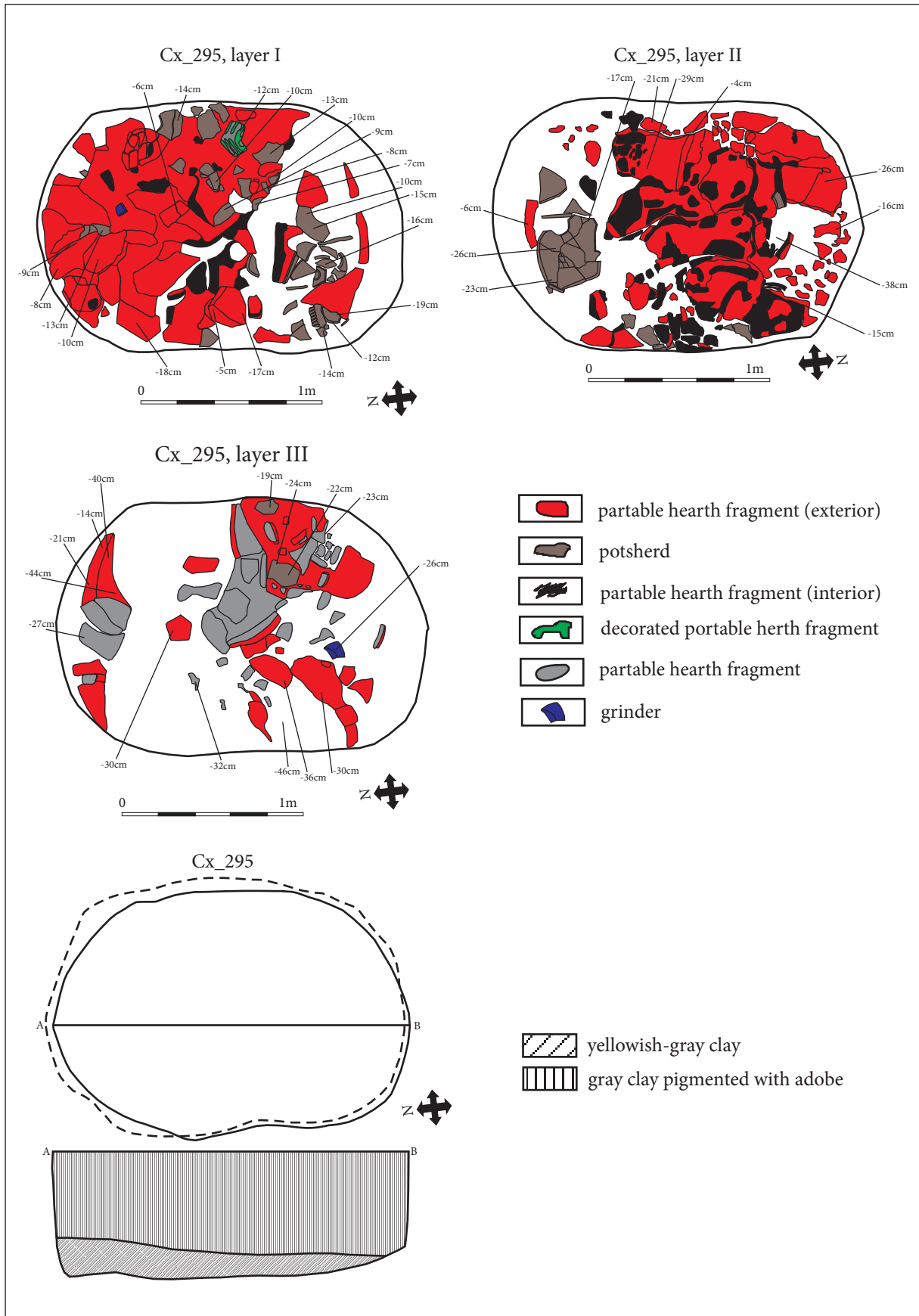


Plate 9. Drawings of the archaeological complexes 295.

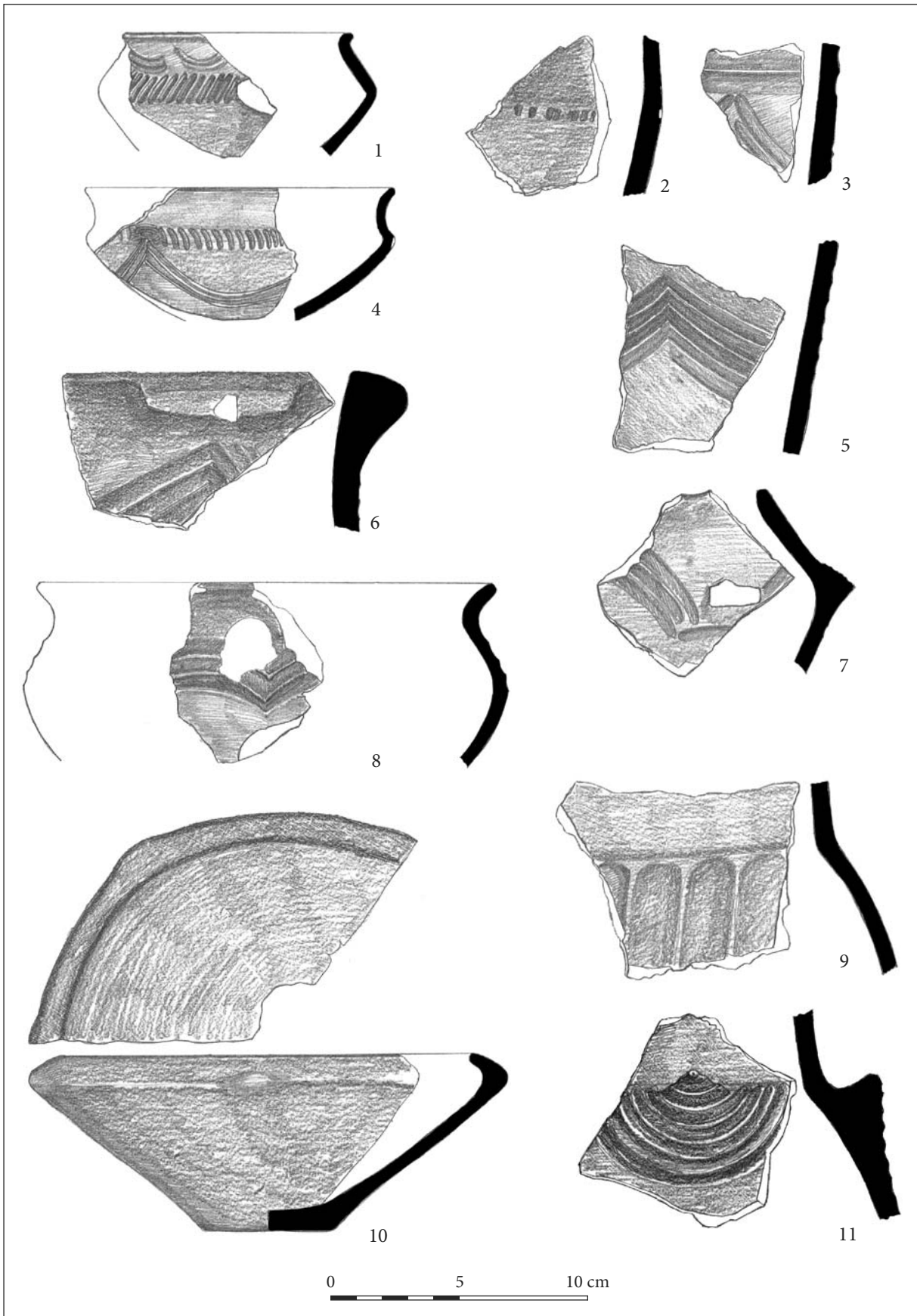


Plate 10. Pottery. Cx_26.

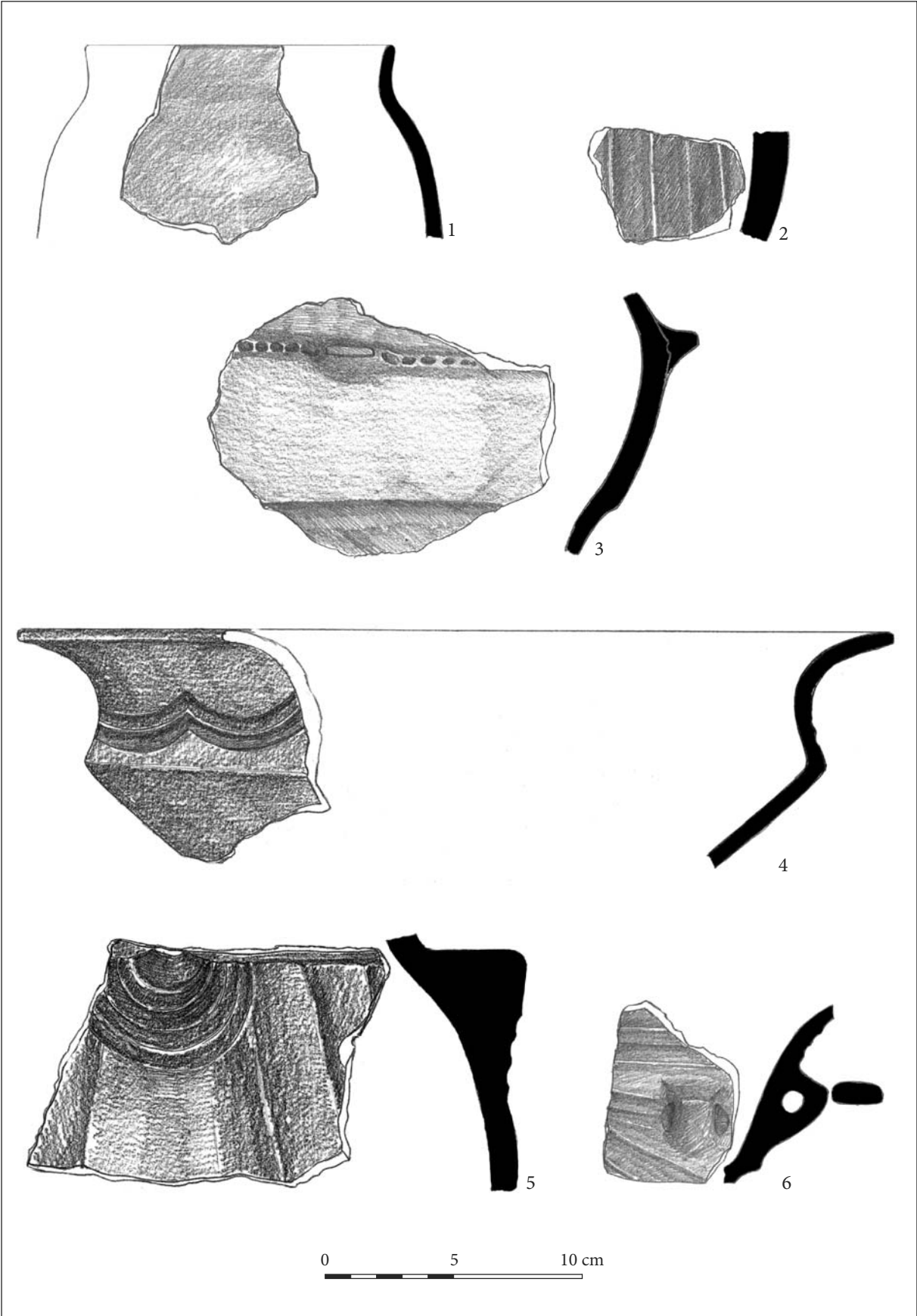


Plate 11. Pottery. 1-3. Cx_33; 4-6. Cx_35.

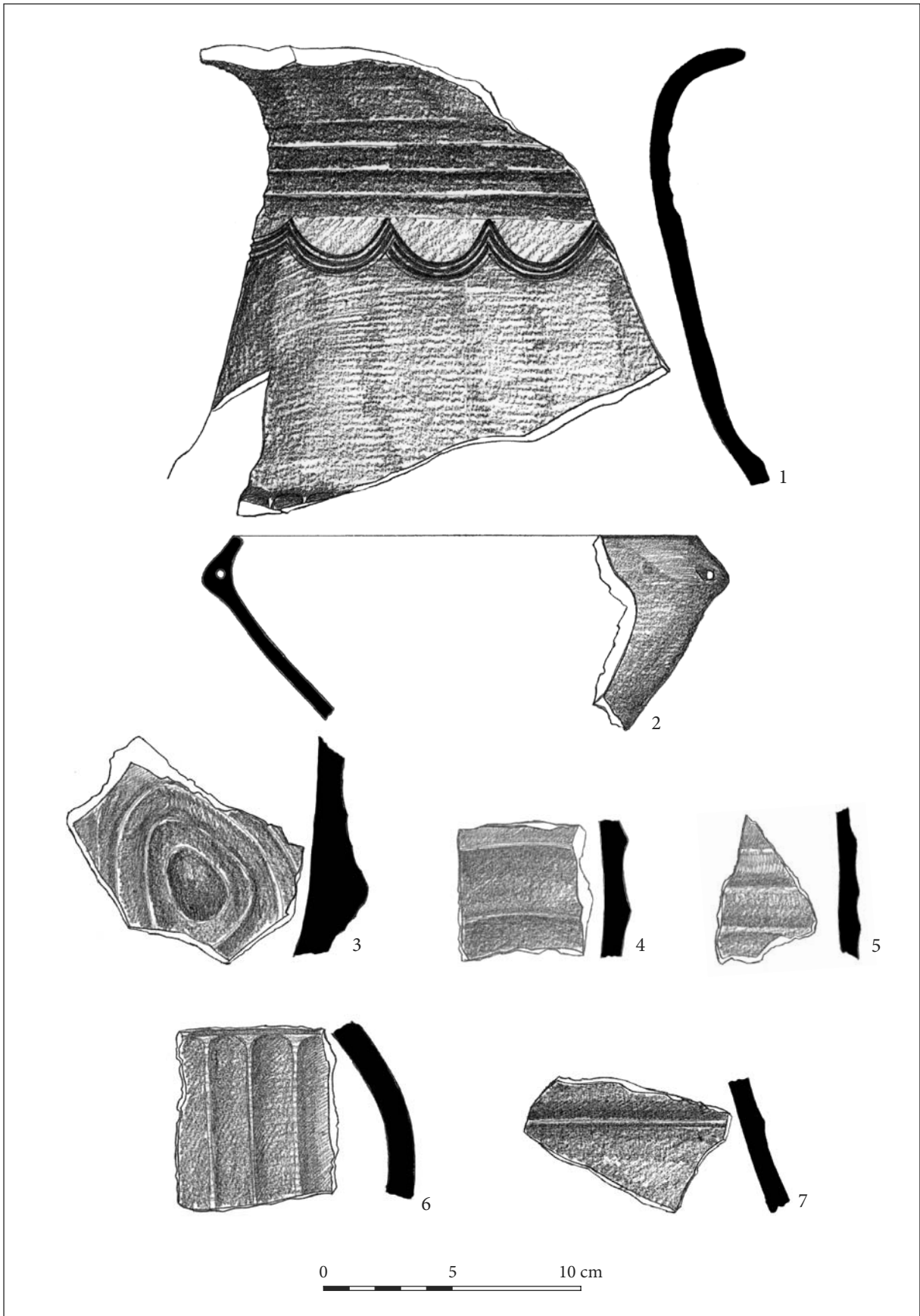


Plate 12. Pottery. 1. Cx_35; 3-5. Cx_40; 6. Cx_79; 7. Cx_84.

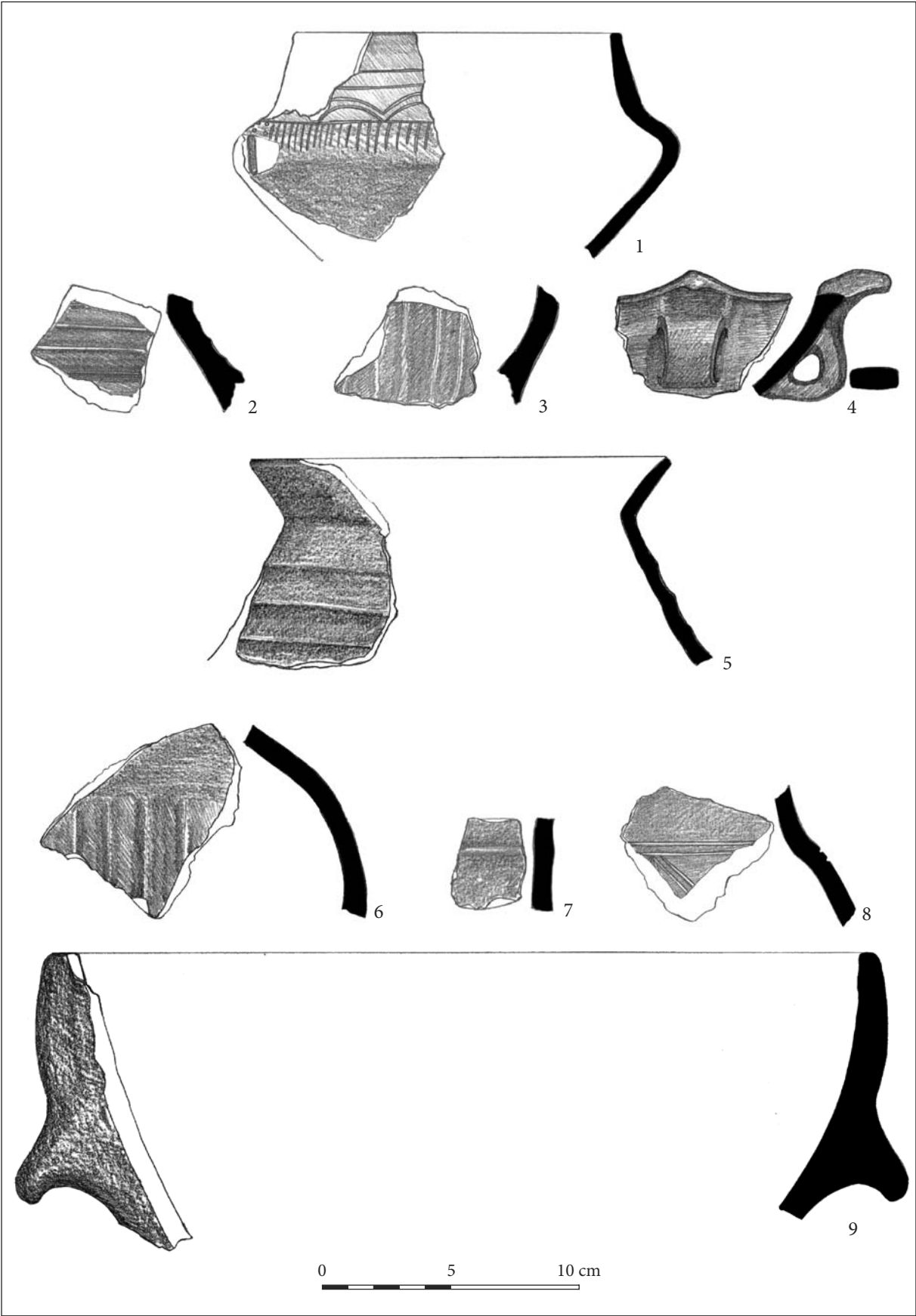


Plate 13. Pottery. 1-3. Cx_156; 4. Cx_170; 5-6. Cx_201; 7. Cx_230; 8-9. Cx_236.

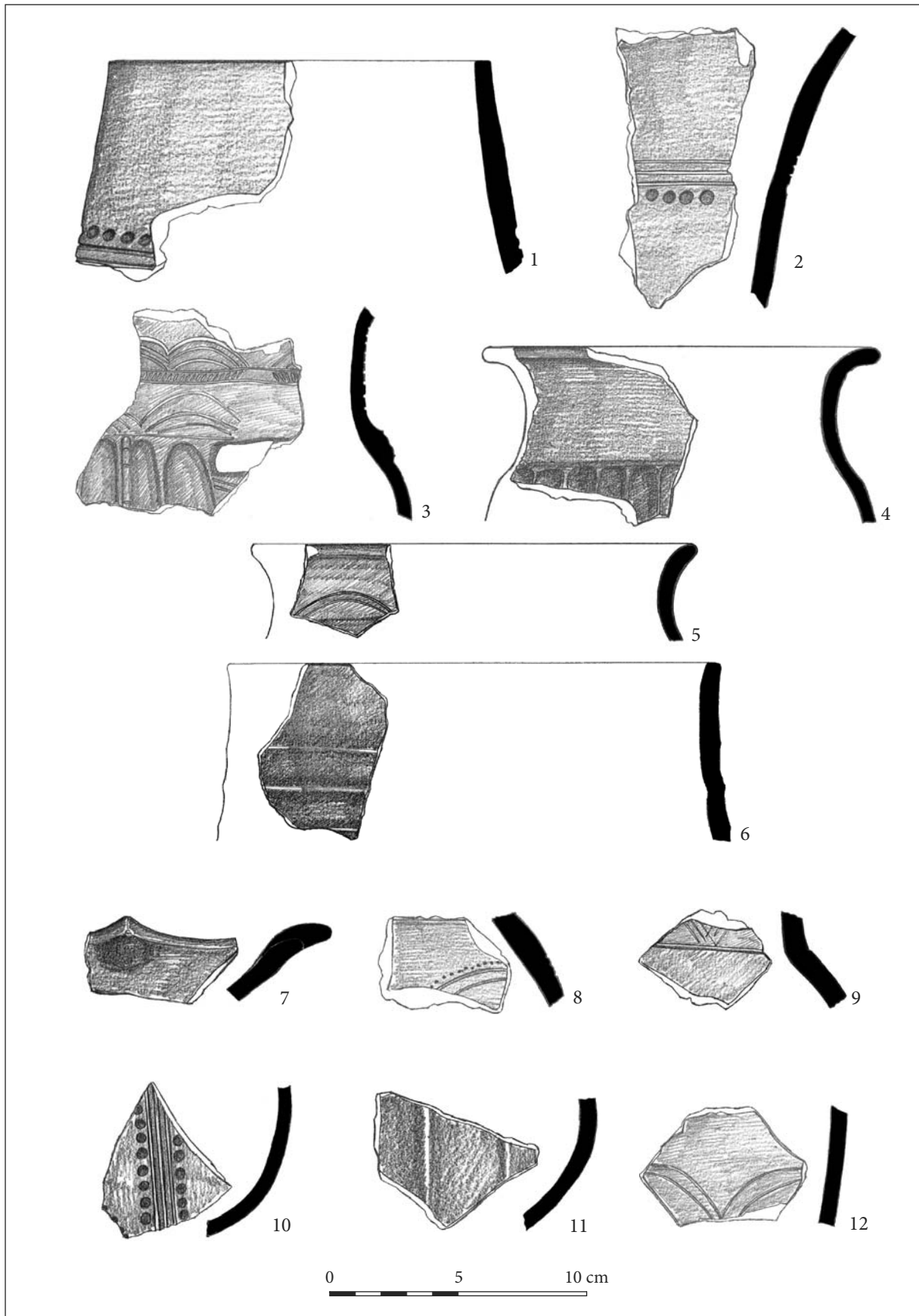


Plate 14. Pottery. 1-2. Cx_236; 3-12. Cx_291.